

# Table of Contents

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Introduction .....	3	Department of Biological Sciences .....	84
Admissions Information .....	6	Department of Chemistry .....	87
Recruiting .....	6	Department of Classical & Modern Languages and Literatures .....	90
Applications .....	6	Department of Communication .....	95
Entrance Requirements .....	6	Department of English .....	98
Freshman .....	6	Department of Geosciences .....	101
Special Non-Degree Classification .....	7	Department of History .....	105
Admission of Transfer Students .....	7	Department of Mathematics and Statistics .....	107
Admission of International Students .....	8	Department of Philosophy and Religion .....	109
Admission to Teacher Education .....	9	Department of Physics and Astronomy .....	111
Graduate Admissions .....	9	Department of Political Science and Public Administration .....	112
Legal Resident Status .....	10	Department of Psychology .....	115
Tuition and Required Fees (T&RF) .....	11	Department of Sociology .....	116
Student Account Management .....	11	Economics .....	121
General Information .....	11	Gender Studies Minor .....	122
Payments .....	11	Liberal Arts .....	123
Refunds .....	11	General Science .....	124
Financial Aid .....	12	Interdisciplinary Studies .....	125
How to Apply .....	13	Music .....	126
Policies .....	13	Pre-Professional Programs .....	129
Colleges and Degree Programs .....	15	College of Business .....	130
College of Agriculture and Life Sciences .....	16	Business Administration Major .....	132
Department of Agricultural and Biological Engineering .....	20	Department of Finance and Economics .....	133
Department of Agricultural Economics .....	23	Department of Management and Information Systems .....	136
Department of Animal and Dairy Sciences .....	25	Department of Marketing, Quantitative Analysis and Business Law .....	138
Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology .....	29	International Business Program .....	142
Department of Food Science, Nutrition and Health Promotion .....	34	Richard C. Adkerson School of Accountancy .....	145
Department of Landscape Architecture .....	41	College of Education .....	148
Department of Plant and Soil Sciences .....	44	Department of Counseling, Higher Education Leadership, Educational Psychology, and Foundations .....	152
Department of Poultry Science .....	52	Department of Teacher Education and Leadership .....	153
School of Human Sciences .....	54	Department of Industrial Technology, Instructional Design, and Community College Leadership .....	160
College of Architecture, Art, and Design .....	64	Department of Kinesiology .....	164
Building Construction Science .....	64	Department of Music .....	170
Department of Art .....	65	The James Worth Bagley College of Engineering .....	175
Interior Design .....	68	Dave C. Swalm School of Chemical Engineering .....	182
School of Architecture .....	70	Department of Aerospace Engineering .....	185
College of Arts & Sciences .....	74	Department of Agricultural and Biological Engineering .....	186
African American Studies .....	82	Richard A. Rula School of Civil and Environmental Engineering .....	189
Department of Anthropology and Middle Eastern Cultures .....	83	Department of Computer Science and Engineering .....	190

Department of Electrical and Computer Engineering .....	195	Classification of Students .....	260
Department of Industrial and Systems Engineering .....	198	Undergraduate Enrollment in Graduate Courses .....	260
Department of Mechanical Engineering .....	201	Recognition of Academic Achievement .....	260
College of Forest Resources .....	203	Graduation and Commencement .....	260
Department of Sustainable Bioproducts .....	204	Conduct and Discipline .....	261
Department of Forestry .....	206	Student Life .....	262
Department of Wildlife, Fisheries and Aquaculture .....	211	Student Housing .....	262
Shackouls Honors College .....	215	Services .....	262
College of Veterinary Medicine .....	217	Libraries .....	262
Office of Academic Affairs .....	221	Books and Supplies .....	263
College of Professional and Continuing Studies .....	228	University Dining Services .....	263
Center for Distance Education .....	229	John C. Longest Student Health Center .....	264
MSU-Meridian .....	230	International Services .....	264
Division of Arts and Sciences .....	231	Student Counseling Services .....	264
Division of Business .....	236	Computer-Based Testing Services .....	264
Division of Education .....	237	Center for Academic Excellence .....	264
Reserve Officers' Training Corps .....	240	The Career Center .....	265
Office of the Graduate School .....	243	The Holmes Cultural Diversity Center .....	265
Academic Opportunities .....	244	Information Technology Services .....	265
Cooperative Education Program .....	244	Student Support Services .....	266
Montgomery Leadership Program .....	244	Disability Resource Center .....	266
Day One Leadership Program .....	244	Student and Campus Life .....	266
Community-Engaged Learning Program .....	244	Colvard Student Union .....	266
National Student Exchange .....	245	The Student Association .....	266
Study Abroad .....	245	Student Publication .....	266
Scholarships .....	245	Student Organizations .....	266
Academic Policies .....	247	Fraternity and Sorority Life .....	267
Degrees, Degree Requirements, and Scheduling .....	247	Musical Organizations .....	267
General Education Requirements .....	248	Religion .....	267
Academic Records .....	253	University Recreation .....	268
Confidentiality and Disposal of Student Records .....	253	Intercollegiate Athletics .....	268
Student Access to Records .....	253	Course Descriptions .....	269
Procedures for Access .....	253	Index .....	540
Release of Directory Information .....	253		
Release of Educational Records .....	254		
Disciplinary Suspension and Expulsion .....	254		
Credits, Grades, and Standing .....	254		
Credit by Examination .....	255		
Grades and Quality Points .....	257		
Academic Standing .....	258		
Class Attendance .....	259		
Withdrawal .....	259		

# Introduction

## ONE-HUNDRED FORTY-FIRST ANNUAL BULLETIN

### Volume XCVIII

2023-2024

Mississippi State University is a comprehensive, doctoral degree granting, land-grant university. It forms part of a cohesive community with the growing city of Starkville, population 25,000. Located in the eastern part of north-central Mississippi, the university is 125 miles northeast of Jackson, 165 miles southeast of Memphis, and 150 miles west of Birmingham. It is served by U.S. Highway 82, state highways 12 and 25, and by commercial air service through Golden Triangle Regional Airport, 14 miles east of campus.

Mississippi State University is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award baccalaureate, masters, specialist, and doctoral degrees. Questions about the accreditation of Mississippi State University may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website ([www.sacscoc.org](http://www.sacscoc.org) (<http://www.sacscoc.org>)).

Mississippi State University comprises the following academic units: the College of Agriculture and Life Sciences, including the School of Human Sciences; the College of Architecture, Art, and Design, including the School of Architecture; the College of Arts and Sciences; the College of Business, including the Richard C. Adkerson School of Accountancy; the James Worth Bagley College of Engineering, including the Swalm School of Chemical Engineering and the Richard A. Rula School of Civil and Environmental Engineering; the College of Forest Resources; the College of Veterinary Medicine; the College of Education; the Graduate School; the Judy and Bobby Shackouls Honors College; and the College of Professional and Continuing Studies. Four regional research and extension centers representing both the Mississippi Agricultural and Forestry Experiment Station (MAFES) and the Mississippi State University Extension Service are located in different parts of the state. MAFES conducts research at 16 off-campus sites throughout the state. The Mississippi State University Extension Service offers programs and services in all 82 counties of Mississippi. Supporting the academic and educational programs of the total university are the Mitchell Memorial Library and branch libraries.

Mississippi State University operates off-campus sites with undergraduate and graduate programs in Meridian, Miss., as well as the School of Architecture's fifth-year program in Jackson, Miss.

Several centers and institutes perform specialized teaching, research or service activities. Among these are the Alliance for System Safety of UAS Through Research Excellence (ASSURE); Center for Cyber Innovation; Institute for Market Studies; Institute for Systems Engineering Research (ISER); Institute for Computational Research in Engineering and Science (ICRES); Center for Safety and Health; High Performance Computing Collaboratory; Mississippi State Chemical Lab (MSCL); National Strategic Planning and Analysis Research Center (nSPARC); Research and Curriculum Unit; Institute for Imaging and Analytical Technologies; Carl Small Town Center; Gulf Coast Community Design Studio; Biological and Physical Sciences Research Institute; Center for Computational Sciences; Cobb Institute of Archaeology; Institute for the Humanities; Stennis Institute of Government and Community

Development; Center for Family Enterprise Research; Center for Entrepreneurship and Outreach; Center for Retail and Cotton Product Development; Center for Educational Partnerships; Early Childhood Institute; Mississippi Writing/Thinking Institute; National Research and Training Center on Blindness and Low Vision; T.K. Martin Center for Technology and Disability; Center for Advanced Vehicular Systems (CAVS) and CAVS Extension; Center for Computer Security Research (CCSR); High Voltage Laboratory; Institute for Clean Energy Technology (ICET); Raspet Flight Research Laboratory (RFRL); Forest and Wildlife Research Center; Extension Service; Center for Governmental and Community Development; Southern Rural Development Center; Center for Environmental Health Sciences; Energy Institute; Geosystems Research Institute (GRI); Institute for Genomics, Biocomputing and Biotechnology (IGBB); International Institute; Mississippi Water Resources Research Institute; Northern Gulf Institute (NGI); Social Science Research Center (SSRC); Sustainable Energy Research Center (SERC); Center for Cyber Education; Agricultural Autonomy Institute; and Marvin B. Dow Advanced Composites Institute (ACI).

Mississippi State has completed or initiated capital improvements totaling more than \$1.2 billion since 2009. These projects include new student residence halls, academic classroom buildings, teaching and research laboratories, a student veterans' center, athletic venues, dining facilities, a United States presidential library, a conference and convention center, and roadways, sidewalks, parking garages, and other essential infrastructure.

The university began as the Agricultural and Mechanical College of the State of Mississippi, one of the national land-grant colleges established after Congress passed the Morrill Act in 1862. It was created by the Mississippi Legislature on February 28, 1878, to fulfill the mission of offering training in agriculture, horticulture and the mechanical arts . . . without excluding other scientific and classical studies, including military tactics. The College received its first students in the fall of 1880 in the presidency of Stephen D. Lee. In 1887, Congress passed the Hatch Act, which provided for the establishment of the Agricultural Experiment Station in 1888. Two other pieces of federal legislation provided funds for extending the mission of the College: in 1914, the Smith-Lever Act called for instruction in practical agriculture and home economics to persons not attendant or resident, thus creating the state-wide effort which led to Extension offices in every county in the State; and, in 1917, the Smith-Hughes Act provided for the training of teachers in vocational education.

By 1932, when the Legislature renamed the College as Mississippi State College, it consisted of the Agricultural Experiment Station (1887), the College of Engineering (1902), the College of Agriculture (1903), the School of Industrial Pedagogy (1909), the School of General Science (1911), the College of Business and Industry (1915), the Mississippi Agricultural Extension Service (1915), and the Division of Continuing Education (1919). Further, in 1926 the College had received its first accreditation by the Southern Association of Colleges and Schools. By 1958, when the Legislature again renamed the institution, as Mississippi State University, the Office of the Graduate School had been organized (1936), doctoral degree programs had begun (1951), the School of Forest Resources had been established (1954), and the College of Arts and Sciences had been created (1956). The College of Architecture admitted its first students in 1973. The College of Veterinary Medicine admitted its first class in 1977, and the School of Accountancy was established in 1979.

## Past Presidents of the College/University

- a. Stephen D. Lee (1880-1899)
- b. John Marshall Stone (1899-1900)
- c. John Crumpton Hardy (1900-1912)
- d. George Robert Hightower (1912-1916)
- e. William Hall Smith (1916-1920)
- f. David Carlisle Hull (1920-1925)
- g. Buz M. Walker (1925-1930)
- h. Hugh Critz (1930-1934)
- i. George Duke Humphrey (1934-1945)
- j. Fred Tom Mitchell (1945-1953)
- k. Benjamin F. Hilbun (1953-1960)
- l. Dean W. Colvard (1960-1966)
- m. William L. Giles (1966-1976)
- n. James D. McComas (1976-1985)
- o. Donald W. Zacharias (1985-1997)
- p. Malcolm Portera (1998-2001)
- q. J. Charles Lee (2001-2006)
- r. Robert H. Foglesong (2006-2008)

## Vision and Mission Statements

### Vision

At Mississippi State, we're redefining the role of a land-grant university. We provide an innovative, hands-on learning experience, meeting all students where they are and equipping them for a world that needs their talent. We're working to help our communities prosper while exploring cutting-edge solutions to the world's biggest challenges. Together, we're taking care of what matters in the 21st century — starting in our own backyard.

<https://www.president.msstate.edu/communications/vision-mission/>

### Mission

Mississippi State University is a public research, land-grant university with a mission to provide access and opportunity to all sectors of Mississippi's diverse population, as well as other states and countries, and to offer excellent programs of teaching, research, and service.

Mississippi State University offers a comprehensive range of undergraduate, graduate, and professional programs across many disciplines.

The university embraces its role as a major contributor to the economic development of the state and beyond through targeted research and the transfer of ideas and technology to the public, supported by faculty, staff, students, and alumni relationships with industry, community organizations, and government entities.

Mississippi State University is committed to its tradition of instilling among its community ideals of diversity, citizenship, leadership, and service.

Building on its land-grant tradition, Mississippi State University strategically extends its resources and expertise for the benefit of Mississippi's citizens, the nation, and the world by offering access for working and place-bound learners through its on- and off-campus

education and research sites, Extension, and distance education programs.

## President's Cabinet / Officers of the University

Name	Title
MARK E. KEENUM, Ph.D.	President of the University
DAVID R. SHAW, Ph.D.	Provost and Executive Vice President
KEITH H. COBLE, Ph.D.	Vice President for Agriculture, Forestry, and Veterinary Medicine
REGINA Y. HYATT, Ph.D.	Vice President for Student Affairs
JOHN P. RUSH	Vice President for Development and Alumni
JULIE JORDAN, Ph.D.	Vice President for Research and Economic Development
LES POTTS	Interim Vice President for Finance and Administration and Chief Financial Officer
JOAN L. LUCAS	General Counsel
RA'SHEDA BODDIE-FORBES	Vice President for Access, Diversity, and Inclusion
ZAC SELMON	Director of Athletics

## Academic Deans

Name	Title
DAVID R. SHAW, Ph.D.	Provost and Executive Vice President
TERESA JAYROE, Ph.D.	Dean of the College of Education
TERRY D. CRUSE, Ph.D.	Associate Vice President and Head of Campus, MSU-Meridian
PETER RYAN, Ph.D.	Executive Vice Provost and Dean of the Graduate School
LIS PANKL, Ph.D.	Dean of Libraries
RICKEY TRAVIS, Ph.D.	Dean of the College of Arts and Sciences
NICHOLAS FRANK, Ph.D., DACVIM	Dean of the College of Veterinary Medicine
WES BURGER, Ph.D.	Dean of the College of Forest Resources
SCOTT WILLARD, Ph.D.	Dean of the College of Agriculture and Life Sciences
JASON M KEITH, Ph.D.	Dean of the Bagley College of Engineering
SCOTT GRAWE, Ph.D.	Dean of the College of Business
TOMMY ANDERSON, Ph.D.	Dean of the Shackouls Honors College
ANGI BOURGEOIS, Ph.D.	Dean of the College of Architecture, Art and Design
SUSAN SEAL, Ph.D.	Dean of the College of Professional and Continuing Studies

## **Board of Trustees of State Institutions of Higher Learning**

### **State of Mississippi**

#### **Officers of the Board**

<b>Name</b>	<b>Title</b>
ALFRED MCNAIR, JR.	President
ALFRED RANKINS, JR, PhD	Commissioner

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The Board maintains offices at 3825 Ridgewood Road, Jackson, Mississippi.

# Admissions Information

## Disclaimer

Until further notice, the admission information contained in this Bulletin most accurately describes the admissions policies, regulations, requirements and procedures of the University and the Board of Trustees of Institutions of Higher Learning. The University reserves the right to delete, substitute, change or supplement any statement in this Bulletin without prior notice.

## Recruiting

### Recruiting

Admissions counselors visit high schools and community/junior colleges to assist students in making a smooth transition to Mississippi State University by answering questions about admissions, financial aid, scholarships, university student housing, academic programs, and student life. Prospective students and their families are encouraged to visit the campus, to meet students and professors, and to get an overall feel of MSU. To schedule a campus visit, go to [www.admissions.msstate.edu](http://www.admissions.msstate.edu) (<http://www.admissions.msstate.edu>).

For additional information, please visit [admissions.msstate.edu](http://admissions.msstate.edu) (<http://admissions.msstate.edu>) or email [admit@msstate.edu](mailto:admit@msstate.edu).

### Orientation

All new students (freshmen and transfers) entering the university are encouraged to attend an orientation session. Orientation offers a variety of informational sessions for both parents and students alike. Students participate in interactive group sessions, meet with an Orientation Leader, register for classes, and get to know other incoming students, all while becoming familiar with services and opportunities available at the university. Orientation is a celebration that welcomes all new students and their parents into the Bulldog family! Learn more at <http://orientation.msstate.edu> or email us at [orientation@msstate.edu](mailto:orientation@msstate.edu). ([orientation@msstate.edu](mailto:orientation@msstate.edu))

## Applications

For consideration for admission for the fall term, freshmen and transfer applications should be received by August 1. Some departments may have early application deadlines. Contact the specific department for dates.

All applicants must submit a \$40 non-refundable application fee. The application for admission cannot be processed until this fee is received.

Mississippi State University may void enrollment in the following situations: if an original transcript is not received; if a student is not eligible for readmission to any college formerly attended; or if any document is fraudulent or altered.

Applicants may meet general admission requirements to the University and not meet the requirements for a specific department. Applicants should contact the academic department to which they are applying for additional requirements.

The Office of Admissions and Scholarships is responsible for administering admission policies. For admission information or to inquire further about university admission requirements, contact the Office

of Admissions and Scholarships, Mississippi State University, P.O. Box 6334, Mississippi State, MS 39762. Telephone: (662) 325-2224. Fax: (662) 325-1678 (1MSU). E-mail: [admit@msstate.edu](mailto:admit@msstate.edu). Students may apply online by visiting [www.admissions.msstate.edu](http://www.admissions.msstate.edu) (<http://www.admissions.msstate.edu>). All applications may be submitted electronically.

## Entrance Requirements

There are several paths applicants may take to admission. Students may enter as a freshman (p. 6), a transfer student (p. 7), or one of the other student types listed here ([http://catalog.msstate.edu/undergraduate/admissionsinformation/entrancerequirements/List\\_of\\_Applicant\\_Types\\_Defined\\_7-12-23.pdf](http://catalog.msstate.edu/undergraduate/admissionsinformation/entrancerequirements/List_of_Applicant_Types_Defined_7-12-23.pdf)). There are also additional admissions requirements for international students (p. 8), Teacher Education undergraduate students (p. 9), and graduate students (p. 9).

## Freshman

### Regular Admission.

- Submit application for admission.
- Submit a \$40 non-refundable application fee.
- Must have graduated or will graduate from an approved secondary school.
- Request that official ACT or SAT scores be sent to Mississippi State University directly from the testing agency. MSU's ACT code is 2220 and the SAT code is 1480. (*The writing test of the ACT and SAT are not considered for admission or scholarship awarding purposes.*)
- Submit a six-semester (9th - 11th grade) high school transcript to Mississippi State University, as well as an official transcript upon graduation from high school. If the applicant has attended another college, he/she must request those transcripts be sent to the Office of Admissions and Scholarships. Faxed transcripts will not be accepted.
- Must satisfactorily complete, at minimum, the number of units as shown in the Policies and Bylaws as set forth by the Board of Trustees, Institutions of Higher Learning State of Mississippi at <http://www.mississippi.edu/board/downloads/policiesandbylaws.pdf>

Full admission to Mississippi State University for non-residents of Mississippi will be granted to high school graduates who complete the required high school courses with one of the following

- A minimum 2.50 grade-point average, composite score of 20 or higher on the ACT, or the equivalent SAT score; or
- Student-athletes who satisfy the National Collegiate Athletic Association standards and who are full qualifiers or academic redshirts under Division I guidelines are exempt from the above requirement.

Mississippi residents who apply and fail to meet full admission standards as listed above may, as a result of review, be admitted to the fall or summer term, provided that application materials are received prior to the first summer session. The review shall involve a consideration of high school performance, ACT/SAT scores, placement testing, and special interests and skills, as well as other non-academic factors.

Entering freshmen who have both a high school grade-point average of less than 2.5 on the college preparatory curriculum and a composite ACT score of less than 21 will be placed in the undecided major and will be

advised by the University Academic Advising Center until 30 credit hours of core classes have been completed.

Students with an ACT English subscore of 17 or lower (or the equivalent SAT score) will be required to successfully complete EN 0103 Basic English before advancing to the English Composition sequence (EN 1103 and EN 1113). Students with an ACT Math subscore of 18 or lower (or the equivalent SAT score) will be required to take MA 0103 Intermediate Algebra before advancing on to math requirements within the chosen degree program.

A student-athlete must meet the requirements of the Southeastern Conference and the National Collegiate Athletic Association (NCAA).

Mississippi State University neither awards credit nor accepts transfer-college-credit based solely on ACT, SAT, or other comparable tests commonly administered to high school students primarily for college admissions purposes. Documents and other proof that students have met the University entrance requirements are kept on file in the Office of Admissions and Scholarships, Room 101, Montgomery Hall.

### Admission with Deficiencies.

Mississippi residents who apply and have not demonstrated adequate readiness in English or Reading or Mathematics will be granted Full Admission with Academic Deficiencies to the Summer Developmental Program. This is an intensive program that concentrates on high school subject areas (English, Reading, and Mathematics) that are applicable to success in first-year college courses. These remedial courses neither count toward a degree nor are they computed in a student's grade point average. Students who successfully complete the summer program by passing English, developmental Mathematics, developmental Reading and the Learning Skills Laboratory courses will receive admission to the fall term with mandatory participation in the year-long Academic Support Program. Students who fail to successfully complete the Summer Developmental Program are not eligible for enrollment in the regular academic year and will be counseled to explore other post-secondary opportunities, including those offered by community colleges.

### Home Schooled.

Home schooled applicants are required to meet the same requirements as other freshman applicants. Official ACT/SAT scores and transcripts (or portfolios) are required.

### Special Program for Academically Talented Students (SPATS).

Academically talented students who (a) have finished at least their junior year in high school, as judged by their high school officials, (b) in the judgment of parents and high school administrators are mature enough to profit from college work, and (c) have a standard composite score of 24 on the American College Test, may apply for admission as a SPATS student to earn regular college credit.

SPATS students may take courses during the spring, summer, or fall term. Students are expected to return to high school and finish their senior year. The courses may not be substituted for high school credits to meet college admission requirements. Credit is reserved until the student has graduated from high school. Information concerning the program and application forms may be obtained at <http://www.admissions.msstate.edu> or by writing to: SPATS, Office of Admissions and Scholarships, P.O. Box 6334, Mississippi State, MS, 39762.

SPATS students who apply for admission as a full time student for term following their date of high school graduation will be granted a waiver of the admission application fee.

### Admission by Examination.

An applicant who has not graduated from high school may substitute the state approved high school equivalency examination for the requirement of high school graduation. The approved high school equivalency exam will substitute for the requirement of high school graduation only, and not for the other requirements for freshman admission. Therefore, applicants who took an approved high school equivalency exam must submit an acceptable ACT/SAT score. Applicants who hold an approved high school equivalency exam and who do not meet other requirements for freshman admission may enroll at Mississippi State as transfers after meeting the normal requirements for transfer admission from another regionally accredited institution.

### Admission to the College of Veterinary Medicine.

(See College of Veterinary Medicine section)

## Special Non-Degree Classification

An applicant who is at least twenty-one (21) years old and who does not meet the regular freshman admission requirements, may apply to the Office of Admissions and Scholarships for acceptance into the Special Non-Degree (SND) student category. Students in this category will be advised by and will schedule classes through the University Academic Advising Center. Applicants must demonstrate adequate preparation for the courses they plan to schedule. SND students may schedule a maximum of twelve (12) semester hours during a regular term and three (3) semester hours during a five-week summer term. To move from the SND status, students should satisfactorily complete twelve (12) semester hours with a C or better average in core courses that are applicable to a degree at MSU. Students wishing to gain reclassification to a traditional major should discuss this during their initial meeting with one of the professional advisors in the University Academic Advising Center. For students admitted to a degree program, a maximum of eighteen (18) semester hours of credit earned while in the SND classification may be counted toward a baccalaureate degree, pending approval by the dean of the college or school from which the degree is sought.

Degree-seeking adult applicants with previous college attendance must meet regular transfer student requirements and, therefore, may not apply for admission under the Special Non-Degree option.

Non-degree seeking adult applicants with previous college attendance who do not meet regular transfer requirements may be allowed to schedule courses for self improvement and/or job enhancement only. Applicants must file a letter of intent with the Director of Undergraduate Admissions, Office of Admissions and Scholarships, to enroll under this option.

## Admission of Transfer Students

- a. Submit application for admission.
- b. Submit a \$40 non-refundable application fee.
- c. Submit a separate official final transcript from each college or university attended; faxed transcripts will not be accepted. An applicant may not ignore previous college attendance and must list all colleges attended on the application for admission. An applicant who

misrepresents information or fails to provide information about prior college attendance will be subject to disciplinary action, including dismissal from the University.

- d. Submit an official high school transcript and ACT or SAT scores if they seek admission under Option 1.
- e. Be in good standing at the last college or university attended.

### Admission Option 1:

- a. Submit a high school transcript and ACT or SAT scores showing that the applicant qualified initially as a freshman enrollee (see Freshman Entrance Requirements), **and**
- b. Earn an overall 2.0 GPA on all courses attempted (as computed by MSU) at an institution that is accredited through a U.S. Department of Education recognized agency.

### Admission Option 2:

Any applicant who does not meet freshman requirements may attend an institution that is accredited through a U.S. Department of Education recognized agency and complete the core courses listed below **and** earn an overall 2.0 GPA on all hours attempted (as computed by MSU). **Official transcripts from each institution attended must be submitted; faxed transcripts will not be accepted.**

The applicant must attain a 'C' average (2.0 GPA on a 4.0 scale) on the following 30 semester hours of college work at a regionally accredited college:

- 6 semester hours English Composition
- 3 semester hours College Algebra, Quantitative Reasoning, or higher level mathematics
- 6 semester hours Natural Science
- 9 semester hours Humanities and Fine Arts
- 6 semester hours Social or Behavioral Sciences

### Admission Option 3:

Any applicant who does not meet freshman requirements may attend an institution that is accredited through a U.S. Department of Education recognized agency and earn an A.A., B.S. or equivalent degree from the regionally accredited institution with a 2.0 GPA (as computed by Mississippi State University). Official transcripts from each institution attended must be submitted; faxed transcripts will not be accepted.

Although the transfer applicant may meet general admissions requirements to the University, he/she may not meet the requirements for a specific department. Applicants should contact the academic department for additional requirements.

Transfer work earned from an institution that is not accredited through a U.S. Department of Education recognized agency is not acceptable at Mississippi State University and applicants from these institutions must meet the admission requirements as an entering freshman.

**Transfer Credits.** Credits transferred from regionally accredited institutions are reproduced on the permanent records of Mississippi State University. Credits earned at another institution while on disciplinary suspension or dismissal may never be transferred or posted to the Mississippi State University record. In the case of students receiving VA benefits, enrollment certificates submitted to the Veterans Administration will reflect proper credit for previous education and training. This is done as a convenience for the student in providing him or her with an accurate

consolidated record of his or her entire college career. This action is evidence that the credits are considered valid. Validity, however, is not to be confused with acceptability or applicability.

The Office of Admissions and Scholarships will accept academic transfer hours from other at an institution that is accredited through a U.S. Department of Education recognized agency. Depending on the course of study, technical credit may or may not be accepted. Remedial and Vocational credit will not be accepted. To meet graduation requirements, a transfer student must have an overall C (2.00) average, calculated by the method currently in use at Mississippi State University, on all hours scheduled and rescheduled at all institutions attended, including Mississippi State University. Excess quality points earned at other institutions cannot be used to offset any deficiencies at Mississippi State. Acceptance of junior or community college work is limited to one-half the total requirements for graduation in a given curriculum. The last half of the total hours applied toward graduation must be earned in a senior college.

**Applicability** of transfer work depends upon the equivalence of transfer credits with the requirements of a particular curriculum. Applicability varies from curriculum to curriculum, not only for transfer students from other institutions but for students transferring from one school or curriculum to another within Mississippi State University. In either case, the upper limit of the number of applicable credits is the number of accepted credits. Applicability is determined by the dean of the college or school to which one is admitted.

Non-traditional credits awarded by another college or university will be evaluated in terms of current policy at Mississippi State University. Unless the basis for awarding the credit is readily identifiable, no credit will be allowed until such time as the student, through the awarding institution, can establish the credibility of the work. Credits for ACT, SAT, CLEP General, or other comparable tests will not be accepted as transfer credit. Prior job/work experience cannot count for academic credit at Mississippi State University.

## Admission of International Students

Undergraduate international students must submit the following documents in order to be considered for admission:

- a. International application for admission
- b. \$40 non-refundable application fee
- c. Secondary school credentials and college credits from non-U.S. institutions must be submitted through World Education Services for a course-by-course evaluation with grade point average calculation. The WES ICAP service must be requested by the student. Transcripts from U.S. institutions must be received officially from each institution. Mississippi State University may void enrollment if an official transcript is not received; if a student is not eligible for readmission to any college formerly attended; or if any document is fraudulent or altered.
- d. Official American College Test (ACT) or Scholastic Aptitude Test (SAT) scores. (for scholarship and/or placement only)
- e. Other required test scores (see below)



## English Language Proficiency Requirement

International undergraduate students admitted to Mississippi State University must demonstrate English language proficiency to register for academic courses offered through the colleges. Any of the following scores are acceptable to demonstrate English language proficiency:

- International English Language Testing System (IELTS): minimum band score of 6.0.
- Test of English as a Foreign Language (TOEFL): minimum 525 for paper-based test, 197 for computer-based test, and 71 for Internet-based test
- English portion of the ACT: minimum 19.

Although applicants may meet general language requirements to the university, some departments have established higher English language proficiency requirements. For a complete listing, please visit the Web site [www.admissions.msstate.edu](http://www.admissions.msstate.edu) (<http://www.admissions.msstate.edu>).

## Exemption from English Language Proficiency Requirement

Completion of intensive English training or English composition courses at a U.S. college does not waive the English language proficiency requirement. Only international students who list English as the primary language of instruction may be exempt from proficiency requirements.

## Admission with English Language Deficiency

International students who are admitted and wish to enroll in academic courses, but fail to demonstrate English language proficiency using one of the approved methods will be required to enroll in English as a Second Language (ESL) courses. Students who successfully complete the English as a Second Language program will be considered to have demonstrated English language proficiency and allowed to register in academic courses offered through the colleges.

## Freshman Admission Requirements

- Diploma from secondary school or secondary leaving examination
- Appropriate TOEFL score
- SAT or ACT scores (only if GPA is below 3.0 based on the evaluation of transcripts or if applying for scholarships)

## Transfer Admission Requirements:

Option A: One year of successful study at a foreign university and appropriate TOEFL score.

Option B: Meet freshman admission requirements and maintain a quality point average of 2.00/4.00 or higher on all college level work attempted (as evaluated by Mississippi State University).

Option C: Thirty (30) semester hours of transferable credit from a regionally accredited U.S. college, with a grade-point average of 2.00 or higher on a 4.0 scale, as evaluated by Mississippi State University, including all of the following credits:

- 6 semester hours English Composition
- 3 semester hours College Algebra, Quantitative Reasoning, or higher level mathematics
- 6 semester hours Natural Science
- 9 semester hours Humanities and Fine Arts
- 6 semester hours Social or Behavioral Sciences

*NOTE: Students who meet Option C requirements do not need to submit English language proficiency test scores.*

## English as a Second Language Course

Courses in English as a Second Language (ESL) are considered developmental and are not transferable. They may not be used to satisfy any of the requirements for admission listed above. English courses taken at universities in non-English-speaking countries are considered to be ESL courses unless specific documentation is provided that literature, rather than language acquisition, was the primary focus of the course.

## Transfer Credit from Foreign Universities

The Office of Admissions and Scholarships certifies appropriate transfer credit from foreign universities. These courses are recorded on the Mississippi State University permanent record with the grade of S, rather than with letter grades. However, these courses are treated as graded courses (rather than pass-fail courses) in satisfying degree requirements. The student's dean has the discretion to apply this transfer credit toward degree requirements or to reject any or all of it, just as with domestic students. Students may be asked to supply course descriptions, syllabi, tests, or other documentation to the dean or department to justify the applicability of a transferred course toward a particular degree requirement. No transfer credit will be awarded for English composition courses completed in colleges or universities outside the United States.

## Deadlines for Submission of Materials

International students who are already inside the United States should submit all required materials for admission at least two months prior to the date of expected enrollment. Students who are outside the United States should apply at least four months in advance of enrollment. Undergraduate international application forms, and additional information are available from the following address: Office of Admissions and Scholarships, P.O. Box 6334, Mississippi State, MS 39762 USA

## Admission to Teacher Education

The College of Education is responsible for teacher education at Mississippi State University. All students who expect to qualify to teach must be formally admitted to the teacher education program. For specific information, see "Requirements for Teacher Education" in the College of Education section of the catalog.

## Graduate Admissions

The Graduate School of Mississippi State University awards master's, educational specialist, and doctoral degrees through programs in the Colleges of Agriculture and Life Sciences; Arts and Sciences; Business; Education; Bagley College of Engineering; Forest Resources; and Veterinary Medicine. Prospective students should visit the Graduate School website at <http://www.grad.msstate.edu> for information and to access the Graduate catalog. Prospective applicants should also visit the website of the particular College of interest.

A prospective applicant who has researched admissions requirements of the Graduate School at Mississippi State University and requirements of the academic program of interest can access information and apply online at <http://www.grad.msstate.edu>. An applicant must submit a completed application form, a statement of purpose for graduate study, three letters of recommendation, records of previous academic achievements, and a non-refundable application fee (not required of full-time benefits-eligible employees). Some degree programs may

require additional credentials, such as the Graduate Record Examination or another standardized test score. All admission applications and supporting documents become the property of Mississippi State University upon receipt and will not be released. Admission to MSU for graduate study is open to qualified students regardless of race, creed, color, natural origin, handicap, sex, or veteran status.

Graduate Admissions Criteria - Academic Operating Policy 21.01 (<https://www.policies.msstate.edu/policy/2101/>)

## Legal Resident Status

Students are classified as in-state or out-of-state for the purpose of paying University fees.

**For Graduate students,** The Graduate School will make the initial classification at the time a student's application for admission is processed.

**For Undergraduate students,** The Office of Admissions & Scholarships will make the initial classification at the time a student's application for admission is processed.

The burden of proof for establishing residency resides with the applicant. If a student misrepresents his or her status, that student will be responsible for paying the fees that should have been required and will be subject to disciplinary action or dismissal from school. The University Registrar is authorized to change a student's residence status upon receipt of evidence that the student is improperly classified.

The following Institutions of Higher Learning and Mississippi State University policies apply in determining the residential status of students for the purpose of enrolling and paying fees at a state-supported institution of higher learning:

- **Institutions of Higher Learning**  
<http://www.ihl.state.ms.us/board/downloads/policiesandbylaws.pdf>  
Paragraphs 610 and 611
- **Mississippi State University**  
<https://www.policies.msstate.edu/policy/3102> (<https://www.policies.msstate.edu/policy/3102/>)  
Academic Operating Policy AOP 31.02 Legal Resident Status

## Petition for Change of Residency Classification

A person who enters the State of Mississippi from another state and enters an educational institution is considered a non-resident. Any person who has after attaining the age of twenty-one (21) and has since their twenty-first birthday established residency and resided within the State of Mississippi for twelve (12) consecutive months may: (1) upon sworn affidavit and other representation, and (2) who can prove financial independence, petition for a change in residency classification for the purposes of fees and tuition assessment.

Residency changes are not retroactive, and the following conditions apply:

- a. The institution may make reasonable inquiry into the validity of the petitioner's claim.

- b. A petition for change of residency must be received **prior to the last day** a student may **register** without penalty of the term for which the student is applying for residency.

## Factors Regarding Residency

Although domicile and residency for educational purposes are largely matters of intention, this intention is determined objectively from the facts and circumstances surrounding a claim of in-state residency. Some of the factors relevant to determining residency include:

- Actual physical residence of habitation
- Length of time at actual physical residence - Residence used for income tax, loan, banking and other purposes
- Voter registration
- Motor vehicle registration (Persons moving into the state on a permanent basis have 30 days to register vehicles.)
- Driver's license held (Persons moving into the state on a permanent basis have 60 days to acquire driver's licenses.)
- State to which personal income taxes or other taxes paid
- Status of income sources
- Location of bank, savings and other accounts

## Responsibility for Reporting Change

It is the individual student's responsibility to report immediately to the Registrar any change which will affect his or her residence status under these regulations.

## Institutions of Higher Learning (College Board) and University Policies Concerning Nonresident Tuition

In addition to state laws and regulations, the University has established certain IHL Board approved regulations concerning the payment of non-resident tuition. Mississippi State University (except the College of Veterinary Medicine) may waive a percentage of the non-resident tuition for the following groups of students:

- a. Those who are currently awarded athletic scholarships.
- b. Those who are currently awarded band scholarships.
- c. Those who are currently awarded choral scholarships.
- d. All graduate students holding assistantships. (Rules applicable to these awards may be found in the Graduate Assistantship section of this publication.)
- e. Children of Mississippi State University alumni. (For this purpose, an alumnus or alumna is defined as one who has earned a minimum of 48 MSU undergraduate credit hours or 30 MSU graduate credit hours of course work or received a degree from Mississippi State University.) Graduate students must maintain a B (3.0) grade point average to continue eligibility for this award.
- f. Non-resident students who are certified participants in The Academic Common Market.
- g. Any veteran, service-member, or dependent/spouse of a veteran/ service-member of any branch of the U.S. Armed Forces currently serving or that separated with an **Honorable Discharge** from service. The veteran, service-member, or dependent/spouse must submit appropriate documentation upon applying for admission to the University or to the Center for America's Veterans. Additional information can be found on the Center for

America's Veterans website ([www.veterans.msstate.edu](http://www.veterans.msstate.edu) (<http://www.veterans.msstate.edu/>)).

See AOP: <https://www.policies.msstate.edu/policy/1239> (<https://www.policies.msstate.edu/policy/1239/>)

## Academic Common Market.

The Academic Common Market (ACM) is a tuition savings program allowing residents of a participating state to pursue specific academic degree programs not offered in their home states without having to pay non-resident tuition charges. The Southern Regional Education Board (SREB) coordinates the ACM program for the fifteen participating states, which include Alabama, Arkansas, Delaware, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Oklahoma, South Carolina, Tennessee, Virginia, and West Virginia. Please note that Florida and Texas only participate in the program at the Graduate level.

Residents from non-SREB states are not eligible to participate in the Academic Common Market.

To qualify for the ACM, a student must be a legal resident of an SREB member state, select a participating program that is approved for the ACM for his or her state and be admitted unconditionally to that program of the host institution.

A letter of Certification of Residency for the student should be obtained from the ACM state coordinators. This letter must be received and approved by the Office of the Provost & Executive Vice President.

For more information about submission, deadlines and criteria, please contact the Office of the Provost and Executive Vice President at 662-325-3742 or visit their website at <https://www.provost.msstate.edu/faculty-student-resources/academic-common-market> (<https://www.provost.msstate.edu/faculty-student-resources/academic-common-market/>).

For more information about the ACM Application, please contact the Southern Regional Education Board at 404-875-9211 or visit their website at [www.sreb.org](http://www.sreb.org) (<http://www.sreb.org>)

## Tuition and Required Fees (T&RF)

With the exception of the College of Veterinary Medicine and Meridian campuses, stated hereafter, the following fees apply to students enrolled at Mississippi State University. Tuition and required fees are assessed on a per credit hour basis at the prevailing rates as determined by The Institution of Higher Learning, the governing board of the University. These rates are applicable at the time of publication and are subject to change without notice.

### Starkville Campus

<https://www.controller.msstate.edu/accountservices/tuition/>

### Distance Education

<https://www.controller.msstate.edu/accountservices/tuition/>

### T&RF relative to Student Activities

All students, by payment of T&RF, are eligible for use of facilities, participation in intramural sports, admission to intercollegiate athletic events, student health services and other miscellaneous activities. However, an additional fee may be required for some activities. These

required fees are applicable regardless of the method of course instruction (i.e., traditional, online, distance, etc.)

## Course Participation Fees

Fees in addition to T&RF are associated with some courses which require the use of special equipment, facilities or materials. These fees, which vary by course, will be collected as part of registration.

## Schedule Change Fees

Please see [www.registrar.msstate.edu/Calendars/academiccal.html](http://www.registrar.msstate.edu/Calendars/academiccal.html) (<http://www.registrar.msstate.edu/Calendars/academiccal.html>).

## Student Account Management

<https://www.controller.msstate.edu/accountservices/resources/>

## General Information

### Billing, Payment Due Dates, and Service Fees

<https://www.controller.msstate.edu/accountservices/billing/> (<https://www.controller.msstate.edu/accountservices/billing/>)

### Past Due Accounts

<https://www.controller.msstate.edu/accountservices/payment/pastdue> (<https://www.controller.msstate.edu/accountservices/payment/pastdue/>)

## Payments

<https://www.controller.msstate.edu/accountservices/payment/> (<https://www.controller.msstate.edu/accountservices/payment/>)

### Employee Tuition Remission

For information regarding this program, please see Human Resources policy – HRM #60-225. (<https://www.policies.msstate.edu/policy/60225/>)

### Senior Citizen Tuition Waivers

Legal residents of the State of Mississippi age 60 or older (senior citizens) may enroll tuition-free in a maximum of two (2) on-campus courses per semester (or combined summer term) at the Starkville or Meridian campuses or the Center for Distance Education (CDE). Refer to the Student Affairs policy – OP 91.179 (<https://www.policies.msstate.edu/policy/91179/>) for more information.

### All Other University Sponsored Waivers – refer to Student Financial Aid, Section VIII

## Refunds

<https://www.controller.msstate.edu/accountservices/tuition/refunds/>

### Web Instructions to Access Your Account:

From the MSU main Web page, select myState; secure user access using your personal NetID and password; click on the Banner tab and enjoy the following services:

- Change/update your billing address and/or E-mail address.
- View your current or prior billing statement.
- View your account detail history.
- Make a payment by credit card or e-check.

- e. Authorize another user to help manage or make payment to your account.
- f. Access a remittance stub to make payment via U.S. mail
- g. View your pending financial aid or scholarships

## Helpful Phone Numbers:

Account Services (662) 325-2071  
 Sponsored Student Office (662) 325-8017  
 Internal Collections (662) 325-6619

## Financial Aid

Many Mississippi State University students receive various types of financial aid to help pay the costs associated with attending college. The following information is provided to inform students and their families of the estimated costs of attending MSU, the types of financial aid available to help pay these costs, some of the general aid eligibility requirements, and the aid application procedures. The information contained in this section is accurate as this document went to print. Please visit our Web site at [www.sfa.msstate.edu](http://www.sfa.msstate.edu) (<http://www.sfa.msstate.edu>) for further information and updates.

### Student Expenses - The Cost of Attending MSU - 2022-23

The following list of basic university expenses covers those for a full-time, undergraduate student living on or off campus for a nine month academic year. Note: These costs are average costs.

Starkville/Main Campus	Planned Expenses
Tuition and Fees	\$9,398.00
Books and Supplies	\$1,200.00
Room and Board	\$10,964.00
Personal and Transportation	\$5,545.00
Total (Mississippi Resident)	\$27,107.00
Non-Resident Total	\$43,153 (additional fees \$16,046)

## Sources of Financial Aid

Federal Sources of Financial Aid Programs are "need based" or "non need based" as determined by the federally mandated needs analysis formula.

### A. Federal Sources of Financial Aid

- a. Pell Grants - A federal student aid program designed to provide a foundation of gift aid to students who demonstrate financial need. All undergraduate students enrolled for their first undergraduate degree are eligible to apply for Pell Grants. Pell Grants awards for the 2022-2023 year ranged from \$692 to a maximum of \$6,895. Depending on Congressional allocations, Pell Grant amounts may change each year.
- b. Federal Work-Study - A program of part-time employment for students who demonstrate financial need. Eligible students may work up to 16 hours per week during regular school sessions.
- c. Stafford (subsidized and unsubsidized) Student Loans - Long-term loans provided by the U.S. Department of Education for students who need assistance in meeting educational expenses. Subsidized loans are based upon financial need. Unsubsidized loans are not based upon financial need.
- d. Supplemental Educational Opportunity Grants - A federally sponsored program to provide gift aid for undergraduate students with exceptional financial need. Funds are limited. Apply early each year.
- e. Federal Direct Plus Loans - Plus Loans are credit loans for parents of dependent students and for graduate/professional students. Eligible parents may borrow on behalf of their eligible dependent student and eligible graduate/professional students may borrow for themselves. Plus Loans are non-need based in that borrowers may request funds to cover the student's unmet cost of attendance.

### B. Institutional Sources of Financial Aid

- a. Mississippi State Promise - Mississippi State University offers the Mississippi State Promise program that provides institutional financial assistance for entering freshmen and community college transfer students from Mississippi who are from families that are Pell Grant eligible. Please refer to the Student Financial Aid Web site at [www.sfa.msstate.edu](http://www.sfa.msstate.edu) (<http://www.sfa.msstate.edu>) for details.
- b. Undergraduate Tuition Remission Policy for Children of Faculty and Staff - The partial tuition remission policy applies to all single dependent children of full time faculty and staff. See tuition remission policy (OP 60.226 (<https://www.policies.msstate.edu/policy/60226/>)) for any restrictions that may apply.
- c. Emergency Short-Term Loans - The University has available for students a means of borrowing small sums of money to meet emergency expenses during the academic year. Such loans are repayable during the same semester in which the loan is made. Application is made to the Dept. of Student Financial Aid.

### C. Institutional Sources of Scholarships

AOP: <https://www.policies.msstate.edu/policy/1239> (<https://www.policies.msstate.edu/policy/1239/>)

Mississippi State University has a variety of academic scholarships including scholarships for National Merit and overall academic excellence. These scholarships require a competitive ACT/SAT score and an above average high school GPA. Leadership and Service Scholarships are also available to students who have excellent leadership and service activities. For a complete listing of scholarships and scholarship details, visit [admissions.msstate.edu/scholarships](http://admissions.msstate.edu/scholarships) (<http://admissions.msstate.edu/scholarships/>).

Scholarship amounts are competitive and awarded on a funds-available basis.

Admission to the university is required for all scholarships. To be considered for competitive and private scholarships, a general scholarship application must be submitted.

- a. Freshman Academic Excellence Scholarships – Mississippi State University has a variety of academic scholarships for National Merit finalists and semi-finalists, and overall academic excellence. These scholarships require at least a 3.0 scholarship GPA (9-11 grade) and minimum 20 ACT (SAT equivalent). Students must maintain continuous full time enrollment and at least a 3.0 overall GPA to renew scholarships.
- b. Non-Resident Tuition Scholarships – Non-resident freshmen who have at least a 3.0 scholarship GPA (9-11 grade). The non-Resident Tuition Scholarship may be combined with the Freshman Academic excellence Scholarship. Students must maintain continuous full time enrollment and at least a 3.0 overall GPA to renew scholarships.

- c. Alumni Non-Resident Tuition Scholarships – Non-resident freshmen who are sons and daughters of alumni. The minimum qualification for alumni status is 48 semester hours of work completed at MSU. Student must have a minimum 3.0 scholarship GPA (9-11 grade). The Alumni Non-Resident Tuition Scholarship may be combined with the Freshman Academic Excellence Scholarship and the Non-Resident Tuition Scholarship. Students must maintain continuous full time enrollment and at least a 3.0 overall GPA to renew scholarships.
  - d. Transfer Non-Resident Tuition Scholarship – This scholarship is awarded to non-resident students who have at least a 3.0 cumulative GPA as computed by MSU.
  - e. Leadership and Service Scholarships – MSU offers a variety of Leadership and Service Scholarships including Valedictorian, Salutatorian, Eagle Scout, Gold Award, Key Club, etc. Verification letters or other supporting documentation are required.
  - f. Departmental Scholarships – Colleges and Departments within the university offer scholarships designed to assist students majoring in a specific discipline. Most are competitively awarded and renewable. Students who have a chosen major are encouraged to contact the department in their major areas of study regarding scholarship opportunities.
  - g. Sumners Scholarships are available to permanent residents of Attala, Carroll, Choctaw, Montgomery and Webster counties in Mississippi. For more information visit [admissions.msstate.edu/scholarships/details/sumners-scholarship](http://admissions.msstate.edu/scholarships/details/sumners-scholarship) (<http://admissions.msstate.edu/scholarships/details/sumners-scholarship/>).
- b. State Student Aid - Applications for student aid programs offered by the state of Mississippi should be submitted or updated as soon as possible after October 1 each year for the coming school year. Information and online applications are available at <http://www.msfinancialaid.org>.
  - c. Academic Scholarships - Awarded to entering students at the time of admission. Additionally, submission of the General Scholarship Application is required for competitive scholarships, including private, departmental, and leadership and service scholarships. Please refer to [www.admissions.msstate.edu/scholarships](http://www.admissions.msstate.edu/scholarships) (<http://www.admissions.msstate.edu/scholarships/>) for additional information and applicable priority dates.
  - d. Sumners Scholarships - Students should submit the Sumners Scholarship application at [www.sumnersgrant.com](http://www.sumnersgrant.com) (<http://www.sumnersgrant.com/>) by September 15 priority deadline for fall semester entry students and November 15 for spring semester entry students.

## Policies

- a. **Scholarship Criteria (See AOP 12.39: <https://www.policies.msstate.edu/policy/1239> (<https://www.policies.msstate.edu/policy/1239/>))**
  - i. All academic scholarships are made in accordance with guidelines established by the Executive Enrollment Management Committee.
  - ii. Students currently enrolled at MSU are evaluated on the basis of a overall grade point average and the General Scholarship Application.
  - iii. Transfer students are evaluated on the basis of cumulative grade point average.
  - iv. Entering freshmen are evaluated on the basis of their ACT/SAT composite score and overall (9th-12th grade GPA) high school grade point average.
  - v. Students for Attala, Carroll, Choctaw, Montgomery and Webster counties in Mississippi may be eligible to apply for the Sumners Scholarship. Permanent residency in one of these five counties for 12 continuous months prior to the award period is the primary basis of eligibility. Recipients of the Sumners Scholarship must maintain Satisfactory Academic Progress (Section C). Application must be submitted each year by September 15.
  - vi. All students have the right to appeal their scholarship status. Exceptions may be made in cases of mitigating circumstances such as: death in immediate family, personal injury, illness, etc., as determined by the Office of Admissions and Scholarships and the University Scholarship Appeals Committee. Appeals Forms are available in the Office of Admissions and Scholarships. The University Scholarship Appeals Committee has authority over all appeals and its decisions are final.

- b. **Federal and State Programs of Financial Aid**

- i. All Federal student-aid funds are awarded on the basis of criteria established by the United States Congress and the Department of Education, as required by Title IV of the Higher Education Act of 1965, as amended.
- ii. Priority in the awarding of some need-based aid is given to students with the greatest financial need first, within the availability of funds. Funds that are limited are awarded until depleted. Applicants are encouraged to apply early each year.

## D. State and Other Sources of Financial Aid

- a. Army/Air Force ROTC Four-Year Scholarships - Scholarships available to students interested in commissions as officers in either the Army or the Air Force. Scholarships are based on ACT scores and high school grades, not financial need. Visit the following Web pages for further information. Army ROTC: <http://armyrotc.msstate.edu>. Air Force: [www.msstate.edu/dept/afrotc](http://www.msstate.edu/dept/afrotc) (<http://www.msstate.edu/dept/afrotc/>).
- b. The state of Mississippi provides several student aid programs for students who are residents of the state of Mississippi. These include, but are not limited to: Mississippi Resident Tuition Assistance Grant (MTAG), Mississippi Eminent Scholars Grant (MESG), Critical Needs Teacher Program (CNTP), Higher Education Legislative Plan (HELP) and Summer Developmental Program Grant (SDPG).

Information about these and other aid programs is available from the Mississippi Office of Student Financial Aid, 3825 Ridgewood Road, Jackson, MS 39211. Web: <http://www.msfinancialaid.org>, Jackson-area phone 601-432-6647; toll free 1-800-327-2980.

## How to Apply

The following forms MUST be completed by the student each year:

- a. Federal Student Aid - (Federal Pell Grant, Federal SEOG, LEAP, TEACH, Federal Work Study, Federal Stafford Subsidized and Unsubsidized Student Loans and the Federal PLUS Loan). Applicants must complete the Free Application for Federal Student Aid (FAFSA) each year. The FAFSA can be submitted over the web at [www.studentaid.gov](http://www.studentaid.gov) (<http://www.studentaid.gov>) and should be submitted as soon as possible after October 1st each year for the coming school year. Any required verification or tax documents should be delivered to the Department of Student Financial Aid at MSU by April 1. Late applicants will be considered on a funds

- iii. The family of a student is expected to make a maximum effort to assist the student with college expenses. Financial assistance from the University and other sources should be viewed only as supplementary to the efforts of the family. In determining the extent of a student's financial need, the University will take into account the financial support which may be expected from income, assets, and other resources of the parents and of the students as required by Federal Regulations.
  - iv. Students themselves are also expected to use all available resources for their college expenses. This includes savings accounts, trust funds, etc.
  - v. The total amount of financial assistance offered by the University and other sources must not exceed the amount of the student's cost of attendance as specified in federal regulations. If need-based financial aid is awarded, the total need-based award and educational resources cannot exceed the amount of financial need as determined by the federal need formula. The student is responsible for notifying the Department of Student Financial Aid at Mississippi State University upon learning that additional educational resources/benefits (scholarships, tuition waivers, etc.) have been awarded or received.
  - vi. Because the amount of financial assistance awarded usually reflects the financial situation of the student's family, the University does not make a public announcement of the amount of financial aid awarded.
  - vii. The University will clearly state the total yearly cost of attendance. (See costs listed under "Students Expenses" or visit our Web site at [www.sfa.msstate.edu](http://www.sfa.msstate.edu) (<http://www.sfa.msstate.edu>).
  - viii. All financial assistance is awarded on an annual basis and no award implies automatic renewal from year to year. A new FAFSA and MTAG/MESG application must be submitted each year. Other applications may also be required. Always check with the granting agency to determine application procedures and deadline dates.
- c. **Satisfactory Academic Progress for Purposes of Student Financial Aid**

**Purpose:** To define reasonable standards for measuring academic progress in order for students to remain eligible for financial aid under Title IV.

**Policy (30.08):** <https://www.policies.msstate.edu/policy/3008> (<https://www.policies.msstate.edu/policy/3008/>)

For details regarding this satisfactory academic progress policy, including the appeals process, and other consumer information, visit our Web site at [www.sfa.msstate.edu](http://www.sfa.msstate.edu) (<http://www.sfa.msstate.edu>).

d. **Withdrawal from School**

Treatment of Student Aid Funds when a Student Withdraws from School:

Students who choose to withdraw from the University prior to the end of an enrollment period (semester) should follow the University's guidelines for withdrawing from school. An Official Withdrawal Form must be completed and submitted to the proper office before a student can be considered officially withdrawn. Information

concerning the details of withdrawal procedures can be found in the MSU Bulletin or by contacting the Registrar.

Federal student aid recipients who begin attending classes during a semester and who cease attending or performing academic activities prior to the end of the semester, and never complete an Official Withdrawal Form are considered by the federal government to have unofficially withdrawn. If University records indicate that a student did begin attending classes but subsequently unofficially withdrew, the University will consider the Unofficial Withdrawal date to be the midpoint of the semester (unless documentation exists of an earlier or later date of academic activity by the student).

When a federal student aid recipient withdraws, officially or unofficially, after attending at least the first class day, the University will return, and the student aid recipient will be required to repay, a prorated portion of funds received based upon a federally required calculation.

If University records show a federal student aid recipient never attended a class and/or never performed an academically related activity for a semester or term, then the recipient never established eligibility for any aid funds that may have been disbursed for that semester or term. In addition, any student aid recipient who drops all classes prior to the first day of class or whose schedule is voided for a semester or term, did not establish eligibility for any aid funds that may have been disbursed for that semester or term, and must repay the entire amount of aid disbursed for that semester or term.

If a student did not receive any federal student aid but did receive other types of aid funds, and subsequently officially withdraws, refunds and repayments will be based upon the University's refund schedule.

For more information regarding return and repayment of Title IV (federal) funds, see the Return of Title IV Funds section of "withdrawal from school" on the Web site at [www.sfa.msstate.edu](http://www.sfa.msstate.edu) (<http://www.sfa.msstate.edu>) under Policies/Consumer Right to Know.

**\*\*Note:** The information contained in this section is accurate as of the date of publication but is subject to change, without notice, in order to comply with federal, state, or university requirements. Updates are posted on the MSU Web site.

# Colleges and Degree Programs

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## Student Responsibility Disclaimer

Each student is responsible for understanding and completing all requirements established for his or her degree by the University, college and department. A student's advisor or counselor may not assume that responsibility. Any substitution, waiver, or exemption from established degree requirements may be accomplished only with the approval of the student's dean. Exceptions to University requirements, including the General Education requirements, will be authorized only with the approval of the student's dean and the Office of Academic Affairs.

This Bulletin presents information which, at the time of preparation for printing, most accurately described the courses, curricula, degrees, policies, procedures, regulations and requirements of the University. No contractual relationships, however, can be established between students and the University upon the information contained herein. The University reserves the right to delete, substitute for, change, or supplement any statement in this Bulletin without prior notice.

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# College of Agriculture and Life Sciences

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## General Information

The College of Agriculture and Life Sciences (CALS) at Mississippi State University is one of the leading colleges of agriculture, life sciences, and human ecology in the southeast. Student enrollment, degree offerings, and student placement have increased steadily each year.

As a land-grant institution, Mississippi State's College of Agriculture and Life Sciences offers excellent academic programs related to basic life sciences, environmental issues, agricultural production, food and fiber processing, agribusiness, agricultural information science, and the conservative and sustainable use of natural resources. With the establishment of MSU's Institute for Genomics, Biocomputing and Biotechnology (IGBB), the College will continue to enhance the study of the life sciences, including biotechnological applications that will have a tremendous impact on education, agricultural production, food, fibers, human and animal health, the environment, and bio-based industrial products.

Students may choose from 17 undergraduate curricula in the College of Agriculture and Life Sciences. Each degree program will prepare students for career opportunities in the multi-billion dollar agricultural and life sciences' industry. These programs will also prepare students for graduate and/or professional school study.

**Organization:** The College of Agriculture and Life Sciences is one of five major units of the Division of Agriculture, Forestry and Veterinary Medicine. The others are the Mississippi Agricultural and Forestry Experiment Station (MAFES), Mississippi State University Extension Service (MSU-ES), the College of Forest Resources (CFR), the Forest and Wildlife Research Center (FWRC), and the College of Veterinary Medicine (CVM).

**Faculty and Facilities:** The level of education of the faculty of the College of Agriculture and Life Sciences, as measured by advanced degrees and by the diversity of the institutions from which these degrees were earned, is exceptionally high. The teaching faculty includes resident staff of the MAFES and MSU-ES, which offer valuable opportunities for students on the undergraduate and graduate (See MSU Graduate Bulletin) levels. The sharing of faculty and facilities between the College of Agriculture and Life Sciences, MAFES, and MSU-ES keeps the instructional program current and meaningful to students.

## Policies

**Graduation Requirements:** The minimum requirements for graduation with a Bachelor of Science degree in the College of Agriculture and Life Sciences include the following:

- Fulfillment of all university academic requirements as published in this Bulletin.
- Completion of the General Education requirements as published in this Bulletin. (See Listing of Approved General Education Courses)
- Completion of all program requirements in the major of choice with an average of "C" or better (2.00 on a 4.00 scale).
- Completion of sufficient upper level credit hours to satisfy the university requirement of twenty-five percent of degree hours in upper level courses.

All students should consult with their assigned departmental advisor who will review and approve course schedules and provide information and answer questions regarding progress toward degree, career opportunities, and campus resources.

**Computer Requirements:** The College of Agriculture and Life Sciences requires all entering freshmen and transfer students to own or lease a personal computer. This college-wide requirement is a proactive measure to insure that students will develop the computer skills necessary for success in agriculture and life sciences professions. CALS requirements match the requirements for MSU (<http://www.its.msstate.edu/support/desktop/specsstudent/>) except for Landscape Architecture students and Human Sciences students. Please see departmental websites for specific requirements for those programs.

**Pre-Professional Programs:** The College of Agriculture and Life Sciences offers a number of programs of study that lead to professional and graduate degree programs including:

- Pre-Veterinary Medicine
- Pre-Law
- Pre-Medicine
- Pre-MBA
- Pre-Pharmacy
- Pre-Dental
- Pre-Optometry

Pre-professional programs of study within CALS enable students to have completed all requirements necessary for admission to the graduate and professional programs of their choice. See listed majors for the specific requirements for each of these areas and contact departmental representatives for additional information.

## Degree Programs

Students may choose from the following degree programs and concentrations in the College of Agriculture and Life Sciences:

- Agribusiness
  - Management
  - Policy and Law
  - Production
- Agricultural Engineering Technology and Business
  - Enterprise Management
  - Natural Resources and Environmental Management



- Precision Agriculture
- Surveying and Geomatics
- Agricultural Education, Leadership, and Communications
  - Agricultural Education
  - Agricultural Leadership
  - Agricultural Communications
- Agricultural Science
- Agronomy
  - Agricultural and Environmental Soil Sciences
  - Golf and Sports Turf Management
  - Integrated Crop Management
  - Integrated Pest Management
- Animal and Dairy Sciences
  - Business and Industry
  - Production Management
  - Pre-Veterinary/Science
  - Pre-Vet Med Tech
- Biochemistry
  - Bioinformatics
  - Entomology
  - Forensic Sciences
  - Plant Pathology
  - Pre-Dental
  - Pre-MBA
  - Pre-Medicine
  - Pre-Optometry
  - Pre-Pharmacy
  - Pre-Veterinary Medicine
  - Science
- Culinology
- Fashion Design and Merchandising
  - Design and Product Development
  - Merchandising
- Environmental Economics and Sustainability
- Environmental Science in Agricultural Systems
- Food Science, Nutrition and Health Promotion
  - Pre-Health
  - Food Safety
  - Food and Nutrition
  - Food Processing/Business
  - Food Science
- Horticulture
  - Floral Management
  - Floriculture and Ornamental Horticulture
  - Fruit and Vegetable Production
- Human Development and Family Science
  - Child Development
  - Child Life
  - Youth Development
  - Family and Consumer Sciences Teacher Education

- Family Science
- Gerontology Certificate
- Landscape Architecture
- Landscape Contracting and Management
- Poultry Science
  - Applied Poultry Management
  - Science and Pre-Vet Science

Minors are available in a number of these programs. See the appropriate degree program in this Bulletin for additional information or call departmental representatives.

## Five-Year, Two-Degree Curricula in Agriculture and Business and in Agriculture and Liberal Arts

Five-year, two-degree curricula leading to Bachelor of Science degrees in both Agriculture and Business and Agriculture and Liberal Arts are available. Such curricula may be designed with a major in any field of agriculture or human sciences combined with a major in any field of business or liberal arts. These programs must meet the minimum requirements of 124 semester hours with a C average or better for a degree in Agriculture including

- a. a minimum of 54 semester hours with a C average or better in business approved by the College of Business and Industry, or
- b. a minimum of 48 hours with a C average or better in the liberal arts field approved by the College of Arts and Sciences.

Students desiring to follow a five-year, two-degree curriculum will develop a detailed program by consultation with advisors in the College of Agriculture and Life Sciences and the College of Business and Industry or the College of Arts and Sciences. The two degrees are conferred simultaneously at the end of the fifth year. Students should declare their intentions of pursuing the two-degree program as early as possible, generally not later than the end of the sophomore year.

## Pre-Veterinary Medicine

The College of Agriculture and Life Sciences does not offer a degree in Pre-Veterinary Medicine; therefore, students should select a major that includes Pre-Veterinary courses. These requirements are included in the following degree programs: Animal and Dairy Sciences; Poultry Science; Food Science, Nutrition and Health Promotion; Biochemistry and Molecular Biology; Microbiology; and Biological Sciences (the latter two degree programs are located in the College of Arts and Sciences). Each of the four degree programs within the College of Agriculture and Life Sciences (CALS) allows the student to complete the necessary requirements for entry to the College of Veterinary Medicine and a Bachelor of Science simultaneously. To receive a Bachelor of Science degree, each student must meet the curriculum requirements set forth by the respective department provided through the Pre-Veterinary Medicine Concentration (Example: See Animal and Dairy Sciences). Upon the successful completion of the undergraduate degree program through the junior year and the pre-veterinary medicine course requirements, a student may apply to the College of Veterinary Medicine (CVM). Upon the successful completion of the first year of CVM courses (approximately 40-42 hrs.), a student may apply these hours toward the bachelor's degree. This course work can serve as the senior year of the

undergraduate curriculum. This "three plus one" program is offered by the College of Agriculture and Life Sciences for Pre-Veterinary students.

Address inquiries concerning the Pre-Veterinary medicine concentrations available to desired degree program and advisor listed below:

Animal and Dairy Sciences Pre-Veterinary Medicine Program  
Department of Animal and Dairy Sciences  
Ms. Erica Carroll, Pre-Veterinary Advisor  
2111 ADS Building  
Box 9815  
Mississippi State, MS 39762  
Phone: (662) 325-4344

Biochemistry and Molecular Biology  
Pre-Veterinary Medicine Program  
Department of Biochemistry, Molecular Biology, Entomology & Plant Pathology  
Dr. Aswathy Rai, Pre-Veterinary Advisor  
428 Dorman Hall  
Box 9540  
Mississippi State, MS 39762  
Phone: (662) 325-2640

Food Science Pre-Veterinary Medicine Program  
Department of Food Science, Nutrition and Health Promotion  
Dr. Wes Schilling, Pre-Veterinary Advisor  
105 Herzer Dairy Science Building  
Box 9805  
Mississippi State, MS 39762  
Phone: (662) 325-3200

Poultry Science Pre-Veterinary Medicine Program  
Department of Poultry Science  
Dr. Jessica Wells  
1090 Poultry Science  
Box 9665  
Mississippi State, MS 39762  
Phone: (662) 325-3416

## Pre-Veterinary Requirements for entry into The College of Veterinary Medicine

Writing/Composition	6
Public Speaking or Technical Writing	3
CO 1003      Fundamentals of Public Speaking	
or AELC 3203 Professional Writing in Agriculture, Natural Resources, and Human Sciences	
Mathematics	6
Microbiology with lab	4
Biological Science with lab	8
BIO 1134      Biology I	
BIO 1144      Biology II	
General/Inorganic Chemistry with lab	8
Organic Chemistry with lab	8
CH 4513      Organic Chemistry I	
CH 4511      Organic Chemistry Laboratory I	
CH 4523      Organic Chemistry II	
CH 4521      Organic Chemistry Laboratory II	
Biochemistry	3

Physics with lab (can be trig-based)	6
Advanced Science Electives	12
Fine Arts	3
Humanities	6
Social/Behavioral Science	6
<b>Total Hours</b>	<b>79</b>

**Electives will be needed from requirements toward the student's alternate major to complete the minimum 124 hour degree.**

## International Studies in Agriculture

The International Studies in Agriculture minor within the College of Agriculture and Life Sciences is offered to allow students to enhance their knowledge of an interdependent global food system, the impacts of international agricultural technologies and systems, and the various agricultural educational systems around the world as well as develop skills needed in a global economy. Students will be prepared to make decisions, communicate effectively, and lead in a culturally diverse agricultural environment. Students must complete a minimum of 21 hours from a list of approved courses with a grade of "C" or above in all classes counting toward the minor.

Students seeking the International Studies in Agriculture minor will be required to complete the following courses:

### Core Courses

GA 2103	Seminar in International Studies in Agricultural Systems	3
or AELC 2103	Seminar in International Studies in Agricultural Systems	
AELC 4503	International Agricultural Education	3
FLX 1113	Foreign Language I	3
FLX 1123	Foreign Language II	3
Study Abroad <sup>1</sup>		3

### Electives

A minimum of three hours from Category I AND three hours of additional coursework which may come from Category I or II.

Category I: CALS Electives that have an International component or that apply broadly to international studies <sup>2</sup>

ABE 4843	Sustainable Communities	
or LA 4843	Sustainable Communities	
AEC 2713	Introduction to Food and Resource Economics	
AEC 3213	International Trade in Agriculture	
AEC 3233	Introduction to Environmental Economics and Policy	
AEC 3413	Introduction to Food Marketing	
ENS 2103	Introduction to Environmental Science	
FNH 4193	Social-Cultural Aspects of Food	
FNH 4333	Food Law	
FDM 3573	Historic Costume	
LA 1423	History of Landscape Architecture	
FDM 4603	Global Sourcing in the Textile and Apparel Industry	
LA 1803	Landscape Architecture Appreciation	
LA 4113	Design Theory and Criticism.	

LA 4653	Study Abroad: Gardens and Urban Spaces
LA 4753	Sustainable Landscape Management
PSS 3633	Sustainable and Organic Horticulture
PSS 4043	International Horticulture

Category II: MSU Campus-wide Electives with an International Focus - see advisor for complete list<sup>3</sup>

- <sup>1</sup> Three hours (minimum) as a study abroad course or international experience as linked to a degree program-specific course, special topics, directed individual study, internship or other means in the student's curriculum.
- <sup>2</sup> As additional courses in CALS with an international or global focus are developed, they may be added as an elective. Other courses outside of CALS or as transfer hours may be substituted as approved by the minor advisor.
- <sup>3</sup> Other courses from across MSU or as transfer hours may be substituted as approved by the minor advisor.

## Environment and Sustainability Minor

The Environment and Sustainability Minor is a minimum 16-credit hour, multi-disciplinary program open to all undergraduate majors in good standing. From accountants to zoologists, and all majors in between, this minor is designed to enhance your understanding of the complex environmental challenges humanity faces in the 21st century. It will also give students an opportunity to gain hands-on experience in an environmental area of interest. Students will study the technical aspects of issues such as climate change and energy, and learn how values, beliefs and policies affect how these issues are addressed. Students will also learn about sustainable practices and lifestyle choices that can reduce your own ecological footprint.

Two courses are required of all students: Introduction to Environmental Science (ENS 2103) and either the Introduction to Environmental Science lab (ENS 2101), or the Environmental Science Practicum (ENS 4102), leaving 12 hours for the student to select from three broad categories: Humanities, Social Sciences, and Science & Engineering.

A minimum of 16 hours is required for the minor. ENS 2103 is to be taken by all students, along with either ENS 2101 or ENS 4102, leaving 12 hours the student chooses from a list of electives maintained by the ENS Advisory Committee. The student must take three hours from each of three categories mentioned above. The final course may be chosen from any category not directly related to his/her major. The list of elective options will be periodically reviewed by the ENS Advisory Committee to ensure the list of courses remains current. Courses may be removed or added to the list of electives pending approval of the ENS Advisory Committee, and students should see the ENS Program Coordinator for the current list of electives. Relevant substitutions may be arranged with the approval of the ENS Program Coordinator.

### Course Work

ENS 2103	Introduction to Environmental Science	3
ENS 2101	Introduction to Environmental Science Laboratory	1-2
or ENS 4102	Practicum	
Humanities Elective (see ENS Program Coordinator for list of approved electives)		3

Social Sciences Elective (see ENS Program Coordinator for list of approved electives)	3
Science and Engineering Elective (see ENS Program Coordinator for list of approved electives)	3
Additional elective from any category not directly related to student's major	3
<b>Total Hours</b>	<b>16</b>

For further information and enrollment forms, please contact the ENS minor program coordinator:

Dr. Te-Ming Tseng  
 Department of Plant and Soil Sciences  
 316 Dorman Hall  
 662-325-4725; tt1024@msstate.edu

## Environment and Sustainability Certificate

The Environment and Sustainability Minor is a minimum 16-credit hour, multi-disciplinary program open to all undergraduate majors in good standing. From accountants to zoologists, and all majors in between, this minor is designed to enhance your understanding of the complex environmental challenges humanity faces in the 21st century. It will also give students an opportunity to gain hands-on experience in an environmental area of interest. Students will study the technical aspects of issues such as climate change and energy, and learn how values, beliefs and policies affect how these issues are addressed. Students will also learn about sustainable practices and lifestyle choices that can reduce your own ecological footprint.

Two courses are required of all students: Introduction to Environmental Science (ENS 2103) and Introduction to Environmental Science lab (ENS 2101), leaving 12 hours for the student to select from three broad categories: Humanities, Social Sciences, and Science & Engineering.

A minimum of 16 hours is required for the minor. ENS 2103 and ENS 2101 are to be taken by all students, leaving 12 hours the student chooses from a list of electives maintained by the ENS Advisory Committee. The student must take three hours from each of three categories mentioned above. The final course may be chosen from any category not directly related to his/her major. The list of elective options will be periodically reviewed by the ENS Advisory Committee to ensure the list of courses remains current. Courses may be removed or added to the list of electives pending approval of the ENS Advisory Committee, and students should see the ENS Program Coordinator for the current list of electives. Relevant substitutions may be arranged with the approval of the ENS Program Coordinator.

### Course Work

ENS 2103	Introduction to Environmental Science	3
ENS 2101	Introduction to Environmental Science Laboratory	1
Humanities Elective (see ENS Program Coordinator for list of approved electives)		3
Social Sciences Elective (see ENS Program Coordinator for list of approved electives)		3
Science and Engineering Elective (see ENS Program Coordinator for list of approved electives)		3

Additional elective from any category not directly related to student's major	3
<b>Total Hours</b>	<b>16</b>

For further information and enrollment forms, please contact the ENS minor program coordinator:

Dr. Te-Ming Tseng  
Department of Plant and Soil Sciences  
316 Dorman Hall  
662-325-4725; tt1024@msstate.edu

## Department of Agricultural and Biological Engineering

### Agricultural Engineering Technology and Business (AETB)

**Department Head: Dr. J. Alex Thomasson**

Office: 150 J. Charles Lee Agricultural and Biological Engineering Building

The curriculum in Agricultural Engineering Technology and Business (AETB) is designed to provide students the academic and technical background on the operation and management of current and emerging agricultural production systems, technologies, and businesses. Students gain real-world experience by participating in community-based immersive learning projects or field studies. AETB graduates can find rewarding careers in a variety of agricultural, environmental, and industrial businesses. Technologists focus on managing, operating, and troubleshooting technology systems (rather than engineering design) by applying their knowledge of technology and business applications. This hands-on curriculum teaches students to manage equipment and machinery, biological processes, computers, computer simulations, and other technologies to create and maintain current and new production systems. A Bachelor of Science degree is offered by the Agricultural and Biological Engineering Department through the College of Agriculture and Life Sciences.

Students may pursue one of four concentrations within AETB:

- Precision Agriculture (PRAG)
- Natural Resources and Environmental Management (NREM)
- Enterprise Management (EMGT)
- Surveying and Geomatics (SGEO)

The concentrations are achieved by completing 36-38 hours of restricted and free electives. PRAG, NREM, and SGEO concentrations provide students a pathway to complete the requirements of the Geospatial and Remote Sensing Minor.

Students are required to earn a "C" or better in all AETB major core courses. Students who plan to attend a community college before transferring to Mississippi State University are strongly encouraged to contact the AETB Undergraduate Coordinator regarding their proposed community college schedule and transfer requirements. A maximum of 12 transfer hours of technical credit from a community college can be applied toward degree requirements. Concentration descriptions and employment opportunities are discussed below.

Internships or co-op experiences are highly encouraged and help students translate their classroom and laboratory experiences into the reality of the business setting.

The primary emphases of the **Natural Resource & Environmental Management (NREM)** concentration are on resource conservation, best management practices, and environmental impacts of human activities on urban and agricultural landscapes.

The **Precision Agriculture (PRAG)** concentration provides students the background and technical skills in current and emerging technologies in decision-based agricultural planning and implementation. Technologies include communication networks, Unmanned Aircraft Systems (UAS), Artificial Intelligence (AI), sensors, robotics, and other advanced machinery and often draws on the principles of the Internet of Things (IoT).

The **Enterprise Management (EMGT)** concentration is designed to provide the students the academic and technical training to apply engineering technology in an agricultural enterprise setting.

The **Surveying & Geomatics (SGEO)** concentration provides the students the knowledge and training in property/boundary survey, topographic and construction survey, and control survey. This concentration is designed to provide the necessary prerequisites to begin a three-step process (academic training, supervised surveying experience, testing) to become a registered land surveyor.

### Degree Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1323	Trigonometry	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	

#### Science

PH 1113	General Physics I	6
& PH 1123	and General Physics II <sup>1</sup>	
or PH 2213	Physics I	
& PH 2223	and Physics II	

#### Humanities

Select from General Education courses	6
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#### Fine Arts

Select from General Education courses	3
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#### Social Science

AEC 2713	Introduction to Food and Resource Economics	3
Select from General Education courses		3

#### AETB Major Core

ABE 1073	Technology Design I. <sup>1</sup>	3
ABE 1863	Engineering Technology in Agriculture	3
ABE 2873	Land Surveying <sup>1</sup>	3
ABE 3513	The Global Positional System and Geographic Information Systems in Agriculture and Engineering <sup>1</sup>	3

ABE 4263	Soil and Water Management	3
ABE 4383	Building Construction	3
ABE 4473	Electrical Applications for Agriculture	3
ABE 4961	Seminar	1

**AETB Science Courses**

CH 1043 & CH 1053 & CH 1051	Survey of Chemistry I and Survey of Chemistry II and Experimental Chemistry	7-8
or CH 1213 & CH 1211 & CH 1223 & CH 1221	Chemistry I and Investigations in Chemistry I and Chemistry II and Investigations in Chemistry II	

**AETB Statistics Requirement <sup>2</sup>** 6

BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

**AETB Business Courses**

ACC 2013	Principles of Financial Accounting <sup>1</sup>	3
ACC 2023	Principles of Managerial Accounting <sup>1</sup>	3
AEC 3133	Introductory Agribusiness Management	3
BL 2413	The Legal Environment of Business <sup>1</sup>	3
MGT 3513	Introduction to Human Resource Management	3

**AETB Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

**AETB Writing Requirement**

AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
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Concentration Courses -- see specific lists for courses 30-32

**Total hours** 122-124**Natural Resource & Environmental Management (NREM) Concentration****Required Concentration Courses**

ADS 1113 & ADS 1121 or BIO 1134	Animal Science and Animal Science Laboratory Biology I	4
PSS 1313 or BIO 1023	Plant Science Plants and Humans	3
GR 4303	Principles of GIS	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1

**NREM Restricted Electives - choose 9 hours from the following:**

<b>ABE 1083</b>	<b>Technology Design II (NREM Restricted Electives - choose 9 hours from the following:)</b>	<b>3</b>
ABE 4313	Biological Treatment of Nonpoint Source Pollutants	3
ABE 4803	Biosystems Simulation	3
GG 3613	Water Resources	3
GR 3113	Conservation of Natural Resources	3
PSS 4333	Soil Conservation and Land Use	3

PSS 4373	Geospatial Agronomic Management	3
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**NREM Electives - choose 15 hours from the following:**

ABE 4483	Introduction to Remote Sensing Technologies	3
ABE 4800	Undergraduate Research in Ag & Bio Engineering	13
AEC 3233	Introduction to Environmental Economics and Policy	3
AEC 4223	Applied Quantitative Analysis in Agricultural Economics	3
AEC 4233	Environmental Economics	3
AEC 4243	Natural Resource Economics	3
BIO 2503	Environmental Quality	3
BL 4263	Environmental Law	3
FO 4483	Forest Soils	3
GG 3133	Introduction to Environmental Geology	3
GG 4613	Physical Hydrogeology	3
GR 2313	Maps and Remote Sensing	3
GR 4313	Advanced GIS	3
GR 4333	Remote Sensing of the Physical Environment	3
NREC 3213	Environmental Measurements	3
NREC 4313	Spatial Technologies in Natural Resources Management	3
NREC 4353	Natural Resource Law	3
NREC 4463	Forest Hydrology and Watershed Management	3
PSS 4383	Agriculture Remote Sensing I	3
PSS 4393	Agriculture Remote Sensing II	3
PSS 4483	Introduction to Remote Sensing Technologies	3
PSS 4733	Ag. Flight Technologies I	3
PSS 4743	Ag. Flight Technologies II	3

**Precision Agriculture (PRAG) Concentration****Required Concentration Courses**

ADS 1113 & ADS 1121 or BIO 1134	Animal Science and Animal Science Laboratory Biology I	4
PSS 1313 or BIO 1023	Plant Science Plants and Humans	3
GR 4303	Principles of GIS	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1

**PRAG Restricted Electives - choose 9 hours from the following:**

<b>ABE 1083</b>	<b>Technology Design II (PRAG Restricted Electives - choose 9 hours from the following:)</b>	<b>3</b>
ABE 2173	Principles of Agricultural and Off-Road Machines	3
ABE 2543 or PSS 2543	Precision Agriculture I Precision Agriculture I	3

ABE 4163	Agricultural and Off-Road Machinery Management	3
or PSS 4373	Geospatial Agronomic Management	
<b>PRAG Electives - choose 15 hours from the following:</b>		
ABE 4483	Introduction to Remote Sensing Technologies	3
ABE 4543	Precision Agriculture II	3
or PSS 4543	Precision Agriculture II	
ABE 4800	Undergraduate Research in Ag & Bio Engineering	13
AEC 4413	Public Problems of Agriculture	3
FO 4453	Remote Sensing Applications	3
GR 2313	Maps and Remote Sensing	3
GR 3303	Survey of Geospatial Technologies	3
GR 4313	Advanced GIS	3
GR 4323	Cartographic Sciences	3
GR 4333	Remote Sensing of the Physical Environment	3
GR 4343	Advanced Remote Sensing in Geosciences	3
NREC 4313	Spatial Technologies in Natural Resources Management	3
PSS 3133	Introduction to Weed Science	3
PSS 4103	Forage and Pasture Crops	3
PSS 4123	Grain Crops	3
PSS 4133	Fiber and Oilseed Crops	3
PSS 4383	Agriculture Remote Sensing I	3
PSS 4393	Agriculture Remote Sensing II	3
PSS 4483	Introduction to Remote Sensing Technologies	3
PSS 4733	Ag. Flight Technologies I	3
PSS 4743	Ag. Flight Technologies II	3
PSS 4813	Herbicide Technology	3

## Enterprise Management (EMGT) Concentration

### Required Concentration Courses

ADS 1113 & ADS 1121 or BIO 1134	Animal Science and Animal Science Laboratory Biology I	4
PSS 1313 or BIO 1023	Plant Science Plants and Humans	3
GR 4303	Principles of GIS	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1

### EMGT Restricted Courses - choose 9 hours from the following: <sup>2</sup>

<b>ABE 1083</b>	<b>Technology Design II (EMGT Restricted Courses - choose 9 hours from the following:)</b>	<b>3</b>
ABE 2173	Principles of Agricultural and Off-Road Machines	3
ABE 4163	Agricultural and Off-Road Machinery Management	3
AEC 3113	Introduction to Quantitative Economics	3

EC 2113	Principles of Macroeconomics	3
MGT 3323	Entrepreneurship	3
<b>EMGT Electives - Choose 15 hours from the following:</b>		
ABE 4483	Introduction to Remote Sensing Technologies	3
ABE 4800	Undergraduate Research in Ag & Bio Engineering	13
ADS 4323	Beef Cattle Science	3
AEC 2223	Introduction to Sustainability Economics	3
AEC 3233	Introduction to Environmental Economics and Policy	3
AEC 4113	Agribusiness Firm Management	3
AEC 4213	Ag Finance I	3
AEC 4343	Advanced Farm Management	3
AEC 4413	Public Problems of Agriculture	3
AEC 4623	Global Marketing of Agricultural Product	3
BL 4243	Legal Aspects of Entrepreneurship	3
MGT 3113	Principles of Management	3
MGT 3823	Socially Responsible Leadership	3
PO 4334	Broiler Production	4
PSS 4103	Forage and Pasture Crops	3
PSS 4123	Grain Crops	3
PSS 4133	Fiber and Oilseed Crops	3

## Surveying & Geomatics (SGEO) Concentration

### Required Concentration Courses

MA 1313	College Algebra	3
CE 2213	Surveying <sup>1</sup>	3
CE 4233	Control Surveys	3
CE 4243	Land Surveys <sup>1</sup>	3
GR 4303	Principles of GIS	3

### SGEO Restricted Elective

ABE 1083 or EG 1143	Technology Design II Graphic Communication	3
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### SGEO Electives - choose 18 hours from the following: <sup>2</sup>

<b>ABE 4483</b>	<b>Introduction to Remote Sensing Technologies (SGEO Electives - choose 18 hours from the following:)</b>	<b>3</b>
ABE 4800	Undergraduate Research in Ag & Bio Engineering	13
BL 4243	Legal Aspects of Entrepreneurship	3
BL 4333	Real Estate Law <sup>1</sup>	3
FO 4453	Remote Sensing Applications	3
GR 2313	Maps and Remote Sensing	3
GR 3303	Survey of Geospatial Technologies	3
GR 4313	Advanced GIS	3
GR 4323	Cartographic Sciences	3
GR 4333	Remote Sensing of the Physical Environment	3
GR 4363	Geographic Information Systems Programming	3
MGT 3323	Entrepreneurship	3

NREC 4463	Forest Hydrology and Watershed Management	3
PSS 4383	Agriculture Remote Sensing I	3
PSS 4393	Agriculture Remote Sensing II	3
PSS 4483	Introduction to Remote Sensing Technologies	3
PSS 4733	Ag. Flight Technologies I	3
PSS 4743	Ag. Flight Technologies II	3
REF 3333	Principles of Real Estate	3

## Department of Agricultural Economics

**Undergraduate Coordinator: Dr. Josh Maples**

Office: 325-2752

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Agriculture and related businesses create more employment than any other industry. The agribusiness industry accounts for nearly one-fifth of the U.S. gross national product and employs close to one-fourth of the U.S. labor force. Fully understanding how economic forces affect today's agriculture industry is critical for those seeking careers in agriculture-related businesses.

A growing field within economics is environmental economics. A key challenge to the U.S. economy in the 21st century is finding a balance between the demand for natural resources and the need to preserve our environment. Individuals who can analyze these complex problems will be needed for the new "green jobs" that require sustainable solutions to resource and environmental issues.

Two majors, Agribusiness (AGB) and Environmental Economics and Sustainability (EES), are offered to provide an understanding of economic forces and business management principles as well as technical knowledge of agriculture and environmental science. Students completing either major will be prepared to pursue additional training at the graduate level.

Students who plan to attend a community college before transferring to Mississippi State are strongly encouraged to contact the Department's major advisor regarding their proposed community college course schedule and transfer requirements.

In addition to the University and College minimum grade requirements, students must have at least a 2.00 GPA in all major core course work attempted.

### BS in Environmental Economics and Sustainability (EES)

The Environmental Economics and Sustainability (EES) major is designed to prepare students for the efficient and productive sustainable management of natural and environmental resources. Students receive excellent functional training and learn skills in the areas of environmental science, policy and economics. Potential career fields include, but are not limited to, environmental law; natural resource and environmental policy analysis; environmental consulting; and resource management. In addition, students desiring postgraduate training will have a solid academic foundation for pursuing graduate or professional degrees.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1313	College Algebra	3
MA 1713	Calculus I	3
MA 3123	Introduction to Statistical Inference	3

### Science

BIO 1134	Biology I	4
BIO 1144	Biology II	4

### Humanities

Select from General Education courses		6
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### Fine Arts

Select from General Education courses		3
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### Social/Behavioral Sciences

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2123	Principles of Microeconomics	
EC 2113	Principles of Macroeconomics	3

### Major Core <sup>1</sup>

AEC 2223	Introduction to Sustainability Economics	3
AEC 2611	Seminar I	1
AEC 2631	Environmental Economics & Sustainability Seminar	1
AEC 3113	Introduction to Quantitative Economics	3
AEC 3233	Introduction to Environmental Economics and Policy	3
AEC 3513	Economics of Food and Fiber Production	3
AEC 4133	Analysis of Food Markets and Prices	3
AEC 4223	Applied Quantitative Analysis in Agricultural Economics	3
AEC 4233	Environmental Economics	3
AEC 4243	Natural Resource Economics	3
AEC 4413	Public Problems of Agriculture	3
BIO 3104	Ecology	4
or WFA 3133	Applied Ecology	
BL 2413	The Legal Environment of Business	3
BL 4263	Environmental Law	3
EC 3113	Intermediate Macroeconomics	3
EC 3123	Intermediate Microeconomics	3
EC 4423	Public Finance	3
PS 1113	American Government	3
PS 2703	Introduction to Public Policy	3
PS 4743	Environmental Policy	3
Free Electives		23-24

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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### Writing Requirement

AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Courses are listed in alphanumeric order. Students should contact an advisor, refer to the appropriate departmental curriculum sheet or refer to the course description section of this bulletin to determine the prerequisites for each course.

<sup>2</sup> See major advisor for a list of courses approved as Restricted Electives.

## BS in Agribusiness (AGB)

The Agribusiness (AGB) major provides training in business including accounting, management, marketing, finance and economics, along with training in the agricultural sciences. The AGB major offers students flexibility in preparing for a wide variety of careers in agriculture and agribusiness. The major provides all students with excellent foundational training in applied economics and business management while offering students the opportunity to specialize in specific areas. Potential career fields include, but are not limited to, agricultural and environmental law; agricultural policy analysis; economic consulting; agricultural lending; agricultural production management; commodities and equities marketing; and food chain supply management, including procession, sales, and distribution. Also, students desiring post-graduate training will have a solid academic foundation for pursuing graduate degrees.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	

### Science

Any Gen Ed course		6-9
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### Humanities

Any Gen Ed course		6
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### Fine Arts

Any Gen Ed course		3
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### Social/Behavioral Sciences

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2123	Principles of Microeconomics	
EC 2113	Principles of Macroeconomics	3

### Major Core

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
AEC 1223	Computer Applications for Agriculturists and Life Scientists	3
or AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications	
or BIS 1012	Introduction to Business Information Systems	
AEC 2611	Seminar I	1

AEC 3113	Introduction to Quantitative Economics	3
AEC 3133	Introductory Agribusiness Management	3
AEC 3233	Introduction to Environmental Economics and Policy	3
AEC 4133	Analysis of Food Markets and Prices	3
AEC 4213	Ag Finance I	3
AEC 4223	Applied Quantitative Analysis in Agricultural Economics	3
AEC 4413	Public Problems of Agriculture	3
AEC 4623	Global Marketing of Agricultural Product	3
or AEC 3213	International Trade in Agriculture	
BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or MA 3123	Introduction to Statistical Inference	
or ST 2113	Introduction to Statistics	
or ST 3123	Introduction to Statistical Inference	
CO 1003	Fundamentals of Public Speaking	3
EC 3113	Intermediate Macroeconomics	3
EC 3123	Intermediate Microeconomics	3

Choose one of the following concentrations:

### Management Concentration (MGT) 44-49

AEC 3413	Introduction to Food Marketing	
AEC 4113	Agribusiness Firm Management	
AEC 4123	Financial and Commodity Futures Marketing	
AEC 4343	Advanced Farm Management	
AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	
or EN 3313	Writing for the Workplace	
BL 2413	The Legal Environment of Business	
FIN 3123	Financial Management	
Restricted Electives (9 hours) <sup>1</sup>		
Free Electives (14-19 hours)		

### Policy and Law Concentration (POLL) 44-49

AEC 4233	Environmental Economics	
AEC 4243	Natural Resource Economics	
EN 4223	Principles of Legal Writing	
PS 1113	American Government	
PS 1182	Introduction to Law I	
PS 1192	Introduction to Law II	
PS 2703	Introduction to Public Policy	
Restricted Electives (12 hours) <sup>2</sup>		
Free Electives (13-18 hours)		

### Production Concentration (PROD) 44-49

ADS 1113	Animal Science	
or PSS 1313	Plant Science	
or PO 3313	Commercial Poultry Production	
AEC 3513	Economics of Food and Fiber Production	
AEC 4123	Financial and Commodity Futures Marketing	
AEC 4343	Advanced Farm Management	
AEC 4363	Economics of Precision Agriculture	



AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences
or EN 3313	Writing for the Workplace
BL 2413	The Legal Environment of Business
Restricted Electives (12 hours) <sup>3</sup>	
Free Electives (11-16 hours)	
<b>Total Hours</b>	<b>124</b>

<sup>1</sup> Restricted electives for Management: Choose from any 2000-4000 level AEC courses or 3000-4000 level College of Business courses. Other courses may be used with major advisor approval.

<sup>2</sup> Restricted Electives for Policy and Law: Choose from any 2000-4000 level AEC courses, 2000-4000 level BL courses, 3000-4000 level EC courses, or 3000-4000 PS courses. Other courses may be used with major advisor approval.

<sup>3</sup> Restricted Electives for Production: Choose from any 2000-4000 level AEC courses or 3000-4000 level College of Ag and Life Sciences courses. Other courses may be used with major advisor approval.

## Environmental Economics and Management Minor

The Department of Agricultural Economics offers a minor in Environmental Economics and Management to students outside the department. Course selection for the minor is designed to equip students with fundamental economic and management principles pertinent to environmental and resource policy issues to broaden the scope of career opportunities for students completing the minor.

A minor in Environmental Economics and Management is attained by completing at least 18 hours of environmental and resource economics courses. To satisfy the minor, students must maintain a 2.0 grade point average in courses taken to satisfy the minor. Students may choose among the following:

### Required:

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2123	Principles of Microeconomics	
AEC 3233	Introduction to Environmental Economics and Policy	3
AEC 4233	Environmental Economics	3
AEC 4243	Natural Resource Economics	3
Choose at least three of the following:		9
AEC 3113	Introduction to Quantitative Economics	
AEC 3513	Economics of Food and Fiber Production	
AEC 4123	Financial and Commodity Futures Marketing	
AEC 4413	Public Problems of Agriculture	
<b>Total Hours</b>		<b>21</b>

Students are responsible for satisfying all prerequisites before registering for courses. A grade of C or better must be earned in each course to be counted toward the minor. Only students outside the Department of Agricultural Economics are eligible for the minor.

## Agribusiness Minor

The Department of Agricultural Economics offers a minor in Agribusiness to students outside the Department. Course selection for the minor in Agribusiness is designed to equip students with fundamental economic and management principles to broaden the scope of career opportunities for students completing the minor.

A minor in Agribusiness is attained by completing at least 18 hours of Agribusiness courses. To qualify for a minor, students must maintain a 2.0 grade point average in courses taken to satisfy the requirements for the minor. Students may choose among the following:

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2123	Principles of Microeconomics	
AEC 3133	Introductory Agribusiness Management	3
Choose at least four of the following:		12
AEC 3213	International Trade in Agriculture	
AEC 3413	Introduction to Food Marketing	
AEC 4113	Agribusiness Firm Management	
AEC 4123	Financial and Commodity Futures Marketing	
AEC 4133	Analysis of Food Markets and Prices	
AEC 4343	Advanced Farm Management	
AEC 4413	Public Problems of Agriculture	
Other approved AEC Elective		
<b>Total Hours</b>		<b>18</b>

Students are responsible for satisfying all prerequisites before registering for courses. A grade of C or better must be earned in each course to be counted toward the minor. Only students outside the Department of Agricultural Economics are eligible for the minor in Agribusiness.

## Department of Animal and Dairy Sciences

**Department Head: Christy Bratcher**

**Undergraduate Coordinator/Advisor: Erica Carroll**

Office: 2111 ADS Building

Animal and Dairy Sciences is a multidisciplinary science that focuses on livestock and companion animal growth, health and safety, as well as food and fiber production. Professionals in the diverse fields of animal and dairy sciences strive to provide healthy and wholesome food as well as quality fiber products to support the growing population. Students in Animal and Dairy Sciences will learn about the newest technologies and experience progressive management strategies that will prepare them to be leaders in agriculture.

Joining Animal and Dairy Sciences will give students hands-on education and experience needed to be successful in areas such as breeding, feeding and nutrition, growth and development, reproductive and lactation physiology, biotechnology, marketing, management, and evaluation as it relates to livestock species. The curriculum is designed to provide students with academic and experiential learning while also allowing them flexibility to tailor their program by taking courses that best prepare and support their professional goals. Students of the Animal and Dairy Sciences will be challenged to think critically and exercise knowledge of discipline content through scientific writing and presentation. Students

pursuing veterinary medicine or graduate studies will find the academic setting of the Animal and Dairy Sciences is an ideal fit.

Concentrations:

Pre-Vet Science  
Business and Industry  
Production Management  
Pre-Vet Med Tech

## BS in Animal and Dairy Sciences (ADS)

### Degree Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1323	Trigonometry	3
or MA 1713	Calculus I	
MA 2113	Introduction to Statistics	3

#### Science

See Concentration Requirements

#### Humanities

Choose from General Education courses	6
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#### Fine Arts

Choose from General Education courses	3
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#### Social Sciences

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2113	Principles of Macroeconomics	
or EC 2123	Principles of Microeconomics	
Choose from General Education courses	3	

#### Major Core

ADS 1111	Orientation in Animal Science	1
ADS 1113	Animal Science	3
ADS 1121	Animal Science Laboratory	1
ADS 3013	Anatomy and Physiology	3
ADS 3031	Anatomy and Physiology Laboratory	1
ADS 2111	Animal Science Career Planning	1
ADS 3313	Introduction to Meat Science	3
ADS 3311	Meat Processing Laboratory	1
PO 3103	Genetics I	3
ADS 4114	Animal Nutrition	4
ADS 4124	Animal Breeding	4
ADS 4213	Feeds and Feeding	3
ADS 4613	Physiology of Reproduction	3
ADS 4611	Practices in Physiology of Reproduction	1
Experiential Learning		3
ADS 4420	Animal and Dairy Science Internship	
or ADS 4440	Research Experience Practicum	
or ADS 4520	Livestock Extension Experience	
ADS 4221	Capstone in Animal and Dairy Science	1

## Choose one of the following concentrations:

### Pre-Vet/Science Concentration

#### Chemistry Sequence

CH 1213 & CH 1211	Chemistry I and Investigations in Chemistry I *	4
CH 1223 & CH 1221	Chemistry II and Investigations in Chemistry II *	4

#### Organic Chemistry & Lab

CH 2503 & CH 2501	Elementary Organic Chemistry and Elementary Organic Chemistry Laboratory	4
or CH 4513 & CH 4511	Organic Chemistry I and Organic Chemistry Laboratory I	

#### Biology

BIO 1134	Biology I *	4
BIO 1144	Biology II	4
BIO 3304	General Microbiology	4

#### Biochemistry

BCH 4013	Principles of Biochemistry	3
or BCH 4603	General Biochemistry I	

#### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Electives

Evaluation & Management Elective	2
Production Electives	8
Science Electives	12
Free Electives	6

See academic advisor for list of approved elective courses

**Total Hours** **124**

\* Satisfies General Education Requirements.

### Business and Industry Concentration

#### Inorganic Chemistry Sequence

CH 1043 & CH 1053 & CH 1051	Survey of Chemistry I and Survey of Chemistry II and Experimental Chemistry *	7-8
or CH 1213 & CH 1211 & CH 1223 & CH 1211	Chemistry I and Investigations in Chemistry I and Chemistry II and Investigations in Chemistry I	

#### Organic Chemistry

CH 2503 & CH 2501	Elementary Organic Chemistry and Elementary Organic Chemistry Laboratory	4
or CH 4513 & CH 4511	Organic Chemistry I and Organic Chemistry Laboratory I	

#### Biology

BIO 1134	Biology I *	4
or BIO 1144	Biology II	

#### Electives

Evaluation & Management Electives	4
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Production Electives	8
Business Electives	12
General Agriculture Electives	12
Free Electives	7

**See academic advisor for list of approved elective courses**

#### Writing Requirement

Satisfied by the successful completion of ADS 1113, ADS 2111, ADS 4213, ADS 4613, ADS 4221, and ONE of: ADS 2102, ADS 2122, ADS 3213, ADS 4212, ADS 4420, ADS 4440, ADS 4520, or ADS 4623.

#### Oral Communication Requirement

Satisfied by the successful completion of ADS 4613, ADS 4221, and TWO of the following: ADS 2102, ADS 2122, ADS 2223, ADS 3812, ADS 4212, ADS 4412, ADS 4420, ADS 4440, ADS 4520, ADS 4623, or ADS 4813.

#### Computer Literacy Requirement

Satisfied by the successful completion of ADS 3312, ADS 4420, ADS 4440, ADS 4520, ADS 4813, or ADS 4523

**Total Hours** **124**

\* Satisfies General Education Requirements.

## Production Management Concentration

#### Inorganic Chemistry Sequence

CH 1043 & CH 1053 & CH 1051	Survey of Chemistry I and Survey of Chemistry II and Experimental Chemistry *	7-8
or CH 1213 & CH 1211 & CH 1223 & CH 1221	Chemistry I and Investigations in Chemistry I and Chemistry II and Investigations in Chemistry II	

#### Organic Chemistry & Lab

CH 2503 & CH 2501	Elementary Organic Chemistry and Elementary Organic Chemistry Laboratory	4
or CH 4513 & CH 4511	Organic Chemistry I and Organic Chemistry Laboratory I	

#### Biology

BIO 1134 or BIO 1144	Biology I * Biology II	4
PSS 4103	Forage and Pasture Crops	3

#### Electives

Evaluation & Management Electives	4
Production Electives	16
Business Electives	6
General Agriculture Electives	12
Free Electives	5

**See academic advisor for list of approved elective courses.**

#### Writing Requirement

Satisfied by the successful completion of ADS 1113, ADS 2111, ADS 4213, ADS 4613, ADS 4221, and ONE of: ADS 2102, ADS 2122, ADS 3213, ADS 4212, ADS 4420, ADS 4440, ADS 4520, or ADS 4623.

#### Oral Communication Requirement

Satisfied by the successful completion of ADS 4613, ADS 4221, and TWO of the following: ADS 2102, ADS 2122, ADS 2223, ADS 3812, ADS 4212, ADS 4412, ADS 4420, ADS 4440, ADS 4520, ADS 4623, or ADS 4813.

#### Computer Literacy Requirement

Satisfied by the successful completion of ADS 3312, ADS 4420, ADS 4440, ADS 4520, ADS 4813, or ADS 4523

**Total Hours** **61**

\* Satisfies General Education Requirements.

## Pre-Vet Med Tech Concentration

#### Inorganic Chemistry Sequence

CH 1043 & CH 1053 & CH 1051	Survey of Chemistry I and Survey of Chemistry II and Experimental Chemistry	7
or CH 1211 & CH 1213 & CH 1221 & CH 1223	Investigations in Chemistry I and Chemistry I and Investigations in Chemistry II and Chemistry II	

#### Organic Chemistry & Lab

CH 2503 & CH 2501	Elementary Organic Chemistry and Elementary Organic Chemistry Laboratory	4
or CH 4513 & CH 4511	Organic Chemistry I and Organic Chemistry Laboratory I	

#### Biology

BIO 1134	Biology I	4
BIO 1144	Biology II	4
BIO 3304	General Microbiology	4

#### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
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#### Veterinary Science

VS 1012	Introduction to Veterinary Medicine Careers	2
CVM 3101	Veterinary Technology Medical Terminology	1

#### Electives

Evaluation & Management Electives <sup>1</sup>	2
Production Electives <sup>2</sup>	8
Ag/Science Electives <sup>3</sup>	12
Free Electives	10

#### Writing Requirement:

Satisfied by the successful completion of ADS 1113, ADS 2111, ADS 4213, ADS 4613, ADS 4221, and ONE of: ADS 2102, ADS 2122, ADS 3213, ADS 4212, or ADS 4623

**Total Hours** **61**

<sup>1</sup> Evaluation & Management Electives: See academic advisor for list of approved courses.

<sup>2</sup> Production Electives: See academic advisor for list of approved courses.

<sup>3</sup> Ag/Science Electives: See academic advisor for list of approved courses.

## Course requirements for Pre-Veterinary students (3 + 1 program) to obtain a B.S. degree in Animal and Dairy Sciences

Because

- the entrance requirements for the College of Veterinary Medicine satisfy a portion of the course requirements for the Animal and Dairy Sciences curriculum
- a number of students are enrolled in Animal and Dairy Sciences while satisfying their pre-veterinary requirements and
- an Animal and Dairy Sciences degree will be especially helpful to a practicing veterinarian,

the following requirements for those electing to apply for a Bachelor of Science degree in Animal and Dairy Sciences after successfully completing the first year of Veterinary Medicine are listed.

General Education Requirements	27
Dept Core	39
Science/Veterinary Medicine Concentration (excl. Science Electives and Free Electives)	40

To qualify for the Bachelor of Science degree in ADS, a student in the 3+1 program must successfully complete the 3 years of above listed undergraduate course work (115-118 hours) and the first year of the Veterinary Medicine curriculum.

### ADS Minor Requirements

Obtaining a minor in Animal and Dairy Sciences will serve to complement other Bachelor of Science studies at Mississippi State University through multidisciplinary science coursework aimed to provide a deeper understanding of livestock.

### Requirements

ADS 1113	Animal Science	3
ADS 1121	Animal Science Laboratory	1
Production Courses (choose from the following)		3
ADS 3214	Livestock Growth and Development	
ADS 4113	Swine Science	
ADS 4223	Goat and Sheep Production	
ADS 4233	Horse Management	
ADS 4323	Beef Cattle Science	
ADS 4813	Dairy Farm Management	
Evaluation Course (choose from the following)		2
ADS 2102	Equine Conformation and Performance Evaluation	
ADS 2122	Advanced Equine Evaluation	
ADS 3212	Livestock Evaluation	
ADS 3812	Dairy Cattle Appraisal	
ADS 4232	Advanced Livestock Evaluation	
Upper Level Courses (choose from the following)		9
ADS 3013	Anatomy and Physiology	
ADS 3313	Introduction to Meat Science	
ADS 4114	Animal Nutrition	
ADS 4124	Animal Breeding	
ADS 4213	Feeds and Feeding	

ADS 4333	Equine Exercise Physiology	
ADS 4543	Applied Animal Biotechnology	
ADS 4613	Physiology of Reproduction	
ADS 4623	Physiology of Lactation	
ADS 4633	Immunology and Disease in Large Livestock Species	

**Minimum Hours Required**

**18**

### Companion Animal Management Certificate

The Department of Animal and Dairy Sciences offers a Companion Animal Management certificate for students who wish to delve deeper into concepts specifically related to companion animals. Students must complete a total of 15 credit hours as described below to be eligible for the certificate. The goal of this certificate is to equip students with knowledge and skills that may be applied in a variety of companion animal careers as well as in one's personal life. Students who complete all coursework will be able to develop practical solutions and management plans for needs related to raising, nutrition and management of companion animal species.

#### Required Courses

ADS 2202	Companion Animal Evaluation	2
ADS 2313	Animal Behavior & Training	3
ADS 3413	Companion Animal Nutrition	3
ADS 4513/6513	Companion Animal Management	3
ADS 4511/6511	Companion Animal Management Laboratory	1
ADS 4713/6713	Human-Animal Bond/Shelter Management	3

**Total Hours**

**15**

### Meat Science Certificate

Major Advisor: Wes Schilling

The Department of Food Science, Nutrition, and Health Promotion and the Department of Animal and Dairy Sciences offer a Meat Science Certificate for students who wish to specialize in the meat processing industry. Students must complete a total of 24 credit hours as described below to be eligible for the certificate. Nineteen credit hours are in required courses, with the remaining 5 hours to be selected from several electives. Students must also complete 300 hours of hands-on experiential learning in meat processing, research, and extension activities. With this approach, students will be career ready professionals equipped with a comprehensive understanding of industry and a skill set designed for them to make an immediate impact in meat science government, academic, or industry positions upon graduation.

#### Certificate Requirements

##### Required Courses

ADS 3314	or FNH 3314	
FNH 4333	Food Law	3
FNH 4414	Microbiology of Foods	4
or BIO 4414	Microbiology of Foods	
FNH 4514	Poultry Processing	4
or PO 4514	Poultry Processing	

FNH 4480	Food Science Internship (3 credits must be at meat processing or related facility)	1-6
or ADS 4420	Animal and Dairy Science Internship	
HACCP Training (as a Directed Individual Study)		1

### Electives

Choose a minimum of 5 credit hours from the following:

ADS 3142	Meats Judging I
or FNH 3142	Meats Judging I
ADS 3214	Livestock Growth and Development
ADS 4243	Composition and Chemical Reactions of Foods
or FNH 4243	Composition and Chemical Reactions of Foods
ADS 4313	Advanced Science of Muscle Foods
or FNH 4313	Advanced Science of Muscle Foods
FNH 4114	Analysis of Food Products
FNH 4164	Quality Assurance of Food Products
FNH 4241	Applied Food Chemistry
FNH 4512	Poultry Products Safety and Sanitation
or PO 4512	Poultry Products Safety and Sanitation

**Total Hours (minimum)** **24**

## Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology

**Department Head: Dan Peterson (Interim)**

Undergraduate Advisor: Aswathy Rai

Graduate Advisor: Natraj Krishnan

Office: 402 Dorman

### Biochemistry and Molecular Biology Program

The Biochemistry and Molecular Biology program within the Department of BCH-EPP involves disciplines at the cutting edge of a revolution in biology. Molecular methods and the use of genetic engineering have given scientists unprecedented power to explore the chemistry of life processes. The Department of BCH-EPP prepares students at Mississippi State for this exciting area. In addition to the undergraduate curriculum in biochemistry and molecular biology, the department provides opportunities for an M.S. degree in Agricultural Life Sciences with a concentration in Biochemistry and a Ph.D. in Molecular Biology (See the Graduate Bulletin for description of programs and requirements for advanced degrees). For the Bachelor of Science degree in biochemistry, the objective of this curriculum is to provide the student with a strong background in science, and to prepare the student for entry into professional schools, graduate study and/or highly technical scientific careers after graduation. There are sufficient individual choices in the curriculum to allow students to tailor their programs to any of several areas of specialization by appropriate use of elective hours.

### Biochemistry Minor

The Biochemistry minor is offered to allow undergraduate students in other majors to develop specific skills needed by graduates entering the science-related workforce. Students will enhance their written and

oral communication skills and develop problem-solving/application skills. Students must complete 19 to 20 hours of approved coursework.

### Entomology Minor

The Entomology minor is offered to help students in other programs develop specific disciplinary skills to prepare them for entry into the science-related workforce. Agriculture, forestry, and service sector industries recruit and employ a diversity of personnel variously trained in the biological sciences, business, chemistry, human health, law, natural resource management, and veterinary medicine for whom expertise in entomology would be considered an asset. The minor in Entomology provides these individuals with enhanced employment opportunities in these industries.

Students seeking an Entomology minor are required to complete at least 18 credit hours as specified to receive a minor in Entomology. Additionally, students in the IPM concentration of the Agronomy major must complete EPP 4164 Insect Taxonomy as a requirement for receiving a minor in Entomology.

### Plant Pathology Minor

The Plant Pathology minor is offered to help students in other programs develop specific disciplinary skills to prepare them for entry into the science-related workforce. Agriculture, forestry, and service sector industries recruit and employ a diversity of personnel variously trained in the biological sciences, business, chemistry, human health, law, natural resource management, and veterinary medicine for whom expertise in plant pathology would be considered an asset. The minor in Plant Pathology provides these individuals with enhanced employment opportunities in these industries.

Students seeking a Plant Pathology minor are required to complete at least 18 credit hours as specified to receive a minor in Plant Pathology. Additionally, students in the IPM concentration of the Agronomy major must complete EPP 4254 Introduction to Mycology as a requirement for receiving a minor in Plant Pathology.

### Graduate Studies Track

Students aiming for a career requiring graduate education should take Genetics and Cell Biology as technical electives. Since many graduate programs require some form of physical chemistry, it is strongly suggested that students take CH 4413/CH 4423 Quantum Mechanics and Spectroscopy or CH 4403 Biophysical Chemistry as technical electives.

### Preparation for entry into an accelerated Master's Program (THESIS) in Biochemistry and Molecular Biology

This program requires careful planning by the student in order to complete the requirements for the B.S. while beginning a research program that should result in successful completion of a Master's thesis at the end of the second summer after the B.S. Only exceptional and motivated students should attempt this program. It is critical that BCH 4603 General Biochemistry I be scheduled in the spring of the sophomore year. The student will be expected to begin a research project in the senior year by taking up to nine hours of Directed Individual Study courses (BCH 4000). Research will continue during the summer after completion of the B.S. degree. The student must register for BCH 8000 (3 hours) Thesis Research during the summer. In addition, the student

should schedule a graduate level BCH course and ST 8114 in the spring of the senior year.

The student interested in the five year program should apply early in the undergraduate program to facilitate the scheduling of courses to conform to time constraints. The student must complete the courses required for completion of the BS degree with no more than 10 hours remaining in the semester of expected graduation.

## Preparation for entry into an accelerated Master's Program (NON-THESIS) in Biochemistry and Molecular Biology

This program requires careful planning by the student in order to complete the requirements for the B.S. while initiating graduate work that should result in completion of courses leading to a Master's Degree, non-thesis concentration. This curriculum allows completion of the two degrees in a minimum of five years. Required courses and electives must be scheduled so that the student has only eight hours of undergraduate course work remaining in the spring of the senior year. The student should then schedule ST 8114 Statistical Methods and an 8000 level BCH course in that same semester. Graduate work must include BCH 8654 Intermediary Metabolism or BCH 8633 Enzymes and BCH 7000 (3 hrs) Directed Individual Study (to allow completion of an independent research paper).

The student interested in the five year program should apply early in the undergraduate program to facilitate the scheduling of courses to conform to time constraints. The student must complete the courses required for completion of the B.S. Degree with no more than 10 hours remaining in the semester of expected graduation.

## Preparation for entry into an accelerated Ph.D. Program in Molecular Biology

This program requires careful planning by the student in order to complete the requirements for the B.S. while beginning a research program that should meaningfully accelerate progress towards early completion of the Ph.D. degree in Molecular Biology. By initiating a research program in the senior year, a student should reduce the time to completion of the Ph.D. by a year. Only exceptional and motivated students should attempt this program. It is critical that BCH 4603 General Biochemistry I be scheduled in the spring of the sophomore year.

The student will be expected to begin a research project in the senior year by taking the Directed Individual Study Courses. Research will continue during the summer after completion of the B.S. degree. The student must register for BCH 9000 Research in Biochemistry, Molecular Biology, Entomology, and Plant Pathology during the summer.

The student should plan his/her complete graduate program of study in conjunction with research Director and Graduate Committee. Since the Ph.D. is primarily a research degree, ultimate time to completion will be dependent upon the period necessary to satisfy the research requirements of the Graduate Committee. This concentration allows the student to begin that research substantially earlier than usual.

## BS in Biochemistry & Molecular Biology Degree Requirements

### English Composition

EN 1103	English Composition I	3
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or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	
<b>Mathematics</b>		
MA 1713	Calculus I	3
MA 1723	Calculus II	3
<b>Science</b>		
Satisfied in major core		9
<b>Humanities</b>		
Select from General Education courses		6
<b>Fine Arts</b>		
Select from General Education courses		3
<b>Social Sciences</b>		
See concentration requirements		6
<b>Major Core</b>		
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II	1
CH 4513	Organic Chemistry I	3
CH 4511	Organic Chemistry Laboratory I	1
CH 4523	Organic Chemistry II	3
CH 4521	Organic Chemistry Laboratory II	1
BCH 1001	Introduction to Biochemistry	1
BCH 3901	Senior Seminar	1
BCH 4414	Protein Methods	4
BCH 4503	Scientific Communication Skills	3
BCH 4603	General Biochemistry I	3
BCH 4613	General Biochemistry II	3
BCH 4623	Integrative Metabolic and Medical Biochemistry	3
BCH 4713	Molecular Biology	3
BCH 4804	Molecular Biology Methods	4
BIO 1134	Biology I	4
BIO 1144	Biology II	4
BIO 3304	General Microbiology	4
PH 1113	General Physics I <sup>1</sup>	3
or PH 2213	Physics I	
PH 1123	General Physics II <sup>1</sup>	3
or PH 2223	Physics II	
Technical Electives (concentration dependent) <sup>2</sup>		21-32
General Electives (concentration dependent)		0-10
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
<b>Writing Requirement</b>		
BCH 4414	Protein Methods	4
BCH 4804	Molecular Biology Methods	4
<b>Computer Literacy</b>		
BCH 4414	Protein Methods	4
BCH 4713	Molecular Biology	3
BCH 4804	Molecular Biology Methods	4

## Pre-Medicine Concentration (MED)

Biochemistry is an excellent preparation for medical school. In order to be better prepared for the Medical College Admissions Test (MCAT), medical school classes, and to meet medical school entrance requirements, the following courses are required in lieu of technical or general electives. These courses are also appropriate for students interested in dental school.

Social Sciences (See General Education list)	6
BIO 2103 Cell Biology or BIO 4114 Cellular Physiology	3
Choose one of the following:	4
BIO 3004 Human Anatomy	
BIO 3014 Human Physiology	
VS 3014 Anatomy and Physiology	
BIO 4514 Animal Physiology	
BIO 3103 Genetics I or BIO 4133 Human Genetics	3
Choose one of the following:	3
PH 1133 General Physics III	
PH 2233 Physics III (OR a technical elective if transferring 8 hours of Physics to the program)	
Choose one of the following:	3
PHI 1123 Introduction to Ethics	
PHI 3323 Medical Ethics Science Elective	
Technical electives	6
General or Free electives	8-9
<b>Total hours</b>	<b>120</b>

## Pre-Dental Concentration (DENT)

Biochemistry is an excellent preparation for dental school. This concentration prepares students for the Dental Admissions Test, dental school classes, and to meet dental school requirements. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

PSY 1013 General Psychology	3
Social Science (See General Education courses)	3
BIO 2103 Cell Biology or BIO 4114 Cellular Physiology	3
BIO 3014 Human Physiology or BIO 4514 Animal Physiology	4
ST 2113 Introduction to Statistics	3
Choose one of the following:	3
PHI 1123 Introduction to Ethics <sup>1</sup>	
PHI 3323 Medical Ethics Science Elective	
PH 1133 General Physics III (OR Science elective if transferring 8 hours of Physics to the program)	3
Science electives	6

General or Free electives	8-9
<b>Total hours</b>	<b>120</b>

<sup>1</sup> PHI 1123 Introduction to Ethics may be used to fulfill three of the six hours of General Education Humanities requirements. Students taking this course may apply this as a humanities elective (if they so choose) and then take either PHI 3323 Medical Ethics or any other approved Science elective to fulfill this technical elective requirement.

## Pre-Pharmacy Concentration (PPHR)

Pharmacy school typically requires only two to three years of college work for entry. However, four-year undergraduate programs can be of benefit to students and Biochemistry graduates have been very successful in Pharmacy School and perform well on the Pharmacy College Admissions Test. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

PSY 1013 General Psychology or SO 1003 Introduction to Sociology	3
EC 2113 Principles of Macroeconomics	3
EC 2123 Principles of Microeconomics	3
ST 2113 Introduction to Statistics	3
BIO 3103 Genetics I or BIO 4113 Evolution	3
BIO 4405 Pathogenic Microbiology	5
BIO 4413 Immunology	3
BIO 4514 Animal Physiology	4
PHI 3323 Medical Ethics	3
PH 1133 General Physics III (OR Science elective if transferring 8 hours of Physics to the program)	3
General or Free electives	4
<b>Total hours</b>	<b>120</b>

## Pre-Optometry Concentration (OPT)

Biochemistry is an excellent preparation for optometry school. This concentration prepares students for the Optometry Admissions Test, optometry school classes, and to meet optometry school requirements. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

PSY 1013 General Psychology	3
Social Science (See General Education courses)	3
BIO 2103 Cell Biology or BIO 4114 Cellular Physiology	3
BIO 3014 Human Physiology or BIO 4514 Animal Physiology	4
ST 2113 Introduction to Statistics	3
Choose one of the following:	3
PHI 1123 Introduction to Ethics <sup>1</sup>	
PHI 3323 Medical Ethics Science Elective	
PH 1133 General Physics III (OR Science elective if transferring 8 hours of Physics to the program)	3
Science elective	6

General or Free electives	8-9
<b>Total hours</b>	<b>120</b>

<sup>1</sup> PHI 1123 Introduction to Ethics may be used to fulfill three of the six hours of General Education Humanities requirements. Students taking this course can apply this as a humanities elective (if they so choose) and then can take either PHI 3323 Medical Ethics or any other approved Science elective to fulfill this technical elective requirement.

## Science Concentration (SCI)

The Science concentration provides students with core classes towards a degree in biochemistry coupled with undergraduate research and/or internship requirements. Additional coursework as technical electives concentrate on cell biology, anatomy and/or physiology, with much of the coursework remaining flexible to allow students to explore specialized subject matter or broad areas of interest in the sciences. This concentration is intended for students that may pursue graduate research after their undergraduate degree, or those seeking to tailor a specialization to their interest or intended career track. The following courses are required in lieu of technical or general electives.

Social Sciences (see General Education list)	6
BCH 4100 Biochemistry and Molecular Biology Internship	1-6
or BCH 4000 Directed Individual Study in Biochemistry, Molecular Biology, Entomology, and Plant Pathology	
Choose one of the following:	4
BIO 3014 Human Physiology	
VS 3014 Anatomy and Physiology	
BIO 4514 Animal Physiology	
BIO 2103 Cell Biology	3
or BIO 4114 Cellular Physiology	
Science or business technical electives	12
General/free electives	8-9
<b>Total hours</b>	<b>120</b>

## Bioinformatics Concentration (BINF)<sup>1</sup>

This concentration provides the student with a B.S. in Biochemistry and Molecular Biology incorporating a strong background in the biochemical sciences along with a rigorous preparation in the field of computer science. The graduate will be able to either enter graduate school or directly enter a career requiring knowledge of bioinformatics. This exciting field applies computational and database skills to molecular biological problems. Practitioners routinely mine genomic databases for information relating to basic understanding of life processes as well as information providing clues for medical and agricultural advances. This program also constitutes a minor in computer science. Students MUST take the following courses in lieu of technical and general electives.

Social Sciences (See General Education courses)	6
CSE 1284 Introduction to Computer Programming	4
CSE 1384 Intermediate Computer Programming	4
CSE 2383 Data Structures and Analysis of Algorithms	3
CSE 2813 Discrete Structures	3
CSE 3813 Introduction to Formal Languages and Automata	3

CSE 4613 Bio-computing	3
CSE 4633 Artificial Intelligence	3
CSE 4623 Computational Biology	3
CSE 4833 Introduction to Analysis of Algorithms	3
ST 3123 Introduction to Statistical Inference (OR Computer Science Elective)	3
<b>Total hours</b>	<b>121</b>

<sup>1</sup> Completion of the Bioinformatics program also constitutes a minor in Computer Science from the Department of Computer Science and Engineering, and students receive a Certificate in Computational Biology from the Institute of Digital Biology. Note that students must declare to the appropriate program and/or departmental advisor to receive credit for a degree minor and/or to receive a Certificate.

## Pre-MBA Concentration (PMBA)

This concentration provides the student with a B.S. in Biochemistry incorporating a strong background in science while preparing the student for immediate entry into a graduate program leading to an advanced business degree (either the Master of Business Administration or the Master of Agribusiness Management). Either program can be completed in a minimum of three semesters. Students thus educated may enter into management level positions in the biotech or agribusiness industry. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

ACC 2013 Principles of Financial Accounting	3
ACC 2023 Principles of Managerial Accounting	3
EC 2113 Principles of Macroeconomics	3
EC 2123 Principles of Microeconomics	3
BQA 2113 Business Statistical Methods I	3
BQA 3123 Business Statistical Methods II	3
MGT 3114	4
MKT 3013 Principles of Marketing	3
FIN 3123 Financial Management	3
Computer elective	3
General/Free electives	6
<b>Total hours</b>	<b>120</b>

## Forensic Sciences Concentration (FOSC)

This concentration provides the student with a B.S. in Biochemistry incorporating a strong background in the biochemical sciences along with a rigorous preparation in the general area of criminology and forensics. Because of the ever increasing use of molecular sciences in forensics, graduates with this specialization should be employable by crime labs or by industry using DNA profiling or other biometric techniques. Internships are encouraged. The following courses are required as either Social Science core courses or in lieu of technical or general electives.

PSY 1013 General Psychology	3
SO 1003 Introduction to Sociology	3
Choose one of the following:	3
CH 2313	
ST 2113 Introduction to Statistics	
PSY 3104 Introductory Psychological Statistics	
SO 3603 Criminological Theory	3



CRM 3103	Contemporary Issues in Criminal Justice	3
SO 3313	Deviant Behavior	3
or PSY 3213	Psychology of Abnormal Behavior	
Choose one of the following:		3
PSY 4373	Forensic Psychology	
AN 4313	Human Osteology	
CSE 4273	Introduction to Computer Forensics	
BIO 3103	Genetics I	
BIO 2103	Cell Biology	3
or BIO 4114	Cellular Physiology	
BCH 2013	Introduction to Forensic Science	3
BCH 4333	Advanced Forensic Science	3
SO 4513	Correctional Systems (OR Science elective)	3
General/free electives		3-4
<b>Total hours</b>		<b>120</b>

### Entomology Concentration (ENT)

This concentration provides a student with a B.S. in Biochemistry but incorporates a focal area in entomology. Students receive excellent training in the biochemical sciences, coupled with general and specific entomology subject areas from which the student can choose subject matter in their areas of interest. The following courses are required in lieu of technical or general electives.

Social Sciences (see General Education courses)		6
EPP 4154	General Entomology	4
EPP 4164	Insect Taxonomy	4
EPP 4263	Principles of Insect Pest Management	3
EPP 4335		5
Choose three of the following:		6-8
EPP 3124	Forest Pest Management	
EPP 3423	Ornamental and Turfgrass Insects	
EPP 4173	Medical and Veterinary Entomology	
EPP 4234	Field Crop Insects	
EPP 4244	Aquatic Entomology	
EPP 4543	Toxicology and Insecticide Chemistry	
General/free electives		
<b>Total hours</b>		<b>120</b>

### Plant Pathology Concentration (PPTH)

This concentration provides a student with a B.S. in Biochemistry but incorporates a focal area in plant pathology. Students receive excellent training in the biochemical sciences, coupled with general and specific plant pathology subject areas in plant disease epidemiology, pathology and disease identification/diagnostics. The following courses are required in lieu of technical or general electives.

Social Sciences (see General Education courses)		6
EPP 3124	Forest Pest Management	4
EPP 4113	Principles of Plant Pathology	3
EPP 4163	Plant Disease Management	3
EPP 4214	Diseases of Crops	4
EPP 4254	Introduction to Mycology	4
EPP 4523	Turfgrass Diseases	3

BIO 2113	Plant Biology	3
or PSS 1313	Plant Science	
Choose one of the following:		3-4
PSS 4553	Plant Growth and Development	
BIO 4214	General Plant Physiology	
General/free electives		3-4
<b>Total hours needed for major</b>		<b>120</b>

### Pre-Veterinary Medicine Concentration (PVBC)

Biochemistry is an excellent preparation for veterinary medical school. In order to be better prepared for the Graduate Record Examination (GRE) or Veterinary College Admissions Test, veterinary medical school classes, and to meet veterinary medical school entrance requirements, the following courses are required in lieu of technical or general electives.

BIO 3103	Genetics I	3
or BIO 4133	Human Genetics	
VS 3014	Anatomy and Physiology	4
or BIO 4514	Animal Physiology	
BIO 2103	Cell Biology	3
or BIO 4114	Cellular Physiology	
Science or business technical electives		12
Social Sciences (See General Education courses)		6
General/free electives		8-9
<b>Total hours</b>		<b>120</b>

### Three year program (3+1) for early admission into the College of Veterinary Medicine

The aim of this curriculum is to allow a student to matriculate through the Department of Biochemistry and Molecular Biology for three years and then proceed into the College of Veterinary Medicine under their early admissions policy. Successful completion of the courses taken during the first year in Veterinary Medicine will satisfy the Department's requirements for technical electives and allow the University to grant the student a B.S. in Biochemistry and Molecular Biology after this period.

General Education requirements		30
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II	1
CH 4513	Organic Chemistry I	3
CH 4511	Organic Chemistry Laboratory I	1
CH 4523	Organic Chemistry II	3
CH 4521	Organic Chemistry Laboratory II	1
BCH 1001	Introduction to Biochemistry	1
BCH 4503	Scientific Communication Skills	3
BCH 4603	General Biochemistry I	3
BCH 4414	Protein Methods	4
BCH 4613	General Biochemistry II	3
BCH 4623	Integrative Metabolic and Medical Biochemistry	3

BCH 4713	Molecular Biology	3
BCH 3901	Senior Seminar	1
BCH 4804	Molecular Biology Methods	4
BIO 1134	Biology I	4
BIO 1144	Biology II	4
BIO 3304	General Microbiology	4
PH 1113	General Physics I	3
PH 1123	General Physics II	3
VS 3014	Anatomy and Physiology	4
or BIO 4514	Animal Physiology	
BIO 3103	Genetics I	3
or BIO 4133	Human Genetics	

**95 hours required plus successful completion of the first year curriculum of the College of Veterinary Medicine**

Mississippi State requires a minimum of 120 hours for the undergraduate degree. Therefore, the first year in the College of Veterinary Medicine will contribute 25 hours of technical electives to this program.

## Biochemistry Minor

BCH 4603	General Biochemistry I	3
BCH 4613	General Biochemistry II	3
BCH 4414	Protein Methods	4
or BCH 4804	Molecular Biology Methods	
BCH 4713	Molecular Biology	3

**Select a minimum of 6 hours (any two courses) from the following:** 6-7

BCH 2013	Introduction to Forensic Science	
BCH 4000	Directed Individual Study in Biochemistry, Molecular Biology, Entomology, and Plant Pathology	
BCH 4100	Biochemistry and Molecular Biology Internship	
BCH 4253	Macronutrients: Human Metabolism	
BCH 4333	Advanced Forensic Science	
BCH 4414	Protein Methods	
or BCH 4804	Molecular Biology Methods	
BCH 4623	Integrative Metabolic and Medical Biochemistry	
BCH 4990	Special Topics in Biochemistry, Molecular Biology, Entomology and Plant Pathology	
<b>Total Hours</b>		<b>19-20</b>

## Entomology Minor

EPP 2213	Introduction to Insects	3-4
or EPP 4154	General Entomology	
EPP 4263	Principles of Insect Pest Management	3
EPP 4000	Directed Individual Study in Entomology and Plant Pathology	3-5
Choose 6-9 hours from the following:		6-9
EPP 3124	Forest Pest Management	
EPP 3423	Ornamental and Turfgrass Insects	
EPP 4164	Insect Taxonomy (required for AGR-IPM majors)	

EPP 4173	Medical and Veterinary Entomology	
EPP 4234	Field Crop Insects	
EPP 4244	Aquatic Entomology	
EPP 4335		
EPP 4543	Toxicology and Insecticide Chemistry	
EPP 4613	Forensic Entomology	
<b>Total Hours</b>		<b>18</b>

## Plant Pathology Minor

EPP 4000	Directed Individual Study in Entomology and Plant Pathology	3-5
EPP 4113	Principles of Plant Pathology	3
EPP 4163	Plant Disease Management	3
Choose 7-9 hours from the following:		7-9
EPP 3124	Forest Pest Management	
EPP 4152	Advanced Fungal Taxonomy-Fungi Imperfecti	
EPP 4214	Diseases of Crops	
EPP 4254	Introduction to Mycology (required for AGR-IPM majors)	
EPP 4264	Advanced Mycology	
EPP 4523	Turfgrass Diseases	
<b>Total Hours</b>		<b>18</b>

## Department of Food Science, Nutrition and Health Promotion

**Interim Department Head: Professor Ashli Brown**

Office: 107 Herzer Building

The Food Science, Nutrition and Health Promotion major offers the opportunity to gain a broad education in food science, nutrition, and health, as well as the specific academic background to pursue careers as food scientists and dietitians/nutritionists. It involves the integration of new knowledge and advances in technology and the physical and biological sciences with psychological, sociological, and behavioral sciences in the provision of a safe, nutritious food supply. Research, teaching, and outreach extend the continuum from the processing of food to its marketing, consumption, and impact on public health and community.

Food scientists integrate knowledge from engineering, biological, and physical sciences to study the nature of foods, the causes of deterioration, the principles underlying food processing, and the improvement of foods for the consuming public. Food technology is the application of food science to the selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome foods (<http://www.ift.org/knowledge-enter/learnabout-food-science.aspx>, 2013).

The Department offers a degree in Culinology®. This is a dual degree program in which students take courses at Mississippi State University and the Mississippi University for Women in Columbus, MS. The Culinology® curriculum includes courses that combine the disciplines of food science and culinary arts. Culinologists work in diverse areas within the food industries - from experimental chefs to food manufacturing and product development.

The Pre-Health Professions concentration is designed to develop students who have a thorough understanding of the principles of food science and have also fulfilled the prerequisites for medical school or other health-related professional or graduate school programs (examples include but are not limited to: medicine, nursing, physician's assistant, physical therapy, pharmacy, occupational therapy, public health, optometry, podiatry, and others).

Dietitians are food and nutrition experts studying the relationship of nutrition and diet in promoting health and treating disease. Studies include nutritional science, medical nutrition therapy, community nutrition, food service, food production and management of food service operations, chemistry, physiology, plus a variety of supporting coursework in related disciplines. The Food and Nutrition concentration is an accredited Didactic Program in Dietetics (DPD) through the Accreditation Council for Education in Nutrition and Dietetics, providing the required course work needed to apply for a supervised practice program required for Registered Dietitian Nutritionist (RDN) eligibility. (The terms Registered Dietitian (RD) and Registered Dietitian Nutritionist (RDN) are used interchangeably.)

Students in Food Science, Nutrition and Health Promotion have many exciting and diverse career opportunities. Food Science, Nutrition and Health Promotion careers include Research Scientist (Industrial, Government, Academic); Food Engineer; Food Microbiologist; Research and Development; Product Development Technologist; Research Chef; Food Manufacturing Operations Manager; Quality Control Technician; Regulatory Affairs; Food Packaging Specialist; Processing Engineer; Technical Sales in the Food Industry; Technical Services; Public Health/Community Nutritionist; Clinical Nutrition Educator; Nutrition Educator; Registered Dietitian (Pediatric, Cardiovascular, Renal, Private Practice, Sports/Wellness, Weight Management, Business and Industry, and Journalism and Communications); Healthcare/School Food Service Director; Pharmaceutical Sales Representative; and Public Relations and Marketing Specialists.

A major in Food Science, Nutrition and Health Promotion is also an excellent choice for students interested in pursuing pre-professional career paths like Veterinary School, Medical School, Pharmacy, Physical Therapy, Nursing School, and Dental School.

The following concentrations are offered in the Department of Food Science, Nutrition and Health Promotion:

- Food Processing/Business
- Food Science
- Food Safety (pre-vet)
- Food and Nutrition
- Pre-Health Professions

## Food and Nutrition Concentration

The Food and Nutrition concentration prepares students for a wide variety of careers. For students interested in becoming a Registered Dietitian, the Didactic Program in Dietetics (DPD) at Mississippi State University is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2190, Chicago, IL, 60606-6995; telephone 800-877-1600 or 312-899-0040, <http://www.eatright.org/ACEND>. Upon completion of the DPD program, graduates may pursue participation in a supervised practice program/dietetic internship.

Didactic Program in Dietetics:

- To enter the Didactic Program in Nutrition and Dietetics (DPD) Food and Nutrition concentration, students must have a 3.0 GPA and have completed the following courses with a grade of "C" or better: CH 1213 Chemistry I, CH 1211 Investigations in Chemistry I, CH 1223 Chemistry II, CH 1221 Investigations in Chemistry II, CH 2503 Elementary Organic Chemistry, CH 2501 Elementary Organic Chemistry Laboratory, BIO 1134 Biology I, FNH 2293 Individual and Family Nutrition, ST 2113 Introduction to Statistics.
- A grade of "C" or better is required in all DPD courses. A course with a final grade lower than a "C" must be repeated.
- Students who wish to receive a Letter of Intent and/or verification statement from the MSU Didactic Program in Dietetics (DPD) must have a minimum of a 3.0 GPA and a minimum grade of "C" or better in all of the required DPD courses.
- Six (6) hours are available for electives, and students are encouraged to consider an academic minor.
- Transfer credits with a grade of "C" or better will be considered toward fulfilling degree requirements. After completion of the DPD undergraduate degree, successful completion of the supervised practice program/dietetic internship, followed by passing the Registration Exam, a student fulfills the requirements to become a Registered Dietitian. Beginning in January 2024, a minimum of a Master's degree will be an eligibility requirement to take the Registration Exam.

## BS in Food Science, Nutrition, and Health Promotion

### Food Processing/Business Concentration (FSTP)

Major Advisors: Wes Schilling, Professor, and Shecoya White, Assistant Professor

FSTP combines food science and business courses to prepare students for careers in the food industry, government, or private business.

<b>English Composition</b>		<b>6</b>
EN 1103	English Composition I	
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	
or EN 1173	Accelerated Composition II	
<b>Fine Arts (General Education)</b>		<b>3</b>
Select from University Gen Ed Core		
<b>Natural Sciences (General Education)</b>		<b>12</b>
BIO 1134	Biology I	
CH 1213	Chemistry I	
CH 1211	Investigations in Chemistry I	
CH 1223	Chemistry II	
CH 1221	Investigations in Chemistry II	
<b>Math (General Education)</b>		<b>6</b>
MA 1313	College Algebra (or higher math)	
ST /BQA /MA 2113	Introduction to Statistics	
or ST 3123	Introduction to Statistical Inference	
<b>Humanities (General Education)</b>		<b>6</b>

Select from University Gen Ed Core		
<b>Social/Behavioral Sciences (General Education)</b>		<b>6</b>
AEC 2713	Introduction to Food and Resource Economics	
Select from University Gen Ed Core		
<b>Major Core Courses</b>		<b>17</b>
CH 2503	Elementary Organic Chemistry	
CH 2501	Elementary Organic Chemistry Laboratory	
MGT 3513	Introduction to Human Resource Management	
FNH 2293	Individual and Family Nutrition	
FNH 3111	Food Science, Nutrition and Health Promotion Seminar	
FNH 4243	Composition and Chemical Reactions of Foods	
CO 1003 or CO 1013 or CO 3213	Fundamentals of Public Speaking Introduction to Communication Small Group Communication	
<b>Food Processing/Business Concentration</b>		<b>68</b>
BIO 3304	General Microbiology	
MA 1323	Trigonometry	
PH 1113 or PH 2213	General Physics I Physics I	
AEC 3413 or MKT 3013	Introduction to Food Marketing Principles of Marketing	
AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences <sup>1</sup>	
AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications <sup>2</sup>	
FNH 2011	Career Planning and Success Skills in Food Science	
FNH 2112	Food Products Evaluation	
FNH 4114	Analysis of Food Products	
FNH 4241	Applied Food Chemistry	
FNH 4333	Food Law	
FNH 4414	Microbiology of Foods	
FNH 4480	Food Science Internship (6 hours)	
FNH 4573 or FNH 4583	Food Engineering Fundamentals Food Preservation Technology	
FNH 4593	New Food Product Development	
Business Electives (12 hours) <sup>5</sup>		
Processing Electives (6-8 hours) <sup>3</sup>		
FNH Electives (3 hours) <sup>4</sup>		
Free Electives (0-1 hours)		
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Fulfills Jr/Sr Writing Requirement

<sup>2</sup> Fulfills Computer Lit Requirement

<sup>3</sup> Choose 2 courses (6-8 hours) from the Food Processing Electives: FNH 3314, FNH 4143 Dairy Foods Processing, FNH 4514 Poultry Processing, or FNH 4613 Seafood Processing

<sup>4</sup> Choose one additional FNH 3000-4000 level course from all Food Science, Nutrition, and Health Promotion classes

<sup>5</sup> A minor in AgEcon, Marketing, Finance, Management or Business Administration will satisfy the requirement for 12 credits of business electives. In lieu of a minor, students should select 12 credit hours from the following: ACC 2013 Principles of Financial Accounting, MKT 3013 Principles of Marketing, AEC 3133 Introductory Agribusiness Management, AEC 3213 International Trade in Agriculture, AEC 3413 Introduction to Food Marketing, AEC 4113 Agribusiness Firm Management, AEC 4123 Financial and Commodity Futures Marketing, AEC 4133 Analysis of Food Markets and Prices, AEC 4343 Advanced Farm Management; all classes listed under the minors for Marketing, Finance, Business Administration, and Management are also acceptable business electives.

## Food Science Concentration (FSSC)

Major Advisors: Wes Schilling, Professor, and Shecoya White, Assistant Professor

FSSC is designed for students who wish to explore a career in research, pursue graduate studies, work for the government, or work in the food industry.

<b>English Composition</b>		<b>6</b>
EN 1103	English Composition I	
EN 1113 or EN 1173	English Composition II Accelerated Composition II	
<b>Fine Arts (General Education)</b>		<b>3</b>
Select from University Gen Ed Core		
<b>Natural Sciences (General Education)</b>		<b>12</b>
BIO 1134	Biology I	
CH 1213	Chemistry I	
CH 1211	Investigations in Chemistry I	
CH 1223	Chemistry II	
CH 1221	Investigations in Chemistry II	
<b>Math (General Education)</b>		<b>6</b>
MA 1713	Calculus I	
ST /BQA /MA 2113 or ST 3123	Introduction to Statistics Introduction to Statistical Inference	
<b>Humanities (General Education)</b>		<b>6</b>
Select from University Gen Ed Core		
<b>Social/Behavioral Sciences (General Education)</b>		<b>6</b>
AEC 2713	Introduction to Food and Resource Economics	
Select from University Gen Ed Core		
<b>Major Core Courses</b>		<b>17</b>
CH 2503	Elementary Organic Chemistry	
CH 2501	Elementary Organic Chemistry Laboratory	
MGT 3513	Introduction to Human Resource Management	
FNH 2293	Individual and Family Nutrition	
FNH 3111	Food Science, Nutrition and Health Promotion Seminar	
FNH 4243	Composition and Chemical Reactions of Foods	
CO 1003 or CO 1013	Fundamentals of Public Speaking Introduction to Communication	

or CO 3213	Small Group Communication	
<b>Food Science Concentration</b>		<b>68</b>
BIO 1144	Biology II	
BIO 3304	General Microbiology	
BCH 4013	Principles of Biochemistry	
MA 1723	Calculus II	
PH 1113	General Physics I	
or PH 2213	Physics I	
PH 1123	General Physics II	
or PH 2223	Physics II	
ACC 2013	Principles of Financial Accounting	
MKT 3013	Principles of Marketing	
AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences <sup>1</sup>	
AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications <sup>2</sup>	
FNH 2011	Career Planning and Success Skills in Food Science	
FNH 2112	Food Products Evaluation	
FNH 4114	Analysis of Food Products	
FNH 4164	Quality Assurance of Food Products	
FNH 4241	Applied Food Chemistry	
FNH 4333	Food Law	
FNH 4414	Microbiology of Foods	
FNH 4573	Food Engineering Fundamentals	
or FNH 4583	Food Preservation Technology	
FNH 4593	New Food Product Development	
FNH 4480	Food Science Internship (6 hours)	
Processing Electives (3-4 hours) <sup>3</sup>		
FNH Electives (3-4 hours) <sup>4</sup>		
Free Electives (0-2 hours)		
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Fulfills Jr/Sr Writing Requirement

<sup>2</sup> Fulfills Computer Lit Requirement

<sup>3</sup> Choose 1 course (3-4 hours) from the Food Processing Electives: FNH 3314, FNH 4143 Dairy Foods Processing, FNH 4514 Poultry Processing, or FNH 4613 Seafood Processing

<sup>4</sup> Choose an additional 3-4 hours from all 3000-4000 level Food Science, Nutrition and Health Promotion classes.

## Food Safety Concentration (FDS)

Major Advisors: Wes Schilling, Professor, and Shecoya White, Assistant Professor

FDS is designed as a Pre-Veterinary option that focuses on factors affecting food safety and all coursework essential for acceptance in the College of Veterinary Medicine.

<b>English Composition</b>		<b>6</b>
EN 1103	English Composition I	
EN 1113	English Composition II	
or EN 1173	Accelerated Composition II	
<b>Fine Arts (General Education)</b>		<b>3</b>

Select from University Gen Ed Core		
<b>Natural Sciences (General Education)</b>		<b>12</b>
BIO 1134	Biology I	
CH 1213	Chemistry I	
CH 1211	Investigations in Chemistry I	
CH 1223	Chemistry II	
CH 1221	Investigations in Chemistry II	
<b>Math (General Education)</b>		<b>6</b>
MA 1313	College Algebra	
MA 1323	Trigonometry	
or MA 1713	Calculus I	
<b>Humanities (General Education)</b>		<b>6</b>
Select from University Gen Ed Core		
<b>Social/Behavioral Sciences (General Education)</b>		<b>6</b>
Select from University Gen Ed Core		
<b>Major Core Courses</b>		<b>17</b>
CH 2503	Elementary Organic Chemistry	
CH 2501	Elementary Organic Chemistry Laboratory	
MGT 3513	Introduction to Human Resource Management	
FNH 3111	Food Science, Nutrition and Health Promotion Seminar	
FNH 2293	Individual and Family Nutrition	
FNH 4243	Composition and Chemical Reactions of Foods	
CO 1003	Fundamentals of Public Speaking	
or CO 1013	Introduction to Communication	
or CO 3213	Small Group Communication	
<b>Food Safety Concentration <sup>1</sup></b>		<b>48</b>
CH 4523	Organic Chemistry II	
CH 4521	Organic Chemistry Laboratory II	
BIO 1144	Biology II	
BIO 3304	General Microbiology	
BCH 4013	Principles of Biochemistry	
PH 1113	General Physics I	
or PH 2213	Physics I	
PH 1123	General Physics II	
or PH 2223	Physics II	
AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences <sup>2</sup>	
AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications <sup>3</sup>	
ADS 4114	Animal Nutrition	
FNH 2011	Career Planning and Success Skills in Food Science	
FNH 4241	Applied Food Chemistry	
FNH 3314		
FNH 4414	Microbiology of Foods	
FNH 4514	Poultry Processing	
FNH 4583	Food Preservation Technology	
<b>Electives (Select 3-6 credits from the following list)</b>		<b>3-6</b>
ACC 2013	Principles of Financial Accounting	

FNH 3142	Meats Judging I
FNH 4114	Analysis of Food Products
FNH 4143	Dairy Foods Processing
FNH 4164	Quality Assurance of Food Products
FNH 4593	New Food Product Development
ADS 1113	Animal Science
ADS 1121	Animal Science Laboratory
ADS 3214	Livestock Growth and Development
ADS 3312	Livestock Management Practices
ADS 4113	Swine Science
ADS 4124	Animal Breeding
ADS 4323	Beef Cattle Science
ADS 4613	Physiology of Reproduction
ADS 4611	Practices in Physiology of Reproduction
BIO 2103	Cell Biology
BIO 4413	Immunology
BIO 4503	Vertebrate Histology
BIO 4514	Animal Physiology
VS 3014	Anatomy and Physiology
PO 4033	Diseases of Poultry
PO 4324	Avian Reproduction
PO 4334	Broiler Production
PO 4413	Poultry Nutrition
PO 4844	Avian Anatomy and Physiology

**Total Hours needed for major through Junior Year 104-107**

Students will receive a B.S. in Food Science, Nutrition and Health Promotion upon successful completion of their first year in the College of Veterinary Medicine at Mississippi State University.

If students do not obtain admittance into the School of Veterinary Medicine after their junior year, an optional 4th year that is listed below will allow these students to graduate with a B.S. in Food Science, Nutrition and Health Promotion (Food Safety Concentration) after their fourth year of studies as well as allow these students another year to attempt to earn admittance into the School of Veterinary Medicine.

**Optional Senior Year 17**

FNH 4114	Analysis of Food Products
FNH 4164	Quality Assurance of Food Products
FNH 4593	New Food Product Development
6 hours of electives for 3000-4000 level FNH classes	
Electives from the Electives list above to reach a minimum of 124 hours	

**Total Hours 124**

<sup>1</sup> 45 hours is equal to 48-3 hours to account for the substitution for FNH 2293 in the major core.

<sup>2</sup> Fulfills Jr/Sr Writing Requirement

<sup>3</sup> Fulfills Computer Lit Requirement

**Food and Nutrition Concentration (FN)**

Major Advisors: Amanda Conrad, Didactic Program in Nutrition and Dietetics Director and Instructor; Rahel Mathews, Assistant Professor; and Renee Match, Instructor

**English Composition 6**

EN 1103	English Composition I
or EN 1104	Expanded English Composition I
EN 1113	English Composition II
or EN 1173	Accelerated Composition II

**Fine Arts 3**

Select from University General Education Core

**Natural Sciences 12**

CH 1213	Chemistry I
CH 1211	Investigations in Chemistry I
CH 1223	Chemistry II
CH 1221	Investigations in Chemistry II
BIO 3304	General Microbiology

**Math (General Education) 6**

ST /BQA /MA 2113	Introduction to Statistics
or ST 3123	Introduction to Statistical Inference

**Humanities (General Education) 6**

Select from University General Education Core

**Social/Behavioral Sciences (General Education) 6**

PSY 1013	General Psychology
SO 1003	Introduction to Sociology
or SO 1103	Contemporary Social Problems
or SO 1203	Sociology of Families

**Major Core Courses 17**

CH 2503	Elementary Organic Chemistry
or CH 4513	Organic Chemistry I
CH 2501	Elementary Organic Chemistry Laboratory
or CH 4511	Organic Chemistry Laboratory I
MGT 3513	Introduction to Human Resource Management
FNH 2293	Individual and Family Nutrition
FNH 3111	Food Science, Nutrition and Health Promotion Seminar
FNH 4243	Composition and Chemical Reactions of Foods
CO 1003	Fundamentals of Public Speaking <sup>1</sup>
or CO 1013	Introduction to Communication
or CO 3213	Small Group Communication

**Food and Nutrition Concentration 59**

BCH 4013	Principles of Biochemistry
BIO 1134	Biology I
BIO 3004	Human Anatomy
BIO 3014	Human Physiology
MGT 3113	Principles of Management
KI 2603	Medical Terminology
FNH 2201	Nutrition and Dietetics Career Planning
FNH 2203	Science of Food Preparation
FNH 3283	The Food Service System
FNH 3723	Community Nutrition
FNH 4013	Nutrition Assessment
FNH 4123	Medical Nutrition Therapy I
FNH 4233	Medical Nutrition Therapy II

FNH 4253	Macronutrients: Human Metabolism	
FNH 4284	Quantity Food Production and Service	
FNH 4293	Micronutrients: Human Metabolism <sup>3</sup>	
FNH 4323	Professional Skills for Nutrition and Dietetics	
FNH 4353	Nutrition Throughout the Life Cycle	
FNH 4363	Research Methods in Food and Nutrition <sup>2</sup>	
FNH 4373	Nutrition Education and Counseling Skills	
Free Electives		9
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Fulfills Oral Communication Requirement

<sup>2</sup> Fulfills Jr/Sr Writing Requirement

<sup>3</sup> Fulfills Computer Literacy Requirement

## Pre-Health Professions Concentration (PHP)

Major Advisors: Wes Schilling, Professor; Shecoya White, Assistant Professor; and Antonio Gardner, Assistant Professor

PHP is designed to develop students who have a thorough understanding of principles of food science and have also fulfilled the prerequisites for medical school or other health-related professional or graduate school programs.

<b>English Composition</b>		<b>6</b>
EN 1103	English Composition I	
EN 1113	English Composition II	
or EN 1173	Accelerated Composition II	
<b>Fine Arts</b>		<b>3</b>
Select from General Education Core		
<b>Math (General Education)</b>		<b>9</b>
MA 1313	College Algebra (or higher)	
ST /BQA /MA 2113	Introduction to Statistics	
or ST 3123	Introduction to Statistical Inference	
MA 1713	Calculus I	
<b>Natural Science</b>		<b>12</b>
BIO 1134	Biology I	
CH 1213	Chemistry I	
CH 1211	Investigations in Chemistry I	
CH 1223	Chemistry II	
CH 1221	Investigations in Chemistry II	
<b>Humanities (General Education)</b>		<b>6</b>
Select from General Education Core		
<b>Social/Behavioral Sciences (General Education)</b>		<b>6</b>
Select from General Education Core (SO 1013 and PSY 1073 recommended)		
<b>Major Core</b>		<b>17</b>
FNH 2293	Individual and Family Nutrition	
FNH 3111	Food Science, Nutrition and Health Promotion Seminar	
FNH 4243	Composition and Chemical Reactions of Foods	
MGT 3513	Introduction to Human Resource Management	

CH 4511	Organic Chemistry Laboratory I	
CH 4513	Organic Chemistry I	
CO 1003	Fundamentals of Public Speaking	
or CO 1013	Introduction to Communication	
or CO 3213	Small Group Communication	
<b>Pre-Health Professions Concentration</b>		<b>57</b>
AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences <sup>1</sup>	
AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications <sup>2</sup>	
BCH 4013	Principles of Biochemistry	
BIO 1144	Biology II	
BIO 3014	Human Physiology	
BIO 3304	General Microbiology	
CH 4521	Organic Chemistry Laboratory II	
CH 4523	Organic Chemistry II	
FNH 3103	Introduction to Health Professions	
FNH 3163	Basic Principles of Health Promotion	
FNH 4123	Medical Nutrition Therapy I	
FNH 4241	Applied Food Chemistry	
FNH 4393	Prevention and Control of Disease	
FNH 4414	Microbiology of Foods	
FNH 4583	Food Preservation Technology	
MA 1723	Calculus II	
PH 1113	General Physics I	
or PH 2213	Physics I	
PH 1123	General Physics II	
or PH 2223	Physics II	
PHI 3323	Medical Ethics	
Electives (Choose 2-3 classes based on requirements for specific health professional school; see advisor for options)		8
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Fulfills Jr/Sr Writing Requirement

<sup>2</sup> Fulfills Computer Literacy Requirement

## B.S. in Culinary<sup>®</sup>

Major Advisors: Wes Schilling, Professor and Shecoya White, Assistant Professor

The Culinary<sup>®</sup> degree program offers the opportunity to gain a broad education in Food Science and Culinary Arts. It involves the integration of Food Science and Culinary Arts so that students are prepared to work in diverse areas within the food industries -- from experimental research chefs and menu planners to food manufacturing, fine dining, and product development.

Culinary<sup>®</sup> is an approach to food that blends culinary arts and food technology. Through the blending of these two disciplines, Culinary<sup>®</sup> seeks to make food taste better -- whether purchased in a supermarket or eaten in a restaurant. Culinary<sup>®</sup> also seeks to make food more consistent and safer. A primary application of Culinary<sup>®</sup> is to logically translate sophisticated food concepts, such as those applied in fine dining or in a traditional ethnic cuisine, to items that are on the menus of chain restaurants or those processed for retail sale. Such chain-menu or retail

product development is only possible through the astute combination of culinary arts and food science and technology.

According to Jeff Cousminer in Food Product Design Magazine, the word *Culinology*® was coined by the first president and founder of the Research Chefs Association, Winston Riley. The original meaning of the word was quite different than what it has come to mean today. Originally the word was designed to be a combination of two words, culinary and technology. So the first meaning of the word was the convergence of culinary arts and all technology, which includes communications, chemistry, physiology, economics and many others.

Accredited Culinology® educational programs are offered by many institutions. The curriculum included courses that combine the disciplines of cooking and food science. According to industry professionals, like Kraft's Harry Crane, Culinology® should "help jump-start product development."

## Degree Requirements

<b>English Composition</b>	<b>6</b>
EN 1103 English Composition I or EN 1163	
EN 1113 English Composition II or EN 1173 Accelerated Composition II	
<b>Mathematics (General Education)</b>	<b>6</b>
MA 1313 College Algebra	
ST 3123 Introduction to Statistical Inference	
<b>Natural Sciences</b>	<b>8</b>
CH 1213 Chemistry I	
CH 1211 Investigations in Chemistry I	
CH 1223 Chemistry II	
CH 1221 Investigations in Chemistry II	
<b>Humanities (General Education)</b>	<b>6</b>
Select from General Education courses	
<b>Fine Arts (General Education)</b>	<b>3</b>
Select from General Education courses	
<b>Social/Behavioral Sciences (General Education)</b>	<b>6</b>
Select from General Education courses (w/advisor approval)	
<b>Major Requirements</b>	<b>78</b>
CH 2503 Elementary Organic Chemistry	
CH 2501 Elementary Organic Chemistry Laboratory	
BIO 1134 Biology I	
BIO 3304 General Microbiology	
FNH 1103 Introduction to Food Science, Nutrition and Health Promotion	
FNH 2203 Science of Food Preparation	
FNH 2112 Food Products Evaluation	
FNH 2293 Individual and Family Nutrition	
FNH 4164 Quality Assurance of Food Products	
FNH 4333 Food Law	
FNH 4583 Food Preservation Technology	
FNH 4593 New Food Product Development	
FNH 4243 Composition and Chemical Reactions of Foods	
FNH 4241 Applied Food Chemistry	
FNH 4414 Microbiology of Foods	

CA 1251 ServSafe <sup>MUW</sup>	
CA 2003 Introduction to Culinary Arts <sup>MUW</sup>	
CA 3005 Food Prep I <sup>MUW</sup>	
CA 3015 Food Prep II <sup>MUW</sup>	
CA 3023 Menu and Recipe Development <sup>MUW</sup>	
CA 3500 CA Internship <sup>2</sup> or FNH 4480 Food Science Internship	
CA 4005 Food Preparation III <sup>MUW</sup>	
CA 4013 World Cuisines <sup>MUW</sup>	
CA 4103 Business Skills in Culinary Arts <sup>MUW</sup>	
<b>CA/FNH Electives</b>	<b>5-6</b>
Choose from list of approved electives <sup>1</sup>	
<b>Oral Communication Requirement</b>	<b>3</b>
CO 1003 Fundamentals of Public Speaking or CO 3213 Small Group Communication	
<b>Writing Requirement</b>	<b>3</b>
AELC 3203 Professional Writing in Agriculture, Natural Resources, and Human Sciences	
<b>Total Hours</b>	<b>124</b>

MUWCA courses offered by Mississippi University for Women in Columbus, Mississippi

- At least 3 hours must be FNH or business (ACC, MKT, MGT) electives and at least 3 hours must be Culinary Arts (CA) electives: FNH 4363 Research Methods in Food and Nutrition, FNH 4114 Analysis of Food Products, FNH 4143 Dairy Foods Processing, FNH 3314, FNH 4514 Poultry Processing, FNH 4573 Food Engineering Fundamentals, FNH 3283 The Food Service System, FNH 4283 Purchasing Food and Equipment for Food Service Systems, ACC 2013 Principles of Financial Accounting, MKT 3013 Principles of Marketing, MGT 3513 Introduction to Human Resource Management, CA 3103 Dining Room Service, CA 3153 Demonstration Techniques, CA 3753 Advancing Baking, CA 4153 Food Styling, CA 2603 CA Entrepreneurship, CA 3623 Business Law for CA, CA 3633 Service Design and Management, CA 3643 CA Venture Marketing, CA 3653 HR Management of Culinary Business, CA 4603 Culinary Arts Entrepreneurship
- To be completed after the Junior or Senior Year.

## Food Science Minor

Students will be required to complete the following courses to receive a minor in Food Science:

FNH 4241 Applied Food Chemistry	1
FNH 4243 Composition and Chemical Reactions of Foods	3
FNH 4414 Microbiology of Foods	4
FNH 4583 Food Preservation Technology	3
Choose 7 or more credits from the following electives:	7
FNH 4593 New Food Product Development	
FNH 1103 Introduction to Food Science, Nutrition and Health Promotion	
FNH 3314	
FNH 4164 Quality Assurance of Food Products	
FNH 4143 Dairy Foods Processing	
FNH 4514 Poultry Processing	



FNH 4114	Analysis of Food Products	
<b>Total Hours</b>		<b>18</b>

## Meat Science Certificate

Major Advisor: Wes Schilling

The Department of Food Science, Nutrition, and Health Promotion and the Department of Animal and Dairy Sciences offer a Meat Science Certificate for students who wish to specialize in the meat processing industry. Students must complete a total of 24 credit hours as described below to be eligible for the certificate. Nineteen credit hours are in required courses, with the remaining 5 hours to be selected from several electives. Students must also complete 300 hours of hands-on experiential learning in meat processing, research, and extension activities. With this approach, students will be career ready professionals equipped with a comprehensive understanding of industry and a skill set designed for them to make an immediate impact in meat science government, academic, or industry positions upon graduation.

### Certificate Requirements

#### Required Courses

ADS 3314		
or FNH 3314		
FNH 4333	Food Law	3
FNH 4414	Microbiology of Foods	4
or BIO 4414	Microbiology of Foods	
FNH 4514	Poultry Processing	4
or PO 4514	Poultry Processing	
FNH 4480	Food Science Internship (3 credits must be at meat processing or related facility)	1-6
or ADS 4420	Animal and Dairy Science Internship	
HACCP Training (as a Directed Individual Study)		1

#### Electives

Choose a minimum of 5 credit hours from the following:

ADS 3142	Meats Judging I	
or FNH 3142	Meats Judging I	
ADS 3214	Livestock Growth and Development	
ADS 4243	Composition and Chemical Reactions of Foods	
or FNH 4243	Composition and Chemical Reactions of Foods	
ADS 4313	Advanced Science of Muscle Foods	
or FNH 4313	Advanced Science of Muscle Foods	
FNH 4114	Analysis of Food Products	
FNH 4164	Quality Assurance of Food Products	
FNH 4241	Applied Food Chemistry	
FNH 4512	Poultry Products Safety and Sanitation	
or PO 4512	Poultry Products Safety and Sanitation	
<b>Total Hours (minimum)</b>		<b>24</b>

## Department of Landscape Architecture

Department Head: Professor Sadik Artunc

Office: Landscape Architecture Facility C103

Department of Landscape Architecture curricula focus on connecting art, culture, and the environment to provide society with places that people love and that are holistically and ecologically planned, designed and managed. Students explore subjects such as the design process, storm water design, energy flow, native landscapes and plant materials, green infrastructure, sustainability, community planning, and regional planning. An undergraduate student may major in Landscape Architecture, Landscape Contracting and Management, or pursue a dual degree path where students concurrently work toward bachelor degrees in both programs.

A graduate program in Landscape Architecture is also offered in the Department of Landscape Architecture. Consult the Graduate Bulletin for additional details.

## BLA in Landscape Architecture

Major Advisor: Associate Professor Jason Walker

### Landscape Architecture Major

The profession of landscape architecture offers students the opportunity to engage in shaping the environmental and cultural landscape through planning and design to improve quality of life. The Mississippi State University Bachelor of Landscape Architecture (BLA) program teaches the artful synthesis of social and ecological processes related to planning, designing, building and managing regenerative communities in Mississippi and the Northern Gulf Region, within a global perspective. Students enrolled in the BLA program experience an immersive, intense, and rewarding education structured around a studio environment that promotes critical thinking and creative problem solving. The department delivers a high-quality education for our students, through small class sizes and one-on-one interaction between student and faculty. The MSU Department of Landscape Architecture's teaching philosophy is rooted in the cultural and ecological phenomena that constitute our placed-based educational approach to empower student learning. Students in the BLA program cultivate their knowledge, skills, and competencies in a context specific environment across multiple-scales including the site, community, urban, and regional settings.

Our BLA program is the only accredited Bachelor of Landscape Architecture degree program in Mississippi. The BLA is a Landscape Architectural Accreditation Board (LAAB) accredited professional degree program. The LAAB evaluates a program based on its stated objectives and compliance to externally mandated minimum standards and accredits professional degrees at the bachelor's and master's levels in the United States. Our BLA program prepares students to pursue careers in landscape architecture in design offices, public practice, not-for-profits and primes students for graduate studies in allied professions. In addition, our department offers a Bachelor of Science in Landscape Contracting and Management that students in the BLA program can pursue simultaneously.

### Curriculum

The four-year BLA curriculum provides the foundational framework for a career in landscape architecture. The coursework involves knowledge acquisition, skill development, and the ability to demonstrate competency through the design process. The first year of the program introduces the student to relevant history, theory and criticism, plants and cultural systems, and digital and traditional communication applications. The second year begins the Design and Construction sequence.

The design studio is at the core of the professional program. The professional studio sequence includes six (6) landscape architecture design studios, Design I-V and Landscape Architecture Capstone Studio. Capstone is the climax studio, where students pursue individual or specialized interests through the development of a semester long project. The construction sequence consists of four (4) courses, Construction I-III, and V. The studio and construction sequence addresses the design, planning and management of the landscape at multiple scales through the application of the design process.

In years two and three of the program, each student shall participate in two department led field trips. The field trips are a critical component of the professional curriculum and provide opportunities for students to study, explore, and experience significant works of landscape architecture in the United States and around the world.

The remainder of the required courses in the curriculum addresses professional practice, public policy and regulation, and professional values and ethics. Finally, year four students choose three (3) LA elective hours and ten (10) elective hours of coursework to meet each student's own objectives that lead to a well-rounded university education.

At the successful completion of the fourth year, students receive the professional degree of Bachelor of Landscape Architecture (BLA).

## Standards and Requirements

All students in Landscape Architecture are required to have their own personal computer. Students should check with the department for equipment specifications prior to purchasing.

Landscape Architecture requires that a grade of "C" or better is required to fulfill a Major Core Requirement.

The department reserves the right to retain student work for the purpose of records, exhibition, instruction, and accreditation.

In addition to University policies, all students enrolled in this curriculum shall be required to abide by all approved departmental policies.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

Select from General Education Requirements Mathematics and Statistics Course List		3
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### Natural Science

2 lab based sciences required from Gen Ed		
ENS 2103	Introduction to Environmental Science	3

### Humanities

Select from General Education Requirements Humanities Course List		6
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### Fine Arts

ART 1113	Art Appreciation	3
or ARC 1013	Architectural Appreciation	

### Social/Behavioral Sciences

Select from General Education Requirements Social/Behavioral Sciences Course List		6
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### Major Core

ART 1123	Design I	3
PSS 2423	Plant Materials I	3
LA 1153	Introduction to Landscape Architecture	3
LA 1223	Use of Computers in Landscape Architecture	3
LA 1333	Landscape Systems and Plant Communities	3
LA 1423	History of Landscape Architecture	3
LA 1533	Presentation Methods and Media	3
LA 1701	Landscape Professional Career Paths Seminar	1
LA 2544	Landscape Architecture Construction I: Materials	4
LA 2554	Landscape Architecture Design Studio I	4
LA 2652	Landscape Architecture Precedent Studies	2
LA 2644	Construction II: Grading	4
LA 2654	Landscape Architecture Design II: Neighborhood Context	4
LA 3534	Landscape Architecture Construction III - Hydrology	4
LA 3554	Landscape Architecture Design III - Small Town/Rural Context	4
LA 3623	Urban Planning Theory	3
LA 3652	Case Studies of Executed Works in Landscape Architecture	2
LA 3653	Planting Design Fundamentals in Landscape Architecture	3
LA 3654	Landscape Architecture Design IV: Urban Design	4
LA 4124	Landscape Architecture Construction V: Construction Documents	4
LA 4723	Professional Practice of Landscape Architecture	3
LA 4754	Design V-Regional	4
LA 4843	Sustainable Communities	3
LA 4854	Landscape Architecture Capstone Studio	4
LA Elective		3
Electives		10

### Oral Communication Requirement

Satisfied by successful completion of LA 4854

### Writing Requirement

Satisfied by successful completion of LA 4723

### Computer Literacy

Satisfied by successful completion of LA 1223

<b>Total Hours</b>		<b>124</b>
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## BS in Landscape Contracting and Management

Major Advisor: Dr. Timothy Schauwecker

## Landscape Contracting and Management Major (LAC)

A landscape contractor is a specialty contract professional who provides the expertise, materials and services needed to make the landscape design project become a reality; and/or to provide the management expertise needed to keep the project in prime condition after construction implementation.

The Landscape Contracting and Management degree program at Mississippi State University, accredited by the National Association of Landscape Professionals (NALP), requires three internships which involve three semesters of experiential learning and field experience with an approved landscape contracting company or agency; and, under supervision of a qualified supervisor and oversight of Mississippi State University faculty. In addition, two departmental field trips are specific curriculum requirements for this degree. A field trip fee will be assessed to specific courses. Upon successful completion of curriculum requirements, a student receives a Bachelor of Science degree in Landscape Contracting and Management.

All students in Landscape Contracting and Management are required to have their own personal computer. Students should check with the department for equipment specification prior to purchasing.

In as much as the published Bulletin of Mississippi State defines a letter grade of "D" as poor, The Department of Landscape Architecture requires that a grade of "C" or better is required to fulfill a major core requirement.<sup>1</sup>

The department reserves the right to retain student work for the purpose of records, exhibition, instruction, industry review, etc. In addition to Mississippi State University policies, all students enrolled in this curriculum shall be required to abide by all approved departmental policies.

<sup>1</sup> As published in the Department of Landscape Architecture policy manual.

### English Composition

EN 1103	English Composition I <sup>1</sup>	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II <sup>1</sup>	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 2113	Introduction to Statistics	3
or ST 2113	Introduction to Statistics	

### Science

BIO 1023	Plants and Humans	3
or PSS 1313	Plant Science	
CH 1043	Survey of Chemistry I	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1

### Humanities

FLS 1113	Spanish I	3
FLS 1123	Spanish II	3

### Fine Arts

Select from General Education courses		3
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### Social Sciences

EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3

### Major Core

LA 1701	Landscape Professional Career Paths Seminar	1
LA 1711	Landscape Contracting Internship I	1
LA 1153	Introduction to Landscape Architecture	3
LA 1333	Landscape Systems and Plant Communities	3
LA 1533	Presentation Methods and Media	3
LA 2711	Landscape Contracting Internship II	1
LA 2544	Landscape Architecture Construction I: Materials	4
LA 2644	Construction II: Grading	4
LA 3653	Planting Design Fundamentals in Landscape Architecture	3
LA 3701	Landscape Contracting Seminar II	1
LA 4724	Landscape Contracting II	4
LA 3721	Landscape Contracting Field Trip I	1
LA 3711	Landscape Contracting Internship III	1
LA 4701	Landscape Contracting Seminar III	1
LA 4344	Landscape Architecture Construction IV	4
LA 4721	Landscape Contracting Field Trip II	1
LA 4753	Sustainable Landscape Management	3
EPP 3423	Ornamental and Turfgrass Insects	3
PSS 2423	Plant Materials I	3
PSS 2113	Introduction to Turfgrass Science	3
PSS 3133	Introduction to Weed Science	3
PSS 3473	Plant Materials II	3
PSS 4353	Arboriculture and Landscape Maintenance	3
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
MKT 3013	Principles of Marketing	3
BL 2413	The Legal Environment of Business	3
or BL 3223	The Law of Commercial Transactions	
MGT 3323	Entrepreneurship	3
or MGT 3113	Principles of Management	
MGT 3513	Introduction to Human Resource Management	3

Electives		6
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### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Writing Requirement

LA 4723	Professional Practice of Landscape Architecture	3
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### Computer Literacy

LA 1223	Use of Computers in Landscape Architecture	3
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<b>Total Hours</b>		<b>124</b>
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## Landscape Architectural Studies Minor

The Department of Landscape Architecture offers a minor in landscape architectural studies. The minor requires completion of 18 credit hours. Each student shall take a minimum of 14 credit hours of optional courses that include a minimum of six (6) credit hours of upper level courses (3000 or 4000), a maximum of six (6) credit hours count toward the minor that overlap with a student's major core curriculum. This overlap applies to LAC students and may apply to other CALS majors.

### Major/Minor Required Courses

LA 1701	Landscape Professional Career Paths Seminar	1
LA 1423	History of Landscape Architecture	3

### Optional Courses

LA 1153	Introduction to Landscape Architecture	
LA 1223	Use of Computers in Landscape Architecture	
LA 1333	Landscape Systems and Plant Communities	
LA 1433	Landscape Architecture Creativity	
LA 1533	Presentation Methods and Media	
LA 1803	Landscape Architecture Appreciation	
LA 2453	Site Inventory and Analysis	
LA 2544	Landscape Architecture Construction I: Materials	
LA 2652	Landscape Architecture Precedent Studies	
LA 2654	Landscape Architecture Design II: Neighborhood Context	
LA 2644	Construction II: Grading	
LA 3603	Design of the Golf Environment	
LA 3623	Urban Planning Theory	
LA 3653	Planting Design Fundamentals in Landscape Architecture	
LA 4113	Design Theory and Criticism.	
LA 4344	Landscape Architecture Construction IV	
LA 4463	Community Food Systems	
LA 4514	Ecological Planting Design	
LA 4653	Study Abroad: Gardens and Urban Spaces	
LA 4753	Sustainable Landscape Management	
LA 4843	Sustainable Communities	
PSS 2423	Plant Materials I	
<b>Total Hours</b>		<b>18</b>

## Department of Plant and Soil Sciences

**Department Head: Dr. Darrin Dodds**

Office: 117 Dorman Hall

Plant and Soil Sciences curricula focus on the application of sciences to the integrated management of plants, soil, and climate for high-quality production of food, fiber, fuel, and ornamental plants. Central to this course of study is the dedication to conserve, maintain and enhance our environment. An undergraduate student may major in Agronomy (AGN), Environmental Sciences in Agricultural Systems (ESAS), or Horticulture (HO) and specialize in concentration areas such as

Agricultural and Environmental Soil Sciences (AGN), Golf and Sports Turf Management (AGN), Integrated Crop Management (AGN), Integrated Pest Management (AGN), Floral Management (HO), Floriculture and Ornamentals (HO), and Fruit and Vegetable Production (HO). A grade of "C" or better is required in all required PSS courses in the student's major prior to completion of the degree.

The Department of Plant and Soil Sciences also offers on-campus and online M.S. and Ph.D. graduate programs in Agronomy, Horticulture, and Weed Science. Consult the Graduate Bulletin for additional details.

## BS in Agronomy (AGN)

### Degree Requirements

#### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

See concentrations

#### Science

BIO 2113	Plant Biology	3-4
or BIO 1144	Biology II	
PSS 1313	Plant Science	3

#### Humanities

See concentrations

#### Fine Arts

Select from General Education list 3

#### Social Science

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2113	Principles of Macroeconomics	
or EC 2123	Principles of Microeconomics	

See concentrations for additional Social Science course

#### Major Core

AEC 3133	Introductory Agribusiness Management	3
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
PSS 4113	Agricultural Crop Physiology	3-4
or BIO 4214	General Plant Physiology	
PSS 4313	Soil Fertility and Fertilizers	3

#### Oral Communication Requirement:

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Writing Requirement

AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
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**Total Hours 49**

## Choose one of the following concentrations: Agricultural and Environmental Soil Sciences Concentration (AESS)

Advisors: Professors Michael Cox and William Kingery; Assistant Professor Vaughn Reed

The Agricultural and Environmental Soil Science curriculum provides an educational foundation in soil processes involving physical, chemical, and biological interrelationships. The soil resource is an integral component of our environment and is subject to loss and degradation through human activities. Humanity's dependence on soil for food and fiber production and the need for ensuring environmental quality require individuals trained in the management of this resource. Career opportunities exist both nationally and internationally in agricultural and environmental consulting, agribusiness, government agencies, teaching, and research. Required courses provide soil science training, while elective courses can be selected to meet specific needs.

**Internship:** AESS students must complete a minimum one semester internship with an approved internship sponsor in industry, private consulting firms/individuals, or governmental agencies.

### Additional General Education Courses

ST 2113	Introduction to Statistics	3
or MA 2113	Introduction to Statistics	
GR 1123	Introduction to World Geography	3
Humanities - select from General Education		6

### AESS Concentration Courses

AEC 1223	Computer Applications for Agriculturists and Life Scientists	3
or AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications	
BIO 3304	General Microbiology	4
CH 1211	Investigations in Chemistry I	1
CH 1213	Chemistry I	3
CH 1221	Investigations in Chemistry II	1
CH 1223	Chemistry II	3
CH 2311		1
CH 2313		3
CH 2501	Elementary Organic Chemistry Laboratory	1
CH 2503	Elementary Organic Chemistry	3
GG 1111	Earth Sciences I Laboratory	1
GG 1113	Survey of Earth Sciences I	3
PH 1113	General Physics I	3
PH 1123	General Physics II	3
PH 1133	General Physics III	3
PSS 3423	Agronomy Internship	3
PSS 4314	Microbiology and Ecology of Soil	4
PSS 4323	Soil Classification	3
PSS 4333	Soil Conservation and Land Use	3
PSS 4603	Soil Chemistry	3
ST 3123	Introduction to Statistical Inference	3
Business Elective <sup>1</sup>		3
Agronomy Crop Production Elective <sup>2</sup>		3

Restricted Electives <sup>3</sup>	12
<b>Total Hours</b>	<b>124</b>

<sup>1</sup> Business Elective. Select from: AEC 2223, AEC 3233, AEC 3413

<sup>2</sup> Agronomy Crop Production Electives. Select from: PSS 4103, PSS 4123, PSS 4133

<sup>3</sup> Restricted Electives. Select from: BCH 4013, BIO 4213, BIO 4404, GG 4503, GR 2313, GR 3113, GR 4303, GR 4333, GR 4343, GR 4603, PSS 4123, PSS 4133, PSS 4153, PSS 4373, PSS 4383, PSS 4393, PSS 4411, PSS 4413, PSS 4483, PSS 4543, PSS 4553, PSS 4733, PSS 4800.

## Golf and Sports Turf Management Concentration (GSTM)

Advisor: Associate Professor Barry Stewart

Golf and Sports Turf Management (GSTM) is the study of plant and soil sciences for the culture of turfgrass on golf and sports facilities. The GSTM curriculum prepares individuals for careers as golf course superintendents at private, daily fee, and resort courses or as sports turf managers at city, school, and professional sports turf facilities (i.e. football, baseball, soccer fields.) New construction of golf courses and sports facilities has led to a heightened demand for trained golf and sports turf management professionals. Three semesters of Cooperative Education work experience will be required of all students enrolled in the GSTM concentration.

**Cooperative Education Requirements:** GSTM students must complete a minimum 12 months or three semesters of Coop work at a golf course with an individual who is certified or progressing toward certification with the Golf Course Superintendents Association of America or at a sports stadium with a recognized sports turf manager. One of the three Coop semesters enrolled by the student must be a non-summer semester period. All new students must register with their coop advisor early in their initial semester of enrollment.

### Additional General Education Courses

MA 1323	Trigonometry	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	
FLS 1113	Spanish I	3
FLS 1123	Spanish II	3
Social Science - Select from Gen Ed list		3

### GSTM Concentration Courses

ABE 2873	Land Surveying	3
ACC 2013	Principles of Financial Accounting	3
CH 1043	Survey of Chemistry I	3
or CH 1213	Chemistry I	
CH 1051	Experimental Chemistry	1
or CH 1211	Investigations in Chemistry I	
CH 1053	Survey of Chemistry II	3
or CH 1223	Chemistry II	
CH 2501	Elementary Organic Chemistry Laboratory	1
CH 2503	Elementary Organic Chemistry	3
EPP 3423	Ornamental and Turfgrass Insects	3
EPP 4113	Principles of Plant Pathology	3
EPP 4523	Turfgrass Diseases	3

or EPP 4163	Plant Disease Management	
LA 4344	Landscape Architecture Construction IV	4
MGT 3513	Introduction to Human Resource Management	3
PSS 2111	Turf Management Lab	1
PSS 2113	Introduction to Turfgrass Science	3
PSS 2423	Plant Materials I	3
PSS 3133	Introduction to Weed Science	3
PSS 3411	Turf Seminar I	1
PSS 3421	Turn Seminar II	1
PSS 4353	Arboriculture and Landscape Maintenance	3
PSS 4413	Turfgrass Management	3
PSS 4423	Golf Course Operations	3
PSS 4443	Athletic Field Management	3
PSS 4823	Turfgrass Weed Management	3
Restricted Electives <sup>1</sup>		9
Sustainability Elective <sup>2</sup>		3
<b>Required Co-op Courses</b>		
CP 2103	First Work Semester	3
CP 2203	Second Work Semester	3
CP 3303	Third Work Semester	3
<b>Total Hours</b>		<b>121</b>

<sup>1</sup> Restricted Electives. Select from: ABE 2173, BCH 4013, CO 3213, GR 1604, KI 2213, LA 4753, MA 1313, PSS 2543, PSS 3633, PSS 3923, PSS 4153, PSS 4343, PSS 4363, PSS 4373, PSS 4383, PSS 4393, PSS 4483, PSS 4543, PSS 4553, PSS 4733, PSS 4800

<sup>2</sup> Sustainability Electives:  
LA 4753, PSS 2543, PSS 3633, PSS 4153, PSS 4363.

## Integrated Crop Management Concentration (ICM)

Advisors: Professors Brian Baldwin, Jac Vacaro, William Kingery, Michael Cox

Associate Professors Ted Wallace  
Assistant Professor Vaughn Reed

Integrated Crop Management (ICM) is the study of food and fiber production utilizing ecologically sound and technologically advanced methods. Areas covered include basic concepts of plant science and specific practices in crop initiation, culture, harvesting, processing, distribution and marketing. Methods of germplasm enhancement are taught. Specific program areas of study include agronomic crop production, crop science, fruit science, seed science, seed technology, and vegetable crop production. Students completing the Integrated Crop Management curriculum are prepared for careers as producers, consultants, technical representatives, assistant plant breeders, extension agents, or inspectors with USDA and state agencies. This curriculum also provides a good background of basic sciences for those who wish to pursue graduate studies.

**Internship:** ICM students must complete a minimum one semester internship with an approved internship sponsor in industry, private consulting firms/individuals, or governmental agencies.

### Additional General Education Courses

Math - Select from General Education list	3
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Humanities - Select from General Education list	6
Social Science - Select from General Education list	3

### ICM Concentration Courses

AEC 1223	Computer Applications for Agriculturists and Life Scientists	3
or AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications	
BCH 4013	Principles of Biochemistry	3
BIO 3304	General Microbiology	4
or PSS 4314	Microbiology and Ecology of Soil	
CH 1043	Survey of Chemistry I <sup>1</sup>	3
or CH 1213	Chemistry I	
CH 1053	Survey of Chemistry II <sup>1</sup>	3
or CH 1223	Chemistry II	
CH 1051	Experimental Chemistry	1
or CH 1211	Investigations in Chemistry I	
CH 2503	Elementary Organic Chemistry	3
CH 2501	Elementary Organic Chemistry Laboratory	1
EPP 2213	Introduction to Insects	3
EPP 4113	Principles of Plant Pathology	3
PO 3103	Genetics I	3
PSS 3133	Introduction to Weed Science	3
PSS 3423	Agronomy Internship	3
PSS 4103	Forage and Pasture Crops	3
PSS 4123	Grain Crops	3
PSS 4133	Fiber and Oilseed Crops	3
PSS 4493	Plant Genetics	3
or PO 3103	Genetics I	
Business Elective <sup>1</sup>		3
Restricted Electives <sup>2</sup>		24
Unrestricted Electives		3
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Business Elective: AEC 2223, AEC 3233, AEC 3413, MKT 3013

<sup>2</sup> Restricted Electives. Select from: ABE 3513, EPP 4163, EPP 4234, EPP 4263, GA 1111, MA 1313, PH 1113, PSS 2423, PSS 2543, PSS 3043, PSS 3633, PSS 3923, PSS 4153, PSS 4223, PSS 4314, PSS 4323, PSS 4333, PSS 4343, PSS 4363, PSS 4373, PSS 4383, PSS 4393, PSS 4413, PSS 4453, PSS 4473, PSS 4483, PSS 4503, PSS 4543, PSS 4553, PSS 4603, PSS 4633, PSS 4733, PSS 4800, PSS 4813.

## Integrated Pest Management Concentration (IPM)

Major Advisor: Professor Fred R. Musser

Integrated Pest Management (IPM) is an interdisciplinary concentration of study in Entomology, Plant Pathology and Weed Science jointly administered by the Department of Entomology and Plant Pathology and the Department of Plant and Soil Sciences. Effective management of pest problems requires a broad base of knowledge in the pest disciplines and practical field experience. The Integrated Pest Management concentration features a strong core of courses in the three pest disciplines (entomology, plant pathology, and weed science); a strong background in biological and physical sciences; and practical training

through an internship. The curriculum is designed to meet the needs of students who wish to pursue advanced degrees and of students who wish to terminate their higher education with a baccalaureate degree. A range of restricted and non-restricted electives allows students to personalize their degree program for careers in crop production, agribusiness, natural resource management, and/or graduate studies preparation. A grade of "C" or better is required in all courses with the EPP or PSS prefix prior to completion of the degree. No course may be transferred for credit from another college or university in which a grade of "D" was made.

Graduates are well prepared for employment with industry; state and federal research, extension and regulatory agencies; private agricultural consulting firms; farmer's cooperatives; nurseries, home and garden centers; greenhouse plant production; and corporate farms.

**Internship:** IPM students must complete a minimum one semester internship with an approved internship sponsor in industry, private consulting firms/individuals, or governmental agencies.

#### Additional General Education Courses

ST 2113	Introduction to Statistics	3
or ST 3123	Introduction to Statistical Inference	
Humanities - select from Gen Ed list		6
Social Science - Select from Gen Ed list		3
<b>IPM Concentration Courses</b>		
AEC 1223	Computer Applications for Agriculturists and Life Scientists	3
or AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications	
CH 1043	Survey of Chemistry I <sup>1</sup>	3
or CH 1213	Chemistry I	
CH 1051	Experimental Chemistry	1
or CH 1211	Investigations in Chemistry I	
CH 1053	Survey of Chemistry II <sup>1</sup>	3
or CH 1223	Chemistry II	
CH 2503	Elementary Organic Chemistry	3
EPP 4113	Principles of Plant Pathology	3
EPP 4154	General Entomology	4
EPP 4163	Plant Disease Management	3
EPP 4263	Principles of Insect Pest Management	3
GR 3113	Conservation of Natural Resources	3
GR 4303	Principles of GIS	3
GR 4333	Remote Sensing of the Physical Environment	3
GR 4343	Advanced Remote Sensing in Geosciences	3
PSS 3133	Introduction to Weed Science	3
PSS 3423	Agronomy Internship	3
PSS 4493	Plant Genetics	3
or PO 3103	Genetics I	
PSS 4553	Plant Growth and Development	3
PSS 4633	Weed Biology and Ecology	3
PSS 4813	Herbicide Technology	3
Business Elective <sup>1</sup>		3
Agronomy Crop Production Electives <sup>2</sup>		6
Restricted Electives <sup>3</sup>		18

Unrestricted Electives	3
<b>Total Hours</b>	<b>123</b>

- <sup>1</sup> Business  
Electives: AEC 2223, AEC 3233, AEC 3413, MGT 3513, MKT 3013
- <sup>2</sup> Agronomy Crop Production Electives: PSS 4103, PSS 4123, PSS 4133
- <sup>3</sup> Restricted Electives. Select from: ACC 2013, BIO 3304, BIO 4203, EPP 3124, EPP 3423, EPP 4214, EPP 4234, EPP 4523, EPP 4543, GR 2313, GR 3113, GR 3303, GR 3311, GR 4303, GR 4333, GR 4343, MA 1313, PSS 2423, PSS 2543, PSS 3043, PSS 3473, PSS 3633, PSS 4103, PSS 4123, PSS 4133, PSS 4143, PSS 4153, PSS 4314, PSS 4323, PSS 4333, PSS 4343, PSS 4353, PSS 4363, PSS 4373, PSS 4383, PSS 4393, PSS 4411, PSS 4413, PSS 4453, PSS 4483, PSS 4543, PSS 4613, PSS 4733, PSS 4800.

## BS in Environmental Sciences in Agricultural Systems (ESAS)

Major Advisor: Dr. Michael Cox

The Environmental Sciences in Agricultural Systems (ESAS) curriculum provides an educational foundation to prepare students for diversified careers focused on environmental issues related to agronomic and horticultural production. Students completing this curriculum are prepared for careers in national and international environmental agricultural consulting, government conservation agencies, teaching, and research. Required courses provide training in environmental sciences related to agricultural issues.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

ST 3123	Introduction to Statistical Inference	3
or MA 1323	Trigonometry	

### Natural Sciences

BIO 1134	Biology I	4
CH 1211	Investigations in Chemistry I	1
or CH 1051	Experimental Chemistry	
CH 1213	Chemistry I	3
or CH 1043	Survey of Chemistry I	

### Humanities

FLS 1113	Spanish I	3
FLS 1123	Spanish II	3

### Fine Arts

Select from General Education courses		3
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### Social/Behavioral Sciences

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2113	Principles of Macroeconomics	
or EC 2123	Principles of Microeconomics	

Select additional course from General Education options 3

**Oral Communication Requirement**

CO 1003 Fundamentals of Public Speaking 3  
or CO 1013 Introduction to Communication

**Junior Level Writing Requirement**

AELC 3203 Professional Writing in Agriculture, Natural Resources, and Human Sciences 3  
or EN 3313 Writing for the Workplace

**Major Core**

ADS 1113 Animal Science 3

AEC 1223 Computer Applications for Agriculturists and Life Scientists 3

or AELC 4203 Applications of Computer Tech to Agricultural Education, Leadership, and Communications

BIO 1144 Biology II 4

BIO 3304 General Microbiology 4  
or PSS 4314 Microbiology and Ecology of Soil

BIO 4214 General Plant Physiology 3-4  
or PSS 4113 Agricultural Crop Physiology

CH 1223 Chemistry II 3  
or CH 1053 Survey of Chemistry II

CH 2501 Elementary Organic Chemistry Laboratory 1

CH 2503 Elementary Organic Chemistry 3

ENS 2103 Introduction to Environmental Science 3

GG 1111 Earth Sciences I Laboratory 1

GG 1113 Survey of Earth Sciences I 3

GG 3613 Water Resources 3

GR 3113 Conservation of Natural Resources 3

PH 1113 General Physics I 3

PO 3103 Genetics I 3

or PSS 4493 Plant Genetics

PSS 1313 Plant Science 3

PSS 3301 Soils Laboratory 1

PSS 3303 Soils 3

PSS 3423 Agronomy Internship 3

or PSS 3433 Horticulture Internship

Agricultural Systems Electives 9

Choose from the following:

PSS 3043 Fruit Science

PSS 3633 Sustainable and Organic Horticulture

PSS 4103 Forage and Pasture Crops

PSS 4123 Grain Crops

PSS 4133 Fiber and Oilseed Crops

PSS 4143 Advanced Fruit Science

PSS 4153 Sustainable Agroecology

PSS 4223 Seed Production

PSS 4343 Controlled Environment Agriculture

PSS 4363 Sustainable Nursery Production

PSS 4413 Turfgrass Management

PSS 4423 Golf Course Operations

PSS 4443 Athletic Field Management

PSS 4453 Vegetable Production

PSS 4473 Hydroponic and Soilless Crop Production

PSS 4613 Floriculture Crop Programming

Focus Area (pick one) 24

**Total Hours 124**

**Focus Areas**

complete 24 hours in one Focus Area

**Soil and the Environment**

ABE 4313 Biological Treatment of Nonpoint Source Pollutants

ABE 2873 Land Surveying

ABE 4263 Soil and Water Management

BCH 4013 Principles of Biochemistry

BIO 3104 Ecology

BIO 4213 Plant Ecology

BIO 4404 Environmental Microbiology

CH 2311

CH 2313

GR 1604

GR 2313 Maps and Remote Sensing

GR 3113 Conservation of Natural Resources

GR 4303 Principles of GIS

GR 4333 Remote Sensing of the Physical Environment

GR 4343 Advanced Remote Sensing in Geosciences

PSS 2543 Precision Agriculture I

PSS 4000 Directed Individual Study in Plant and Soil Sciences

PSS 4313 Soil Fertility and Fertilizers

PSS 4314 Microbiology and Ecology of Soil

PSS 4323 Soil Classification

PSS 4333 Soil Conservation and Land Use

PSS 4373 Geospatial Agronomic Management

PSS 4383 Agriculture Remote Sensing I

PSS 4393 Agriculture Remote Sensing II

PSS 4543 Precision Agriculture II

PSS 4553 Plant Growth and Development

PSS 4603 Soil Chemistry

PSS 4800 Undergraduate Research in Plants & Soil Sciences

**Environmental Ag Consulting**

EPP 2213 Introduction to Insects

or EPP 3423 Ornamental and Turfgrass Insects

or EPP 4154 General Entomology

EPP 4113 Principles of Plant Pathology

EPP 4163 Plant Disease Management

EPP 4214 Diseases of Crops

EPP 4234 Field Crop Insects

EPP 4263 Principles of Insect Pest Management

GR 1604

GR 2313 Maps and Remote Sensing

GR 3113 Conservation of Natural Resources

GR 4303 Principles of GIS

GR 4313 Advanced GIS



GR 4333	Remote Sensing of the Physical Environment
GR 4343	Advanced Remote Sensing in Geosciences
PSS 2423	Plant Materials I
PSS 2543	Precision Agriculture I
PSS 3133	Introduction to Weed Science
PSS 3473	Plant Materials II
PSS 3633	Sustainable and Organic Horticulture
PSS 3923	Plant Propagation
PSS 4000	Directed Individual Study in Plant and Soil Sciences
PSS 4353	Arboriculture and Landscape Maintenance
PSS 4373	Geospatial Agronomic Management
PSS 4383	Agriculture Remote Sensing I
PSS 4393	Agriculture Remote Sensing II
PSS 4463	Community Food Systems
PSS 4543	Precision Agriculture II
PSS 4553	Plant Growth and Development
PSS 4633	Weed Biology and Ecology
PSS 4813	Herbicide Technology
PSS 4823	Turfgrass Weed Management
PSS 4800	Undergraduate Research in Plants & Soil Sciences

#### Environmental Policy and Regulation

ABE 2873	Land Surveying
ABE 4313	Biological Treatment of Nonpoint Source Pollutants
ABE 4263	Soil and Water Management
ACC 2013	Principles of Financial Accounting
AEC 3133	Introductory Agribusiness Management
AEC 3233	Introduction to Environmental Economics and Policy
AEC 4413	Public Problems of Agriculture
AEC 4243	Natural Resource Economics
BCH 4013	Principles of Biochemistry
BIO 3104	Ecology
BIO 4213	Plant Ecology
BIO 4404	Environmental Microbiology
BL 4263	Environmental Law
FO 4353	Natural Resource Law
LA 4753	Sustainable Landscape Management
LA 4843	Sustainable Communities
PS 1113	American Government
PS 2703	Introduction to Public Policy
PS 4743	Environmental Policy
PSS 2543	Precision Agriculture I
PSS 3323	Horticultural Impacts on Society
PSS 3633	Sustainable and Organic Horticulture
PSS 4000	Directed Individual Study in Plant and Soil Sciences
PSS 4043	International Horticulture
PSS 4373	Geospatial Agronomic Management
PSS 4463	Community Food Systems

PSS 4543	Precision Agriculture II
PSS 4800	Undergraduate Research in Plants & Soil Sciences

#### Environmental Conservation

ABE 2873	Land Surveying
ABE 4313	Biological Treatment of Nonpoint Source Pollutants
ABE 4263	Soil and Water Management
BCH 4013	Principles of Biochemistry
BIO 2113	Plant Biology
BIO 3104	Ecology
BIO 4203	Taxonomy of Spermatophytes
BIO 4213	Plant Ecology
BIO 4404	Environmental Microbiology
CH 2311	
CH 2313	
GR 1604	
GR 2313	Maps and Remote Sensing
GR 3113	Conservation of Natural Resources
GR 4303	Principles of GIS
GR 4313	Advanced GIS
GR 4333	Remote Sensing of the Physical Environment
GR 4343	Advanced Remote Sensing in Geosciences
LA 4753	Sustainable Landscape Management
LA 4843	Sustainable Communities
PSS 2423	Plant Materials I
PSS 2543	Precision Agriculture I
PSS 3473	Plant Materials II
PSS 3633	Sustainable and Organic Horticulture
PSS 3923	Plant Propagation
PSS 4463	Community Food Systems
PSS 4553	Plant Growth and Development
PSS 4000	Directed Individual Study in Plant and Soil Sciences
PSS 4314	Microbiology and Ecology of Soil
PSS 4323	Soil Classification
PSS 4333	Soil Conservation and Land Use
PSS 4353	Arboriculture and Landscape Maintenance
PSS 4373	Geospatial Agronomic Management
PSS 4383	Agriculture Remote Sensing I
PSS 4393	Agriculture Remote Sensing II
PSS 4463	Community Food Systems
PSS 4543	Precision Agriculture II
PSS 4553	Plant Growth and Development
PSS 4800	Undergraduate Research in Plants & Soil Sciences

## BS in Horticulture (HO)

### Degree Requirements

#### English Composition

EN 1103	English Composition I
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or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

**Mathematics**

See concentration requirements

**Science**

BIO 2113	Plant Biology	3-4
or BIO 1144	Biology II	
CH 1043	Survey of Chemistry I	3
or CH 1213	Chemistry I	
CH 1053	Survey of Chemistry II	3
or CH 1223	Chemistry II	

**Humanities**

See concentration requirements

**Fine Arts**

See concentration requirements

**Social/Behavioral Sciences**

AEC 2713	Introduction to Food and Resource Economics*	3
or EC 2123	Principles of Microeconomics	
or EC 2113	Principles of Macroeconomics	
See concentration requirements		3

**Major Core**

ACC 2013	Principles of Financial Accounting	3
AEC 1223	Computer Applications for Agriculturists and Life Scientists	3
or AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications	
CH 1051	Experimental Chemistry	1
or CH 1211	Investigations in Chemistry I	
EPP 2213	Introduction to Insects	3
or EPP 3423	Ornamental and Turfgrass Insects	
MKT 3013	Principles of Marketing	3
PSS 1313	Plant Science	3
PSS 3413	Floristry Internship	3
PSS 3433	Horticulture Internship	3
PSS 3511	Seminar	1
PSS 3923	Plant Propagation	3

**Writing Requirement**

AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
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**Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

\* Students in Floral Management concentration may not select EC 2113.

**Choose one of the following concentrations:****Floral Management Concentration (FLMG)**

Instructors: Lynette McDougald and Dr. Coleman Etheredge

Floral Management involves sourcing, purchasing, distributing, marketing, designing with, and selling floricultural products. Students enrolled in

this concentration are provided with courses in design and horticulture, balanced with business and sciences. Career opportunities for graduates include retailing, wholesaling, special event designing, and display gardening. The University Florist, a professional flower shop owned and operated by the Department of Plant and Soil Sciences on the MSU campus, provides students with work and management opportunities.

Internship Requirements (PSS 3413): FM majors must complete a 10 week, 400 clock hour work experience in a floral industry enterprise. The internship requirement may be completed any semester after successful completion of PSS 2343 Floral Design.

**Additional General Education courses**

PSS 2343	Floral Design <sup>1</sup>	3
PSY 1013	General Psychology <sup>1</sup>	3
Math course from General Education <sup>1</sup>		3
Humanities - Select from General Education courses <sup>1</sup>		6

**Concentration courses**

ACC 2023	Principles of Managerial Accounting	3
ART 1113	Art Appreciation	3
ART 1123	Design I	3
BL 2413	The Legal Environment of Business	3
EC 2113	Principles of Macroeconomics	3
FIN 3113	Financial Systems	3
PS 1113	American Government	3
PSS 2423	Plant Materials I	3
PSS 3313	Interior Planting Design and Maintenance	3
PSS 3343	Wedding Floral Design	3
PSS 4013	Principles of Floral Design II	3
PSS 4023	Floral Management	3
PSS 4073	Sympathy Floral Design	3
PSS 4083	Floral Design for Special Events	3
PSS 4093	Post-harvest Care of Cut Floral Crops	3
PSS 4613	Floriculture Crop Programming	3
Restricted Electives (see advisor) <sup>2</sup>		12
<b>Total Hours</b>		<b>122</b>

<sup>1</sup> Satisfies General Education requirements.<sup>2</sup> Restricted Electives. Select from: EPP 4113, HS 2603, MA 1313, PSS 3043, PSS 3303, PSS 3323, PSS 3473, PSS 3633, PSS 4000, PSS 4343, PSS 4353, PSS 4363, PSS 4453, PSS 4553, PSS 4800.**Floriculture and Ornamental Horticulture Concentration (FLOR)**

Advisors: Professor Richard L. Harkess

Floriculture and Ornamental Horticulture offers diversified opportunities that are challenging, intellectually stimulating, and economically rewarding. Floriculture and Ornamental Horticulture is the science and art of producing, distributing, and marketing flowers, flowering and foliage plants. It offers a wide variety of employment opportunities and competitive salaries. Students completing this curriculum are prepared for many different careers including greenhouse or nursery management, landscape management, public service, research and technical product research and sales.

**Additional General Education courses**

MA /ST 2113	Introduction to Statistics <sup>1</sup>	3
FLS 1113	Spanish I <sup>1</sup>	3
FLS 1123	Spanish II <sup>1</sup>	3
Social Sciences - select from General Education courses <sup>1</sup>		3
PSS 2343	Floral Design <sup>1</sup>	3
or LA 1803	Landscape Architecture Appreciation	

**Concentration courses**

AEC 3133	Introductory Agribusiness Management	3
BIO 4214	General Plant Physiology	3-4
or PSS 4113	Agricultural Crop Physiology	
CH 2501	Elementary Organic Chemistry Laboratory	1
CH 2503	Elementary Organic Chemistry	3
EPP 4113	Principles of Plant Pathology	3
PSS 2423	Plant Materials I	3
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
PSS 3313	Interior Planting Design and Maintenance	3
PSS 3473	Plant Materials II	3
PSS 4341	Controlled Environment Agriculture Laboratory	1
PSS 4343	Controlled Environment Agriculture	3
PSS 4363	Sustainable Nursery Production	3
PSS 4493	Plant Genetics	3
or PO 3103	Genetics I	
PSS 4553	Plant Growth and Development	3
PSS 4613	Floriculture Crop Programming	3
Restricted Electives (see advisor) <sup>2</sup>		18

**Total Hours** 122

<sup>1</sup> Satisfies General Education requirements.

<sup>2</sup> Restricted Electives. Select from: BIO 3304, BIO 4204, BIO 4203, EPP 4163, EPP 4263, LA 4753, MA 1313, PSS 2113, PSS 2343, PSS 2543, PSS 3043, PSS 3133, PSS 3323, PSS 3343, PSS 3633, PSS 4000, PSS 4013, PSS 4023, PSS 4073, PSS 4083, PSS 4093, PSS 4143, PSS 4153, PSS 4313, PSS 4353, PSS 4383, PSS 4393, PSS 4043, PSS 4453, PSS 4473, PSS 4503, PSS 4543, PSS 4800.

**Fruit and Vegetable Production (FRVP)**

Advisors: Associate Professor Tongyin Li

Fruit and Vegetable Production (FVP) offers opportunities that are challenging, intellectually stimulating, and economically rewarding. Fruit and Vegetable Production focuses on the production, distribution, and marketing of fruits and vegetables for local consumption and commercial markets. It offers a wide variety of employment opportunities and competitive salaries. Students completing this curriculum are prepared for careers in local and commercial production of fruits and vegetables, marketing, quality control, purchasing, research, and technical product research sales.

**Additional General Education courses**

MA 2113	Introduction to Statistics <sup>1</sup>	3
or ST 2113	Introduction to Statistics	
FLS 1113	Spanish I <sup>1</sup>	3

FLS 1123	Spanish II <sup>1</sup>	3
Social Sciences - Select from General Education courses <sup>1</sup>		3
Fine Arts - Select from General Education courses <sup>1</sup>		3

**Concentration courses**

AEC 3133	Introductory Agribusiness Management	3
BIO 4214	General Plant Physiology	3-4
or PSS 4113	Agricultural Crop Physiology	
CH 2501	Elementary Organic Chemistry Laboratory	1
CH 2503	Elementary Organic Chemistry	3
EPP 4113	Principles of Plant Pathology	3
PSS 3043	Fruit Science	3
PSS 3133	Introduction to Weed Science	3
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
PSS 3633	Sustainable and Organic Horticulture	3
PSS 4143	Advanced Fruit Science	3
PSS 4313	Soil Fertility and Fertilizers	3
PSS 4453	Vegetable Production	3
PSS 4473	Hydroponic and Soilless Crop Production	3
PSS 4493	Plant Genetics	3
or PO 3103	Genetics I	
PSS 4553	Plant Growth and Development	3
Restricted Electives		18

**Total Hours** 124

<sup>1</sup> Satisfies General Education requirements.

<sup>2</sup> Restricted Electives. Select from: BCH 4013, BIO 3304, BIO 4204, EPP 4163, EPP 4263, FNH 4114, FNH 4164, FNH 4193, FNH 4583, PSS 2423, PSS 2543, PSS 3323, PSS 3473, PSS 4000, PSS 4093, PSS 4153, PSS 4314, PSS 4333, PSS 4341, PSS 4343, PSS 4373, PSS 4383, PSS 4393, PSS 4043, PSS 4483, PSS 4503, PSS 4543, PSS 4633, PSS 4800, PSS 4813

**Minors****Agronomy**

There is a growing need for people with specialized knowledge outside the field of agronomy. The agronomic industry recruits and employs personnel trained in areas such as accounting, biological sciences, business, computer science, human nutrition, microbiology, engineering, advertising and marketing, veterinary medicine, human resource management and law. A minor in Agronomy provides these individuals enhanced employment opportunities in agriculture.

Students seeking an Agronomy minor are required to complete the following courses to receive a minor in Agronomy:

PSS 1313	Plant Science	3
PSS 3303	Soils	3
PSS 3133	Introduction to Weed Science	3
Choose 9 hours from the following:		9
PSS 2111	Turf Management Lab	
PSS 2113	Introduction to Turfgrass Science	
PSS 4103	Forage and Pasture Crops	
PSS 4123	Grain Crops	

PSS 4133	Fiber and Oilseed Crops	
PSS 4223	Seed Production	
PSS 4313	Soil Fertility and Fertilizers	
PSS 4314	Microbiology and Ecology of Soil	
PSS 4323	Soil Classification	
PSS 4333	Soil Conservation and Land Use	
PSS 4373	Geospatial Agronomic Management	
PSS 4413	Turfgrass Management	
PSS 4423	Golf Course Operations	
PSS 4443	Athletic Field Management	
PSS 4483	Introduction to Remote Sensing Technologies	
PSS 4503	Plant Breeding	
PSS 4603	Soil Chemistry	
PSS 4633	Weed Biology and Ecology	
PSS 4813	Herbicide Technology	
PSS 4823	Turfgrass Weed Management	
<b>Total hours</b>		<b>18</b>

## Floral Management

A **minor** in Floral Management is available. To obtain a minor, students are required to complete the following 15 hours:

PSS 2343	Floral Design	3
Choose four of the following courses:		12
PSS 3313	Interior Planting Design and Maintenance	
PSS 3343	Wedding Floral Design	
PSS 3443	Permanent Botanical Floral Design	
PSS 4023	Floral Management	
PSS 4073	Sympathy Floral Design	
PSS 4083	Floral Design for Special Events	
PSS 4093	Post-harvest Care of Cut Floral Crops	

## Floriculture and Ornamental Horticulture

A **minor** in Floriculture and Ornamental Horticulture is available. To obtain a minor, students are required to complete 15 hours.

PSS 2423	Plant Materials I	3
PSS 3473	Plant Materials II	3
PSS 3923	Plant Propagation	3
Choose two of the following:		6
PSS 3313	Interior Planting Design and Maintenance	
PSS 4343	Controlled Environment Agriculture	
PSS 4353	Arboriculture and Landscape Maintenance	
PSS 4363	Sustainable Nursery Production	
PSS 4613	Floriculture Crop Programming	

## Department of Poultry Science

**Major Advisor: Jessica Wells**

Office: Poultry Science Rm 1090

The U.S. poultry industry is a \$23 billion+ business employing hundreds of thousands of people in the United States. Mississippi ranks in the top five broiler producing states and continues to expand. This dynamic

industry employs approximately 25,000 Mississippians directly and another 25,000 indirectly.

The Poultry curriculum provides for in-depth study of scientific principles important in the production, processing and marketing of poultry and poultry products. The curriculum is designed with academic and experiential components to ensure that graduates are prepared to manage people and resources vital to this important food industry. Poultry students should also expect to develop creative thinking skills that will allow them to develop solutions for complex real world problems as they develop their careers as managers. The strong science content of the curriculum also makes it an excellent fit for pre-vet students and students interested in graduate studies. The department provides one-on-one advising for all Poultry Science students. Concentrations available are:

- Applied Poultry Management
- Science and Pre-Veterinary Science

Only grades of C or higher will be accepted for all PO courses.

## BS in Poultry Science (PO)

### Degree Requirements

<b>English Composition</b>		<b>6</b>
EN 1103	English Composition I	
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	
or EN 1173	Accelerated Composition II	
<b>Mathematics</b>		<b>6</b>
MA 1313	College Algebra	
MA higher than MA 1313 (see Gen Ed courses)		
<b>Science</b>		<b>9</b>
See major/concentration		
<b>Humanities</b>		<b>6</b>
Select from General Education courses (except FLS 1113 which is major core requirement)		
<b>Fine Arts</b>		<b>3</b>
Select from General Education courses		
<b>Social Sciences</b>		<b>6</b>
Applied Poultry Management concentration: Select hours from General Education courses (except AEC 2713 which is a major concentration requirement)		
Science and Pre-Vet Science concentration: Select hours from General Education courses		
<b>Major Core</b>		
PO 3011	Seminar	1
PO 3021	Seminar	1
PO 3103	Genetics I	3
PO 3313	Commercial Poultry Production	3
PO 4031	Seminar	1
PO 4041	Seminar	1
PO 4033	Diseases of Poultry	3
PO 4313	Management of Commercial Layers	3
PO 4324	Avian Reproduction	4
PO 4334	Broiler Production	4
PO 4413	Poultry Nutrition	3

PO 4423	Feed Manufacturing	3
PO 4514	Poultry Processing	4
PO 4844	Avian Anatomy and Physiology	4
PO 3353	Poultry Production Internship	3
FLS 1113	Spanish I	3
FNH 4414 or BIO 3304	Microbiology of Foods General Microbiology	4
<b>Experiential Learning</b>		<b>3</b>
PO 4990 or PO 3363 or PO 4000	Special Topics in Poultry Science Poultry Processing Internship Directed Individual Study in Poultry Science	

**Oral Communication Requirement**

Satisfied by successful completion of PO 3021, 4031, and 4041

**Writing Requirement**

Satisfied by successful completion of PO 4324 and 4844

**Computer Literacy**

Satisfied by successful completion of PO 4324 and 4844

Choose one of the following concentrations:

**Applied Poultry Management Concentration (APOM)**

Many large agribusiness firms are in the poultry sector. It prepares students to enter into all areas of the poultry industry with the knowledge necessary to be successful.

ACC 2013	Principles of Financial Accounting	3
BL 2413	The Legal Environment of Business	3
AEC 3133	Introductory Agribusiness Management	3
AEC 2713	Introduction to Food and Resource Economics	3
AEC 3233	Introduction to Environmental Economics and Policy	3
AEC 4113	Agribusiness Firm Management	3
AEC 4413	Public Problems of Agriculture	3
MKT 3013	Principles of Marketing	3

**Science Requirements 9-11**

Choose 3 of the following (major core science requirements):

BIO 1134	Biology I
BIO 1123	Animal Biology
BIO 1144	Biology II
BIO 2113	Plant Biology
CH 1043 or CH 1213 & CH 1211	Survey of Chemistry I Chemistry I and Investigations in Chemistry I
CH 1223 & CH 1221	Chemistry II and Investigations in Chemistry II

**Restricted Electives 2-3**

Choose one of the following:

PO 3423	Poultry Evaluation I
PO 3433	Poultry Evaluation II.
PO 4512	Poultry Products Safety and Sanitation
ADS /PO 1013	Animal Agriculture & Society: Food for Thought

MGT 3513	Introduction to Human Resource Management
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**Free Electives 5-8****Total Hours 122****Science and Pre-Veterinary Science Concentration (SPVS)**

The Science and Pre-Veterinary Science concentration prepares a student for future programs at a graduate level and also allows a student to satisfy the pre-veterinary requirements while completing a B.S. in Poultry Science.

BIO 1134	Biology I	4
BIO 1144	Biology II	4
CH 1211	Investigations in Chemistry I	1
CH 1213	Chemistry I	3
CH 1221	Investigations in Chemistry II	1
CH 1223	Chemistry II	3
CH 2503 & CH 2501	Elementary Organic Chemistry and Elementary Organic Chemistry Laboratory	4
or CH 4513 & CH 4511	Organic Chemistry I and Organic Chemistry Laboratory I	

**Restricted Electives 11-14**

Choose four from the following:

CH 4523 & CH 4521	Organic Chemistry II and Organic Chemistry Laboratory II
BCH 4013 or BCH 4603	Principles of Biochemistry General Biochemistry I
PH 1113	General Physics I
PH 1123	General Physics II
PO 4512	Poultry Products Safety and Sanitation
PO 3423	Poultry Evaluation I
PO 3433	Poultry Evaluation II.
ADS /PO 1013	Animal Agriculture & Society: Food for Thought

**Free Electives 10-13****Total Hours 122****Poultry Science Minor**

The need for people who have specialized knowledge outside of classic poultry science is growing rapidly. Currently the industry recruits and employs personnel trained in areas such as accounting, biological sciences, computer science, human nutrition, nursing, microbiology, engineering, food technology, advertising and marketing, veterinary medicine, human resource management and law. A minor in Poultry Science provides these individuals with enhanced employment opportunities in the poultry industry.

Students will be required to complete the following courses to receive a minor in Poultry Science.

PO 3313	Commercial Poultry Production	3
PO 4313	Management of Commercial Layers	3
PO 4334	Broiler Production	4
PO 4413	Poultry Nutrition	3

or PO 4423	Feed Manufacturing	4
PO 4514	Poultry Processing	

## School of Human Sciences

**Director: Michael E. Newman**

Office: (662) 325-2950

The mission of the School of Human Sciences is to improve the well-being of individuals, families, communities and related businesses and industries through teaching, research and outreach. An integrative approach is carried out in these program areas:

- **Agricultural Education, Leadership, and Communications (AELC)**
- **Fashion Design and Merchandising (FDM)**
- **Human Development and Family Science (HDFS)**

The School of Human Sciences currently has the following accreditations: American Association of Family and Consumer Sciences (AAFCS) and National Council for Accreditation of Teacher Education (NCATE) in Vocational Home Economics and Agriculture.

The commitment of Human Sciences' faculty and staff to excellence is evident in teaching, especially considering the growth, demand for the programs offered in the School, and the number of teaching and advising awards received by the faculty. The School of Human Sciences has more Grisham Master Teachers and CALS Excellence in Teaching Awards than any other unit within the Division and College. The School remains committed to this path of excellence, striving to provide students with contemporary programs and outstanding learning opportunities at the undergraduate and graduate levels. The School provides strong curricula and excellent teaching and advising.

The School's programs are strong components of the land grant institution, which is designed to provide outreach to the community and state. The School's commitment to this process is evident in several outreach programs, such as its early childhood development work. Human Sciences faculty and graduates work with people in and across a variety of settings, including homes; schools; clinical settings; community agencies and institutions; and business, industry, and government. Graduates are prepared to address the social and economic challenges that face the state and its communities.

### BS in Agricultural Education, Leadership, and Communications

**Academic Coordinator: Bailey Poindexter**

Office: (662) 325-7703

The Agriculture Education, Leadership, and Communications major equips graduates with the ability to inform and engage people about agricultural information and issues. This is achieved through curriculum emphasizing practical knowledge and hands-on experiences in teaching, leadership, and communications, in addition to well-rounded, individualized coursework in agricultural topics. Agricultural Education, Leadership, and Communications (AELC) graduates may become involved in a variety of occupations in agricultural business and industry, education, production, extension, and communications. The major requires 124 semester hours as shown in the catalog description. Students may choose to complete a concentration in Agricultural Education, Agricultural Leadership, or Agricultural Communications. The AELC concentrations are achieved by completing a combination of

59 hours of specified courses and restricted agriculture electives as approved by an AELC advisor. All students must earn at least a C in all AELC courses.

The Agricultural Education concentration prepares individuals seeking careers as an agricultural education teacher. The Agricultural Leadership concentration develops students' skills for employment with the Extension service or a variety of agricultural industry careers. The Agricultural Communications concentration prepare students to communicate and advocate for agriculture and the industry.

Students desiring to receive certification to teach in secondary agricultural education will need to complete certification requirements. The Agricultural Education teacher education program at Mississippi State University is accredited by the Council for Accreditation of Education Preparation (CAEP). Students must conform to the policies on teacher education, as explained under "Teacher Licensure" elsewhere in this catalog.

Graduates will have knowledge of

- principles of teaching and learning;
- principles and theories of leadership;
- principles of professional communication; and
- basic agricultural sciences.

Graduates will be able to

- plan and conduct agricultural education programs in classroom and community settings;
- demonstrate professional oral, written, and digital communication strategies to various audiences;
- be proficient in computer applications; and
- be readily prepared for employment.

In capstone courses, students produce and present reports that demonstrate the performance learning objectives. In addition to faculty assessment, external assessors from other departments and industry observe presentations and provide feedback.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1323	Trigonometry	3
or MA /ST 2113	Introduction to Statistics	

### Science

BIO 1134	Biology I	4
BIO 1144	Biology II	3-4
or PSS 1313	Plant Science	

### Extra Science (if appropriate)

CH 1043	Survey of Chemistry I	3
or CH 1053	Survey of Chemistry II	
or CH 1213	Chemistry I	

### Humanities

Select from General Education courses	6
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**Fine Arts**

Select from General Education courses	3
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**Social Sciences**

AEC 2713	Introduction to Food and Resource Economics	3
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or EC 2113	Principles of Macroeconomics	
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or EC 2123	Principles of Microeconomics	
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See concentration for second Social/Behavioral Science course.	3
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**Major Core**

AELC 2413	Orientation to Agricultural Education, Leadership & Communications	3
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AELC 3333	Professional Presentations in Agriculture and Life Sciences	3
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AELC 3423	Graphic Design in Agriculture and Life Sciences	3
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AELC 3803	Foundations of Leadership in Agricultural and Life Sciences	3
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AELC 4223	Communications Strategies in Agriculture and Life Sciences	3
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AELC 4403	Development of Youth Programs	3
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AELC 4424	Teaching Methods in Agricultural and Human Sciences	4
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AELC 4803	Contemporary Issues in Agriculture and Life Sciences	3
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**Oral Communication Requirement**

Satisfied by the successful completion of AELC 3333 or AELC 4424	
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**Writing Requirement**

AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
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**Computer Literacy**

AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications	3
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<b>Free Elective</b>	<b>3</b>
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**Agricultural Education Concentration**

AELC 3013	Field Experience in Agricultural Education, Leadership and Communications	3
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AELC 4613	Teaching Agricultural Mechanics	3
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AELC 4723	Pedagogy of AgriScience Programs	3
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AELC 4873	Professional Seminar in Agricultural Education	3
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AELC 4886	Teaching Internship in Agricultural Education	6
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AELC 4896	Teaching Internship in Agricultural Education	6
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EDX 3213	Individualizing Instruction for Exceptional Children	3
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PSY 1013	General Psychology	3
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ADS 1113	Animal Science	3
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ADS 1121	Animal Science Laboratory	1
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Restricted Animal Science Elective <sup>2</sup>	
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PSS 3301	Soils Laboratory	1
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PSS 3303	Soils	3
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**Restricted Plant Science Elective<sup>1</sup>**

FO 4513	Forestry and Conservation for Educators. (or 3 hr advisor approved course)	3
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Agriculture electives	6-8
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Free electives	6
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<sup>1</sup> Select one course from PSS 1113, PSS 2343, PSS 2423, PSS 3133, PSS 3923, PSS 4103, PSS 4123, PSS 4133, PSS 4613, FO 2113

<sup>2</sup> Select one course from ADS 2102, ADS 2122, ADS 3142, ADS 3214, ADS 3223, ADS 3312, ADS 3314, ADS 3812, ADS 4113, ADS 4212, ADS 4223, ADS 4232, ADS 4323, ADS 4813, PO 3313

**Agricultural Leadership Concentration**

PHI 1123	Introduction to Ethics	3
or MGT 3823	Socially Responsible Leadership	

PSY 3623	Social Psychology	3
or PS 3013	Political Leadership	

CO 1003	Fundamentals of Public Speaking	3
or CO 3213	Small Group Communication	

or CO 3803	Principles of Public Relations	
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AELC 3813	Team Leadership for Agriculture & Life Sciences	3
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PSY 1013	General Psychology	3
or PS 1113	American Government	

or SO 1003	Introduction to Sociology	
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PS 2703	Introduction to Public Policy	3
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AELC 3503	Internship in Agricultural Science and Leadership	3
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ADS 1113 & ADS 1121	Animal Science and Animal Science Laboratory	3-4
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or EPP 2213	Introduction to Insects	
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or PSS 3301 & PSS 3303	Soils Laboratory and Soils	
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Advisor-approved 3000-4000 level, focus area related to career objective (see advisor for suggestions) <sup>1</sup>	16
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Ag/Business/Management/Marketing/Communication Electives <sup>2</sup>	12
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Free electives	6
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<b>Total Hours</b>	<b>124</b>
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<sup>1</sup> 16 hours minimum

<sup>2</sup> includes all CALS 1000 level and above - ADS, AEC, AELC, PSS, ABE, WFA, FNH, LA, FO, PO, EPP; and MGT, MKT, CO, BL

**Agricultural Communications Concentration**

AELC 3603	Internship-Agricultural Communications	3
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CO 1403	Introduction to the Mass Media	3
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CO 2333	Television Production	3
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CO 2413	Introduction to News Writing and Reporting	3
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CO 3403	Photographic Communication	3
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CO 3803	Principles of Public Relations	3
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CO 3853	Public Relations Writing	3
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CO 3863	Public Relations Production	3
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PSY 1013	General Psychology	3
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or PS 1113	American Government	
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or SO 1003	Introduction to Sociology	
ADS 1113 & ADS 1121	Animal Science and Animal Science Laboratory	3-4
or EPP 2213	Introduction to Insects	
or PSS 3301 & PSS 3303	Soils Laboratory and Soils	
Focus Area Electives <sup>1</sup>		22
Free Electives		6
Completing a minor in Communications, Political Science, or Art is recommended as a part of your program of study.		
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Electives must be advisor-approved, focus area courses related to agricultural communications. A minimum of 15 hours may be 3000- or 4000-level courses taken at Mississippi State University.

## BS in Agricultural Science (AGS)

**Academic Coordinator: Bailey Poindexter**

Office: (662) 325-7703

The Agricultural Science degree prepares individuals for a variety of agricultural related careers. Many agricultural businesses and organizations are seeking graduates who have a diversified knowledge of agriculture and life sciences, which includes production agriculture, business, leadership and management. Many graduates become involved in agriculture business and industry, production agriculture operations, international agriculture development or pursue advanced study in areas such as nutrition and agricultural education.

Agricultural Science allows students to develop a high concentration of science and specialized agricultural study. Through the Agricultural Science degree program, a student can pursue a bachelor of science in agriculture and develop specialization areas that will serve his/her individual needs and interests. For the degree requirements, students must complete 124 hours, which includes 18 hours of science and 58 hours of agricultural science. Thirty hours will be agricultural science electives, which must be taken from two different agriculture focus areas within the College of Agriculture and Life Sciences. (See advisor for suggested focus areas.) The student should select agricultural focus areas that are closely related and complement each other and are related to the career objectives of the student. At least 12 hours in each agricultural focus area must be 3000-4000 level courses. The student will also have 14 hours of agriculture and science electives to complete which should also complement the selected agricultural focus areas. At least three hours must be a natural life science.

Graduates will have knowledge of

- the diversified field of agriculture;
- basic agricultural sciences;
- leadership principles;
- the basic principles of production; and
- the application of basic science principles to production agriculture and agricultural business management.

Graduates will be able to

- plan and conduct basic agricultural research;
- manage an agricultural enterprise (business or production);

- provide leadership in a variety of employment settings; and
- communicate effectively orally and in writing to various audiences.

In various courses, students produce and present reports that demonstrate the performance learning objectives. In addition to faculty assessment, external assessors from other departments and from typical clientele audiences observe presentations and provide feedback.

Internship supervisors and co-curricular sponsors, along with student participants, provide feedback about the internship using a form based on the learning objectives.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

Select from General Education courses		3
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### Science

BIO 1134	Biology I	4
BIO 1144	Biology II	4
CH 1043	Survey of Chemistry I	3
or CH 1213	Chemistry I	

### Humanities

Select from General Education courses		6
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### Fine Arts

Select from General Education courses		3
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### Social Science

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2113	Principles of Macroeconomics	
or EC 2123	Principles of Microeconomics	

Select from General Education courses		3
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### Major Core

ABE 1863	Engineering Technology in Agriculture	3
ADS 1113 & ADS 1121	Animal Science and Animal Science Laboratory	4
AEC 3133	Introductory Agribusiness Management	3
AELC 3500		
CH 1051	Experimental Chemistry	1
CH 1053	Survey of Chemistry II	3
or CH 1223	Chemistry II	
EPP 2213	Introduction to Insects	3
or EPP 4113	Principles of Plant Pathology	
PSS 1313	Plant Science	3
or BIO 2113	Plant Biology	
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
15 hours from each of two agriculture focus areas <sup>1</sup>		30
Agriculture/science electives <sup>1,2</sup>		14
Free electives		9

### Oral Communication Requirement



AELC 3333	Professional Presentations in Agriculture and Life Sciences	3
<b>Writing Requirement</b>		
AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
<b>Computer Literacy</b>		
AELC 4203	Applications of Computer Tech to Agricultural Education, Leadership, and Communications	3
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> See advisor for approved courses.

<sup>2</sup> 3 hours must be a natural/life science.

## BS in Human Development and Family Science (HDFS)

**Academic Coordinator: Bailey Poindexter**

Office: (662) 325-7703

This degree offers an interdisciplinary lifespan approach to the study of children, youth, and families. It encompasses specialty areas in preschool teaching, child life, child development, youth development, family science, child life, and family and consumer sciences teacher education. Students develop an awareness of trends, issues, and public policy affecting families; analyze factors that influence cognitive, emotional, social, and physical development in the contexts of culture and family. Graduates enter diverse public and private sectors that focus on enabling children, youth, and families to function effectively in today's complex society.

Specific course work is required to specialize in each area or meet Class A teacher licensure requirements for family and consumer sciences in the state of Mississippi. Specific course work is also required to specialize in child life, preschool education, youth development, or family science. A grade of "C" or better is required for all major courses (Human Development and Family Science courses). A student will not be allowed to register for HDFS classes after the initial semester until he or she has submitted an application for a federal background check. If the background check comes back unapproved, the student will not be allowed to continue in the program until the problem is resolved. Students are responsible for paying the fees for the background check.

### Degree Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Fine Arts **3**

Select from General Education courses

#### Natural Sciences (2 lab sciences required from Gen Ed) **6**

Select from GenEd courses for Child Development, Youth Development, Family Science, and FCS Education

BIO 1004 required for Child Life Concentration

#### Extra Science (if appropriate) **3**

(HS 2293 Individual and Family Nutrition required for FCS Education)

(Select from Gen Ed courses for Child Development, Child Life, Youth Development, and Family Science)

#### Mathematics **3**

Math higher than MA 1313

#### Humanities **3**

Select a course from General Education courses

PHI 1123 Introduction to Ethics (required for Child Life concentration)

#### Social/Behavioral Sciences **3**

HDFS 1813 Individual and Family Development through the Lifespan (required for all HDFS students)

EPY 3543 Psychology of Adolescence (required for FCS Education students)

#### Major Core

HS 1701 Survey of Human Sciences 1

HS 4702 Research and Application in Human Sciences 2

HDFS 2813 Child Development 3

HDFS 4313 Family Resource Management 3

HDFS 4333 Families, Legislation and Public Policy 3

HDFS 4424 Teaching Methods in Agricultural and Human Sciences 4

or HDFS 4624 Family Life Education Methodology

HDFS 4701 Internship Preparation 1

HDFS 4803 Parenting 3

HDFS 4843 Family Interaction 3

HDFS 4883 Risk, Resilience and Preventive Interventions 3

#### Writing Requirement **3**

AELC 3203 Professional Writing in Agriculture, Natural Resources, and Human Sciences

or EDF 3413 Writing for Thinking

or EPY 3513 Writing in the Behavioral Sciences

or MGT 3213 Organizational Communications

#### Free Elective **3**

### Child Development Concentration

The child development concentration explores the growth and development of children (conception until adolescence) within the family system and sociocultural milieu. This coursework prepares students to become competent early care and education professionals, parent educators, child advocates, and early interventionists within the public, private, and non-profit sectors. Students learn real-world application through lab experiences at the Child Development and Family Studies Center and internships in settings that align with the students' career goals. PreK-K teaching candidates must complete a PreK-K Teacher Candidacy Internship under the supervision of a licensed teacher. To be eligible for PreK-K teaching licensure in Mississippi, students must pass the Praxis Core or have a cumulative ACT score of at least 21; have a GPA of at least 2.75; and pass the Praxis II Early Childhood Principles of Teaching and Learning (5621) and the Praxis II Child Development (5024).

HDFS 2803	Prenatal and Infant Development	3
HDFS 3803	Creativity & Play in Young Children	3
HDFS 3813	Lifespan Theory	3
HDFS 3823	Methods & Materials for Early Care and Education Programs	3
HDFS 3843	Guiding Young Children's Behavior & Social Development	3
HDFS 3853	Language and Literacy in the Early Years	3
HDFS 4760	Child Development Internship	12
or HDFS 4740	PreK-K Teacher Candidacy Internship	
HDFS 4823	Development and Administration of Child Service Programs	3
HS 2283	Child Health and Nutrition	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
COE 4013	Facilitative Skills Development	3
or HDFS 3123	Global Child Advocacy Issues	
Electives		14
<b>Child Development Concentration total hours</b>		<b>124</b>

## Child Life Concentration

A concentration in Child Life provides the student with an overview of the role of the child life specialist working with children and their families in a health care setting. The primary emphases of the child life concentration are on student demonstration of knowledge, skills, and abilities required to assume the responsibilities of a child life professional.

This includes involvement in the assessment of patients and families; planning and delivering child life services to patients including medical play, pre-procedural teaching, use of distractions, etc; and evaluating the effectiveness of the interventions and plan.

HS 2283	Child Health and Nutrition	3
HDFS 2023	Trauma Informed Practice	3
HDFS 2123	Perspectives on Child Maltreatment and Child Advocacy	3
HDFS 2803	Prenatal and Infant Development	3
HDFS 3803	Creativity & Play in Young Children	3
HDFS 3813	Lifespan Theory	3
HDFS 3843	Guiding Young Children's Behavior & Social Development	3
HDFS 3853	Language and Literacy in the Early Years	3
HDFS 4770	Child Life Internship	12
or HDFS 4760	Child Development Internship	
HDFS 4802	Grief and Bereavement: Support Systems and Practices for Children and Families	2
HDFS 4823	Development and Administration of Child Service Programs	3
HDFS 4833	The Hospitalized Child	3
HDFS 4873	Positive Youth Development	3
or HDFS 4893	Adolescent Development	
EDX 3213	Individualizing Instruction for Exceptional Children	3
COE 4013	Facilitative Skills Development	3

or HDFS 3123	Global Child Advocacy Issues	
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
KI 2603	Medical Terminology	3
<b>Child Life Concentration total hours</b>		<b>124</b>

## Youth Development Concentration

The Youth Development curriculum prepares students to understand and work effectively with children and adolescents, ages 10-18, in a variety of settings. The program provides students with a comprehensive view of the needs and developmental characteristics of youths, as well as the challenges facing today's youths. Emphasis is placed on understanding how youth development does not occur in isolation but is situated in, and affected by, contexts such as relationships, family, neighborhood/ community, school, culture, the economy, and society. Youth Development students gain valuable real-world experience through a required field experience course and an internship. Students are also able to develop specific areas of specialization to fit their career interests by choosing from a generous variety of focus area courses.

HDFS 3000	Field Experience	1-6
HDFS 3813	Lifespan Theory	3
HDFS 4780	Youth Development Internship	12
HDFS 4873	Positive Youth Development	3
HDFS 4893	Adolescent Development	3
PSY 4223	Drug Use and Abuse	3
or SW 4533	Substance Abuse and Addictions in Social Work Services	
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
Choose three of the following:		9
AELC 4403	Development of Youth Programs	
PSY 3413	Human Sexual Behavior	
EDX 3213	Individualizing Instruction for Exceptional Children	
COE 4013	Facilitative Skills Development	
EPY 3543	Psychology of Adolescence	
Choose 15 hours from the following:		15
HDFS 2023	Trauma Informed Practice *	
HDFS 2123	Perspectives on Child Maltreatment and Child Advocacy *	
HDFS 3123	Global Child Advocacy Issues *	
HDFS 3833	Human Development in the Context of Leisure and Recreation	
HS 3673	Environments for Special Needs	
EDX 4423	Teaching the Disadvantaged Child	
EPY 3503	Principles of Educational Psychology	
EPY 3553	Giftedness/Creativity	
SO 2203	Introduction to Race and Ethnicity	
SO 3213	Introduction to Social Research	
SO 3313	Deviant Behavior	
SO 3503	Violence in the United States	
SO 3603	Criminological Theory	
SO 4233	Juvenile Delinquency	
SO 4333	Sociology of Sport	

PE 3033	Basketball and Football Officials	
PE 3133	Adapted Physical Education	
PE 3433	General Safety Methods	
PE 3533	Coaching Sports	
KI 2213	Emergency Health Care	
MGT 3113	Principles of Management	
MGT 3213	Organizational Communications	
MGT 3513	Introduction to Human Resource Management	
MGT 3813	Organizational Behavior	
MGT 4563	Staffing in Organizations	
MKT 3013	Principles of Marketing	
MKT 3213	Retailing	
MKT 4113	Personal Selling	
MKT 4123	Advertising	
Electives		8
<b>Youth Development Concentration total hours</b>		<b>124</b>

\* Meets requirements for Trauma-Informed Child Advocacy Certificate

## Family Science Concentration

The Family Science program helps students discover, verify, and apply knowledge about the family. Family Science students gain valuable real-world experience through a required field experience course and an internship, and graduates are able to receive provisional certification through the National Council on Family Relations as Certified Family Life Educators, recognizing their competence in a broad range of ten family-related content areas. They are prepared to address societal issues including economics, education, work-family issues, parenting, sexuality, gender, substance abuse, domestic violence, unemployment, debt, and child abuse within the context of the family. Graduates can work in a variety of governmental, non-profit, religious, and private agencies.

HDFS 3000	Field Experience	1-6
HDFS 3813	Lifespan Theory	3
HDFS 4403	Introduction to Gerontology	3
HDFS 4790	Family Science Internship	12
HDFS 4813	Adult Development: The Middle Years	3
HDFS 4853	The Family: A Human Ecological Perspective	3
HDFS 4873	Positive Youth Development	3
HS 3673	Environments for Special Needs	3
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
COE 4013	Facilitative Skills Development	3
PSY 3413	Human Sexual Behavior	3
PSY 4223	Drug Use and Abuse	3
or SW 4533	Substance Abuse and Addictions in Social Work Services	
Electives		14
<b>Family Science Concentration total hours</b>		<b>124</b>

## Family and Consumer Sciences Teacher Ed Concentration

The Family and Consumer Sciences teacher education program at Mississippi State University is NCATE accredited. Students must conform to the policies on teacher education, as explained under "Teacher Licensure" elsewhere in this catalog. Following is a list of courses taught in selected Mississippi high schools and vo-tech centers: family dynamics, resource management, nutrition and wellness, family and individual health, personal development, and child development. Family and Consumer Sciences teachers can also teach in high school Occupational Programs (such as food production, childcare, and clothing production). Some additional on-the-job training is required to teach these courses. Completion of a Bachelor of Science in Human Development and Family Science (Family and Consumer Sciences Education emphasis) degree from the School of Human Sciences at Mississippi State University leads to licensure to teach these courses.

EDF 3333	Social Foundations of Education	3
EDF 4243	Planning for the Diversity of Learners	3
EDS 3413	Principles of Secondary Education	3
AELC 4873	Professional Seminar in Agricultural Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EPY 3143	Human Development and Learning Strategies in Education	3
FDM 2153	Fashion Apparel Analysis	3
HDFS 2803	Prenatal and Infant Development	3
HDFS 3000	Field Experience (1 hour)	1-6
HDFS 4462	Curriculum in FCS Education	2
HDFS 4853	The Family: A Human Ecological Perspective	3
HDFS 4886	Teaching Internship in FCS Education	6
HDFS 4896	Teaching Internship in FCS Education	6
HS 2203	Science of Food Preparation	3
HS 2283	Child Health and Nutrition	3
HS 2603	Interior Design Fundamentals	3
KI 1803	Health Trends and Topics	3
PSY 3413	Human Sexual Behavior	3
Electives		2
<b>Family and Consumer Sciences Teacher Ed Concentration total hours</b>		<b>124</b>

## BS in Fashion Design and Merchandising (FDM)

This degree is designed to provide students with an understanding of fashion and textile industries, consumer behavior, product development, business principles, and technology applications. Students select a concentration in one of two areas: Design and Product Development or Merchandising. Design and Product Development emphasizes the total design and production process from inception to finished product and its ultimate sale to the consumer. Merchandising combines an overview of the fashion industry, consumer behavior, product development, planning, buying business operations and entrepreneurship. Specialized labs and industry software provide students with extensive hands-on experience in the latest design, product development, and fashion retailing technology.

applications. A grade of "C" or better is required for all major courses (Human Sciences and Fashion Design and Merchandising courses).

## Degree Requirements

### English

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Fine Arts 3

Select from General Education courses

### Natural Sciences 6

Select 2 lab sciences from Gen Ed Science courses

### Extra Science 3

Select from any Gen Ed Science Courses

### Mathematics

BQA 2113	Business Statistical Methods I <sup>1</sup>	3
or ST 2113	Introduction to Statistics	

### Humanities

3 hours Foreign Language 3

3 hours Gen Ed course 3

### Social/Behavioral Sciences

PSY 1013	General Psychology <sup>2</sup>	3
or SO 1003	Introduction to Sociology	
EC 2113	Principles of Macroeconomics	3

### Major Core Courses

FDM 1523	Visual Design in Dress	3
FDM 2524	Textiles for Apparel	4
FDM 2553	Introduction to Merchandising	3
FDM 2593	Product Development II	3
FDM 3221	Internship Preparation	1
FDM 3553	Merchandise Retail Pricing and Inventory Management	3
FDM 3563	Visual Merchandising	3
FDM 3573	Historic Costume	3
HS 1701	Survey of Human Sciences	1
HS 4702	Research and Application in Human Sciences	2
FDM 4763	FDM Internship <sup>3</sup>	3

### Oral Communication Requirement

FDM 4424	Teaching Methods in Agricultural and Human Sciences	4
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### Writing Requirement

FDM 4513	Fashion Consumer Behavior	3
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### Computer Literacy

FDM 2123	Product Development I	3
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### Free Elective 3

<sup>1</sup> Required for Pre-MBA emphasis; B or higher in MBA prerequisite courses

<sup>2</sup> SO 1003 is required for the Sociology emphasis

<sup>3</sup> Two 3-credit hour internships are required.

## Merchandising Concentration

The merchandising concentration explores the business and product development aspects of the apparel industry from finalized design to the end-use by consumers and beyond. This coursework prepares students to become competent in pursuing careers in merchandising, buying, fashion forecasting, fashion communications, fashion business and retail operations. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position.

FDM 2153	Fashion Apparel Analysis	3
FDM 2333	Intro to Buying and Management	3
FDM 4533	Merchandise Planning and Buying	3
FDM 4583	Fashion Entrepreneurship	3
FDM 4603	Global Sourcing in the Textile and Apparel Industry	3
FDM 4693	Digital Merchandising	3

### Select one of the emphasis areas below:

#### General Merchandising 18

Choose 18 hours from any of the courses offered in the emphasis areas below or select program related electives approved by academic advisor

#### Business Administration (Pre-MBA)

Choose any 6 of the following:

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BIS 3233	Management Information Systems	3
BL 2413	The Legal Environment of Business	3
BQA 2113	Business Statistical Methods I	3
BQA 3123	Business Statistical Methods II <sup>1</sup>	3
EC 2123	Principles of Microeconomics	3
FIN 3123	Financial Management <sup>1</sup>	3
MGT 3114	<sup>1</sup>	
MKT 3013	Principles of Marketing	3

#### Communication Studies

CO 1223	Introduction to Communication Theory	3
CO 2253	Fundamentals of Interpersonal Communication	3
CO 3833	Interviewing in Communication	3
CO 4203	Nonverbal Communication	3
CO 4223	Advanced Communication Theory	3
CO 4243	Rhetorical Theory	3

#### Entrepreneurship

MGT 3323	Entrepreneurship	3
MGT 3333	Field Studies in Entrepreneurship	3
BL 4243	Legal Aspects of Entrepreneurship	3
FIN 4323	Entrepreneurial Finance	3
MKT 4423	Strategic Brand Management	3
GE 3011	Engineering Entrepreneurship Seminar	1

#### Finance

FIN 3113	Financial Systems	3
FIN 3123	Financial Management	3
FIN 3723	Financial Markets and Institutions	3
FIN 4223	Intermediate Financial Management	3

FIN 4423	Investments	3
FIN 4923	International Financial Management	3

**Information Technology Services**

Choose any 6 of the following courses:

TKB 3133		
TKB 4283		
TKB 4543		
TKB 4563		
TKB 4583		
TKT 3463		
TKT 4343		
TKT 4743		
TKT 4753		
TKT 4813	Introduction to Instructional Systems	3

**Management**

MGT 3813	Organizational Behavior	3
MGT 3114		
MGT 3513	Introduction to Human Resource Management	3

Choose any 3 of the following courses:

MGT 3323	Entrepreneurship	3
MGT 3333	Field Studies in Entrepreneurship	3
MGT 3823	Socially Responsible Leadership	3
MGT 4153	Management Seminar	3
MGT 4533	Advanced Human Resource Management	3
MGT 4543	Compensation Management	3
MGT 4563	Staffing in Organizations	3
MGT 4613	Cross-Cultural Management	3

**Marketing**

MKT 3013	Principles of Marketing	3
MKT 4413	Consumer Behavior	3

Choose any 4 of the following courses:

MKT 3213	Retailing	3
MKT 3323	International Logistics	3
MKT 3933	International Marketing	3
MKT 4033	International Transportation	3
MKT 4113	Personal Selling	3
MKT 4123	Advertising	3
MKT 4143	Sales Management	3
MKT 4213	Internet Marketing	3
MKT 4313	Physical Distribution Management	3
MKT 4333	International Supply Chain Management	3
MKT 4533	Marketing Research	3
MKT 4613	Services Marketing	3

**Sociology**

SO 2203	Introduction to Race and Ethnicity	3
SO 3213	Introduction to Social Research	3

Choose any 3 SO designated courses at the 2000 level or above and include at least 1 4000 level SO course.

Free Electives		10
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<b>Total Hours</b>		<b>124</b>
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<sup>1</sup> Required for Pre-MBA emphasis (B or higher in MBA prerequisite courses)

## Design and Product Development Concentration

The Design and Product Development concentration explores the creative and product development aspects of the apparel industry from trend innovation and concept to an end-use product and beyond. This coursework prepares students to become competent in pursuing careers in creative design, technical design, visual merchandising, styling, fashion communications, fashion forecasting, and related creative industries. Students learn real-world application through lab experiences and internships in settings that align with the students' career goals. Students must complete two internships in a related position.

FDM 1533	Apparel Construction	3
FDM 2573	Fashion Portfolio Development	3
FDM 4343	Pattern Making and Design	3
FDM 4363	Draping	3
FDM 4593	Creative Design Techniques	3
FDM 4733	Computer-Aided Design for Fashion	3

**Select one of the emphasis areas below:**

**General Design and Product Development**

Choose 18 hours from any of the courses offered in the emphasis areas below or select program-related electives approved by academic advisor 18

**Art**

Choose 18 credit hours of courses with an ART prefix. One or more 1000-level courses and one 2000-level course must be completed in addition to at least three 3000- or 4000-level courses 18

**Business Administration (Pre-MBA)**

Choose any 6 of the following:

ACC 2013	Principles of Financial Accounting <sup>1</sup>	3
ACC 2023	Principles of Managerial Accounting	3
BIS 3233	Management Information Systems	3
BL 2413	The Legal Environment of Business	3
BQA 2113	Business Statistical Methods I <sup>1</sup>	3
BQA 3123	Business Statistical Methods II <sup>1</sup>	3
EC 2123	Principles of Microeconomics	3
FIN 3123	Financial Management <sup>1</sup>	3
MGT 3114	<sup>1</sup>	

MKT 3013	Principles of Marketing	3
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**Communication Studies**

CO 1223	Introduction to Communication Theory	3
CO 2253	Fundamentals of Interpersonal Communication	3
CO 3833	Interviewing in Communication	3
CO 4203	Nonverbal Communication	3
CO 4223	Advanced Communication Theory	3
CO 4243	Rhetorical Theory	3

**Entrepreneurship**

MGT 3323	Entrepreneurship	3
MGT 3333	Field Studies in Entrepreneurship	3

BL 4243	Legal Aspects of Entrepreneurship	3
FIN 4323	Entrepreneurial Finance	3
MKT 4423	Strategic Brand Management	3
GE 3011	Engineering Entrepreneurship Seminar	1
<b>Finance</b>		
FIN 3113	Financial Systems	3
FIN 3123	Financial Management	3
FIN 3723	Financial Markets and Institutions	3
FIN 4223	Intermediate Financial Management	3
FIN 4423	Investments	3
FIN 4923	International Financial Management	3

**Information Technology Services**

Choose any 6 of the following courses:

TKB 3133		
TKB 4283		
TKB 4543		
TKB 4563		
TKB 4583		
TKT 3463		
TKT 4343		
TKT 4743		
TKT 4753		
TKT 4813	Introduction to Instructional Systems	3

**Management**

MGT 3813	Organizational Behavior	3
MGT 3114		
MGT 3513	Introduction to Human Resource Management	3
Choose any 3 of the following courses:		
MGT 3323	Entrepreneurship	3
MGT 3333	Field Studies in Entrepreneurship	3
MGT 3823	Socially Responsible Leadership	3
MGT 4153	Management Seminar	3
MGT 4533	Advanced Human Resource Management	3
MGT 4543	Compensation Management	3
MGT 4563	Staffing in Organizations	3
MGT 4613	Cross-Cultural Management	3

**Marketing**

MKT 3013	Principles of Marketing	3
MKT 4413	Consumer Behavior	3
Choose any 4 of the following courses:		
MKT 3213	Retailing	3
MKT 3323	International Logistics	3
MKT 3933	International Marketing	3
MKT 4033	International Transportation	3
MKT 4113	Personal Selling	3
MKT 4123	Advertising	3
MKT 4143	Sales Management	3
MKT 4213	Internet Marketing	3
MKT 4313	Physical Distribution Management	3
MKT 4333	International Supply Chain Management	3
MKT 4533	Marketing Research	3

MKT 4613	Services Marketing	3
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**Sociology**

SO 2203	Introduction to Race and Ethnicity	3
SO 3213	Introduction to Social Research	3

Choose any 3 SO designated courses at the 2000 level or above and include at least 1 4000 level SO course.

Free Electives		10
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<b>Total Hours</b>		<b>124</b>
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<sup>1</sup> Required for Pre-MBA emphasis (B or higher in MBA prerequisite courses)

## Agricultural Education, Leadership, and Communications (AELC) Minor

The Agricultural Education, Leadership, and Communications (AELC) minor is offered to allow students in other majors to develop leadership and human relation skills needed by new graduates entering the agriculture workforce. Students will enhance their communication, leadership, problem-solving, and interpersonal skills to become effective employees in the agricultural workforce. Students must complete a minimum of 16 hours of AELC coursework from a list of approved courses.

**Required courses** **10**

AELC 2413	Orientation to Agricultural Education, Leadership & Communications	
AELC 3803	Foundations of Leadership in Agricultural and Life Sciences	
AELC 4424	Teaching Methods in Agricultural and Human Sciences	

**Electives (choose two of the following)** **6**

AELC 3333	Professional Presentations in Agriculture and Life Sciences	
AELC 4103	Principles and Practices of Extension Education	
AELC 4403	Development of Youth Programs	
AELC 4503	International Agricultural Education	

<b>Total Hours</b>		<b>16</b>
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## Gerontology Minor/Certificate

Undergraduate Minor and Graduate Certificate Coordinator: Associate Professor Carolyn Adams-Price

The Gerontology Minor/Certificate provides students with current factual and theoretical data along with practical experience relating to the process of aging. It is a multidisciplinary effort with contributions from a variety of departments cutting across several colleges. Students completing the requirements will earn a minor/certificate in gerontology.

This area of study is open to students from all colleges within the University. The Gerontology Minor/Certificate was developed to supplement the student's chosen major. Undergraduate students wishing to complete the Gerontology minor requirements will select a major in addition to electing 15 hours of gerontology course work.

## Undergraduate Minor Requirements: (minimum 15 hours)

HDFS 4403	Introduction to Gerontology	3
Choose at least three of the following:		
COE 4713	Issues in Aging	
EP 4123	Aging and Physical Activity	
EP 4143	Disability & Physical Activity	
HDFS 4813	Adult Development: The Middle Years	
HDFS 4863	Consumer Aspects of Aging	
PSY 4983	Psychology of Aging	
SO 4413	Aging and Retirement in American Society	
SW 3023	Human Behavior and the social Environment II	
SW 4623	Social Work with the Aged	
DIS (could be a Practicum in Aging)		
Choose one of the following (may include courses from above):		
FNH 3163	Basic Principles of Health Promotion	
FNH 3723	Community Nutrition	
FNH 4123	Medical Nutrition Therapy I	
FNH 4233	Medical Nutrition Therapy II	
FNH 4353	Nutrition Throughout the Life Cycle	
HS 3673	Environments for Special Needs	
HDFS 4333	Families, Legislation and Public Policy	
PSY 4983	Psychology of Aging	
SO 4423	Health and Society	
SW 3003	Social Work with At-Risk Populations	
SW 4633	Social Work in Health Care	
<b>Total Hours</b>		<b>15</b>

## Graduate Certificate Requirements (minimum 13 hours)

HDFS 6403	Introduction to Gerontology	3
Choose at least three of the following:		
PSY 6983	Psychology of Aging	
SO 6413	Aging and Retirement in American Society	
SO 6433	Sociology of Death and Dying	
HDFS 6863	Consumer Aspects of Aging	
HDFS 6813	Adult Development: The Middle Years	
COE 8813	Counseling Elderly Clients	
COE 6713	Issues in Aging	

## Trauma-Informed Child Advocacy Certificate

Professionals working with children and families need training in trauma-informed practices. This certificate program complement the MSU HDFS degree and other majors taught across departments and colleges by providing state of the science techniques used to assist and advocate for children and families who have experienced trauma. The certificate requires a minimum of 12 hours of coursework (4 courses) focused on trauma and risk, child advocacy, human behavior and behavioral strategies, and/or family functioning.

## Required courses 9

HDFS 2023	Trauma Informed Practice
HDFS 2123	Perspectives on Child Maltreatment and Child Advocacy
HDFS 3123	Global Child Advocacy Issues (or other departmental approved 3 hour course)

## Electives 3

HDFS 3843	Guiding Young Children's Behavior & Social Development
HDFS 4803	Parenting
PSY 3213	Psychology of Abnormal Behavior
PSY 3363	Behavioral Modification
SO 4153	Mentoring for At-Risk Youths
or CRM 4153	Mentoring for At-Risk Youths
or SLCE 4153	Mentoring for At-Risk Youths
SW 4613	Child Welfare Services

Other courses, including special topics courses (2990 and 4990) will be considered for elective credit on a case-by-case basis.

## Retail Certificate

The Retail Certificate offered by the Fashion Design and Merchandising (FDM) program will complement existing B.S. degree tracks by adding an opportunity to students from any program to complete a formal and coherent grouping of courses with a retail focus. The goal of the Retail Certificate is to introduce current students to the dynamics of the retail industry and to provide them knowledge and tools to be successful in a rapidly growing industry. Recipients of the certificate will be equipped with professional knowledge and technical skills to manage real world daily operations of a retail business and be ready for successful careers in the ever growing and changing retail industry.

### Required Courses

FDM 2553	Introduction to Merchandising	3
FDM 2333	Intro to Buying and Management	3
FDM 3553	Merchandise Retail Pricing and Inventory Management	3
FDM 4693	Digital Merchandising	3

### Electives 6

Select two electives approved by the Retail Certificate coordinator in your area of specialization

## Total Hours 18

# College of Architecture, Art, and Design

**ANGI E. BOURGEOIS, Dean**  
**Jeffrey Haupt, Associate Dean**

Office: 240 Giles Hall  
 Telephone: (662) 325-5150; Fax Number: (662) 325-8872  
 Mailing Address: 899 Collegeview Street, Box AQ, Mississippi State, MS 39762  
 Web site: [www.caad.msstate.edu](http://www.caad.msstate.edu) (<http://www.caad.msstate.edu>)

## Research Centers in the College of Architecture, Art and Design

### Fred Carl, Jr. Small Town Center (CSTC)

Established in 1979, the vision of the Fred Carl, Jr. Small Town Center is to strengthen communities and to promote a prosperous and sustainable future by raising an awareness of the physical environment through research and excellence in design. For further information, contact the Director of the Fred Carl, Jr. Small Town Center at 662-325-2207.

### Gulf Coast Community Design Studio (GCCDS)

The GCCDS was established after hurricane Katrina. GCCDS is located in Biloxi and is providing community planning and architectural design services to communities and rebuilding organizations. GCCDS has provided design and construction assistance for hundreds of new and existing homes, produced survey and GIS mapping for Biloxi, and planning work for a collaboration of housing organizations. For more information, contact the Director of GCCDS at 228-436-4461.

## Building Construction Science

**Department Head: Dr. Syed M. Ahmed**  
 Office 132 Howell Building

The Building Construction Science degree program is a four year Bachelor of Science degree designed to prepare graduates for careers in construction or construction-related fields. The 124 credit hour program is an interdisciplinary curriculum that builds upon expertise existing within the School of Architecture and the College of Engineering and the College of Business as well as the building construction industry to provide a knowledge base in business, engineering, and construction sciences. The curriculum's foundational areas are based on a problem- and inquiry-based learning. Through the four year studio curriculum, students learn by applying skills and knowledge to complex construction problems that integrate multiple subject areas. The studio-based teaching focuses on the use of case studies and integration of multiple subject areas. This integration of a broader scope of architectural, engineering, construction, and business practices is a different approach than a traditional construction technology curriculum that separates subject areas into distinct courses.

The Building Construction Science curriculum includes a general education foundation of mathematics, science, business, and construction specific courses: construction systems, building technology, structures, and materials and methods of construction and incorporates these and other areas such as estimating, scheduling, safety, project management, and construction law into the studio curriculum. Course

development is built upon the strengths of the three colleges that are collaborating in the effort. Building Construction Science students collaborate with architecture, engineering, and interior design students as a regular part of their course work. The Building Construction Science program is accredited by the American Council for Construction Education (ACCE).

### Admissions

Admission to the Building Construction Science degree program is limited and competitive. Prospective students are encouraged to tour the program's facilities to be introduced to the program and talk with students and faculty. Instructions and contact information can be found at [www.caad.msstate.edu/bcs/scheduleavisit.php](http://www.caad.msstate.edu/bcs/scheduleavisit.php) (<http://www.caad.msstate.edu/bcs/scheduleavisit.php>).

Application Process:

1. Apply to Mississippi State University.
2. Submit all required materials including high school and/or college/university transcripts and ACT and/or SAT scores (see note below regarding admission requirement of MA 1313 College Algebra and MA 1323 Trigonometry or equivalent).
3. Indicate your choice of major as "Building Construction Science."

### Grades

A minimum 2.0 MSU GPA is required to be eligible to enroll in BCS studio courses (BCS 1116, BCS 1126, BCS 2116, BCS 2226, BCS 3116, BCS 3126, BCS 4116, BCS 4126). Only courses taken at MSU will raise or lower the cumulative MSU GPA.

### Student Fees

Additional course fees are charged for BCS construction studios and other major core courses and are collected with the MSU tuition. Fees are also charged for field trip expenses that occur in specific construction studio courses. Field trip fees are non-refundable after the 6th day of classes.

### Computer Requirement

The BCS program requires all students to purchase a laptop computer with related software and peripherals when they enter the studio course sequence. Computer hardware and software specifications are available on the BCS program web site.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1613	Calculus for Business and Life Sciences I <sup>1</sup>	3
ST 2113	Introduction to Statistics	3

### Science

PH 1113	General Physics I <sup>1</sup>	3
PH 1123	General Physics II	3
BCS 2713	Environmental Building Systems I	3

### Humanities



See General Education courses	6
<b>Fine Arts</b>	
ARC 1013 Architectural Appreciation	3
<b>Social Sciences</b>	
EC 2113 Principles of Macroeconomics	3
EC 2123 Principles of Microeconomics	3
<b>Major Core</b>	
CE 2213 Surveying	3
BCS 2313 Virtual Design and Construction	3
BCS 3904 Structures I	4
BCS 3914 Structures II	4
BCS 1116 Building Construction Studio A <sup>1</sup>	6
BCS 1126 Building Construction Studio B	6
BCS 2116 Building Construction Studio 1 <sup>2</sup>	6
or BCS 3006 Construction Internship/Co-Op	
BCS 2226 Building Construction Studio 2	6
BCS 3116 Building Construction Studio 3	6
BCS 3126 Building Construction Studio 4 <sup>2</sup>	6
or BCS 3006 Construction Internship/Co-Op	
BCS 4116 Building Construction Studio 5	6
BCS 4126 Building Construction Studio 6	6
BCS 3213 Mechanical and Electrical Systems	3
BCS 3323 High Performance Construction	3
BCS 4222 Professional Communication and Practice	2
ACC 2013 Principles of Financial Accounting	3
ACC 2023 Principles of Managerial Accounting	3
BL 2413 The Legal Environment of Business	3
MGT 3113 Principles of Management	3
Free Electives	6
<b>Computer Literacy Requirement</b>	
Satisfied by successful completion of the BCS studio courses	
<b>Oral Communication Requirement</b>	
Satisfied by successful completion of the BCS studio courses	
<b>Writing Requirement</b>	
Satisfied by successful completion of the BCS studio courses	
<b>Total Hours</b>	<b>124</b>

<sup>1</sup> Following are prerequisites for courses that students are recommended to take during the first semester of the BCS program. Please note that BCS 1116, MA 1613, and PH 1113 are prerequisites for other courses in the BCS program.

BCS 1116 Building Construction Studio A - Prerequisites: MA 1323 or an ACT Math subscore of at least 24

MA 1613 Calculus for Business and Life Sciences I - Prerequisite: Grade of C or better in MA 1313 or an ACT Math subscore of at least 24

PH 1113 General Physics I - Prerequisite: MA 1323 or an ACT Math subscore of at least 26

Students may receive credit for MA 1313 College Algebra by completing the College Level Examination Program (CLEP) test. Students may also receive credit for MA 1313 College Algebra and/or MA 1323 Trigonometry by completing the course at another university or community college. Students are responsible for confirming transfer course equivalents in advance using the MSU Transfer Course Equivalent webpage

<https://www.registrar.msstate.edu/students/transfer-course-information/> (<https://www.registrar.msstate.edu/students/transfer-course-information/>) or by contacting the MSU Registrar directly [transferarticulation@registrar.msstate.edu](mailto:transferarticulation@registrar.msstate.edu). ([transferarticulation@registrar.msstate.edu](mailto:transferarticulation@registrar.msstate.edu))

Students should refer to the Undergraduate Student Catalog for prerequisites for other courses.

<sup>2</sup> BCS 3006 can only be taken once.

## Department of Art

**Department Head: Critz Campbell**

Office: 102 Freeman

**Academic Advisor: Audra Gines**

### Mission

The Department of Art's primary undergraduate responsibilities include educating professional artists with concentrations in Fine Arts, Graphic Design, and Photography; preparing students for a career or advanced study; offering courses that fulfill University requirements; and providing an active art gallery to serve the University, the community, and region.

### Bachelor of Fine Arts

The Bachelor of Fine Arts (B.F.A.) degree is a professional studio degree. The B.F.A. degree is earned after successful completion of an intensive, 4 year program that provides the student with a series of in-depth studio experiences leading to thesis/senior presentation balanced by studies in humanities, communication, mathematics, and sciences.

The B.F.A. degree may also serve as a preparation for graduate studies—usually the Master of Fine Arts degree in studio art or design.

### Admission

Art-Undeclared (UART) - All students desiring to major in art will be admitted into Art-Undeclared in the Department of Art at Mississippi State University. Students will declare their concentration following successful passage of the Foundation Portfolio Review in that concentration.

### Concentrations

In the Bachelor of Fine Arts degree, a student may choose a concentration from the following: Fine Arts, Graphic Design, and Photography.

### Transfer Requirements

As part of the Articulation Agreement between Mississippi Junior and Community Colleges and the state's four-year universities, the following courses will automatically transfer to MSU. A grade of "C" or better is required in each class to be accepted by the Department of Art.

- ART 1213 Drawing I
- ART 1223 Drawing II
- ART 1123 Design I (2-D)
- ART 1133 Design II (Color)
- ART 1013 Art History I

- ART 1023 Art History II
- ART 1153 3D Design.

Images of articulated studio coursework work should be submitted to <https://msuart.submittable.com/submit> (<https://msuart.submittable.com/submit/>) for review by the Department of Art Faculty to ensure success in the department's Foundation Portfolio Review.

The MSU Department of Art reserves the right to deny or accept transfer courses not covered by the Articulation Agreement as applicable to the B.F.A. degree based on portfolio evaluation. This review requires the submission of artwork completed in studio courses and course descriptions (and in some cases, syllabi) from classes completed for credit at other institutions. Artwork and course information must be uploaded at <https://msuart.submittable.com/submit> (<https://msuart.submittable.com/submit/>)

## Foundation Portfolio Review Requirements

All Art majors are required to participate in the Foundation Portfolio Review.

For students interested in the Fine Arts concentration (Ceramics, Drawing, Painting, Printmaking, and Sculpture), the Foundation Portfolio Review will take place in the spring semester of each year. The review is a faculty evaluation of student work from a minimum of 18 credit hours completed in the following courses: Drawing I, Drawing II, Design I, Design II, 3-D Design, and Introduction to Computing for Art. The Foundation Portfolio Review will result in an "accept" or "deny" into the Fine Arts concentration.

For students interested in the Photography concentration, the Foundation Portfolio Review will take place in the fall and spring semester of each year. The review is a faculty evaluation of student work from a minimum of 18 credit hours completed in the following courses: Drawing I, Drawing II, Design I, Design II, 3-D Design, and Photography Survey. The Foundation Portfolio Review will result in an "accept" or "deny" into the Photography concentration.

For students interested in Graphic Design, the Foundation Portfolio Review for entrance into that concentration will take place in the fall semester of each year. The review is a faculty evaluation of student work from a minimum of 18 credit hours completed in the following courses: Drawing I, Drawing II, Design I, Design II, 3-D Design, and Introduction to Computing for Art. The Foundation Portfolio Review will result in an "accept" or "deny" in the Graphic Design concentration.

Students accepted (by faculty evaluation) into the Fine Arts, Graphic Design, or Photography concentration may begin the concentration sequence of courses. Students denied may remain in the art program and resubmit a portfolio in the next Review. Students cannot pursue a concentration in which they have been denied twice. They will have to choose another concentration in order to pursue a B.F.A. in Art at Mississippi State.

Entry into Graphic Design is competitive. Contact the Advising Coordinator for more information.

## Senior Presentation Requirements

Senior Graphic Design students are required to present a portfolio and present an exhibition. Senior students in the other concentrations are required to present an exhibition as degree requirements. These final

presentation requirements are fulfilled in capstone courses; ART 4640 Advanced Studio - Graphic Design for students in the Graphic Design concentration; ART 4083 Senior Research and ART 4093 Senior Thesis for students in the Fine Arts concentration area; and ART 4583 Photographic Portfolio I and ART 4593 Photographic Portfolio II for students in the Photography concentration.

## Computer and Camera Requirements

The Department of Art requires all incoming Art majors to purchase certain technology and equipment necessary for the production and presentation of artwork within departmental courses. All incoming students are required to have a personal laptop computer and required software. The required computer and software must be selected from an approved departmental list of minimum hardware and software requirements available on the Department of Art website. <https://www.caad.msstate.edu/current-students/art/materials-fees> (<https://www.caad.msstate.edu/current-students/art/materials-fees/>)

Financial aid that includes this requirement may be available by contacting the MSU Student Financial Aid and Scholarship office.

Additionally, upon enrollment in ART 2103 (<http://catalog.msstate.edu/search/?P=ART%202103>) Photography Survey, students will be required to purchase a digital single-lens reflex (DSLR) camera. The required camera must be selected from an approved departmental list of minimum specifications. The approved list is available on the Department of Art web site. <https://www.caad.msstate.edu/current-students/art/materials-fees> (<https://www.caad.msstate.edu/current-students/art/materials-fees/>)

## Student Materials Fee

Additional fees associated with class materials, technology and laboratory materials are required of students and are automatically assessed to the students.

## Bachelor of Fine Arts

### General Education and College Requirements

<b>English Composition</b>	<b>6</b>
EN 1103 English Composition I or EN 1104 Expanded English Composition I	
EN 1113 English Composition II or EN 1173 Accelerated Composition II	
<b>Humanities</b>	<b>6</b>
See General Education courses	
<b>Math</b>	<b>6</b>
MA 1313 College Algebra	
Additional Math Class higher than MA 1313 --See General Education courses	
<b>Fine Arts</b>	<b>3</b>
See Art History and Theory Program	
<b>Social Sciences</b>	<b>6</b>
See General Education courses	
<b>Natural Sciences</b>	<b>6-8</b>
See General Education courses	
<b>Math/Science Elective</b>	<b>3</b>
See General Education courses	

## Fine Arts Concentration

(Ceramics, Drawing, Painting, Printmaking, and Sculpture)

### Foundation Program

ART 1123	Design I	3
ART 1133	Design II	3
ART 1153	Three-Dimensional Design	3
ART 1213	Drawing I	3
ART 1223	Drawing II	3
ART 2803	Introduction to Computing for ART <sup>1</sup>	3

### Survey Program

ART 2503	Ceramic Art Survey	3
ART 2013	Painting Survey	3
ART 2213	Life Drawing I	3
ART 2303	Printmaking Survey	3
ART 2403	Sculpture Survey	3
ART 2103	Photography Survey	3

### Art History and Theory Program

ART 1013	Art History I <sup>2</sup>	3
ART 1023	Art History II <sup>2</sup>	3
Art History Electives		9

### Fine Arts Concentration Program <sup>3</sup>

Intermediate Studio Requirement - 3 hours chosen from the list below:		3
ART 2233	Drawing III	
ART 3523	3D Seminar	
Intermediate Studio Electives		3
See advisor for list of approved electives		
Advanced Studio Electives		12
See advisor for list of approved electives		
Advanced Studio Requirements		6
ART 4620	Advanced Studio - Fine Arts <sup>4</sup>	
Capstone Courses		6
ART 4083	Senior Research <sup>5</sup>	
ART 4093	Senior Thesis <sup>5</sup>	
Electives		9
Art Studio Electives	choose 6 hours	
General Elective	choose 3 hours	
<b>Total Hours</b>		<b>123</b>

<sup>1</sup> Fulfills Computer Literacy Requirement

<sup>2</sup> Fulfills Fine Arts General Education Requirement

<sup>3</sup> Upon successful completion of the Foundation Portfolio Review for the Fine Arts concentration, students proceed into the concentration sequence of courses.

<sup>4</sup> To be taken in conjunction with ART 4083 Senior Research and ART 4093 Senior Thesis, typically in the final two semesters of coursework

<sup>5</sup> Senior Capstone experience, co-requisite with 6 hours of ART 4620 Advanced Studio - Fine Arts.

## Graphic Design Concentration

### Foundation Program <sup>1</sup>

ART 1123	Design I	3
ART 1133	Design II	3
ART 1153	Three-Dimensional Design	3
ART 1213	Drawing I	3
ART 1223	Drawing II	3
ART 2803	Introduction to Computing for ART <sup>2</sup>	3
CO 1003	Fundamentals of Public Speaking	3

### Survey Program

Choose four of the following courses:		12
ART 2013	Painting Survey	
ART 2213	Life Drawing I	
ART 2303	Printmaking Survey	
ART 2403	Sculpture Survey	
ART 2103	Photography Survey	
ART 2503	Ceramic Art Survey	

### Art History and Theory Program

ART 1013	Art History I <sup>3</sup>	3
ART 1023	Art History II <sup>3</sup>	3
ART 3163	History of Graphic Design	3
Art History Electives		6

### Concentration Core

ART 2813	Intermediate Computing for Designers	3
ART 3313	Graphic Art Design I	3
ART 3323	Graphic Art Design II	3
ART 4103	The Art of Typography and Layout I	3
ART 4403	Advertising Design I	3
ART 4640	Advanced Studio - Graphic Design	3-9
ART 4883	Graphic Design for the Internet	3

### Concentration Electives

Must be selected from list or with consent of Concentration Coordinator. 12

ART 3443	Illustration	
ART 3873	Digital Photography	
ART 3913	Introduction to Print Production	
ART 4113	The Art of Typography and Layout II	
ART 4413	Advertising Design II	
ART 4523	Internship in Graphic Art Design	
ART 4713	Advanced Print Production	
ART 4813	Introduction of Multimedia I Design and Authoring	
ART 4863	Advanced Studio - Computer Art and Design	

**Electives 9**

Art Studio Electives	choose 6 hours	
General Elective	choose 3 hours	

**Total Hours 123**

<sup>1</sup> The Foundation Portfolio Review is required after successful completion of the Foundation Program.

<sup>2</sup> Fulfills Computer Literacy requirement

<sup>3</sup> Fulfills Fine Arts General Education requirement

## Photography Concentration

### Foundation Program

ART 1123	Design I	3
ART 1133	Design II	3
ART 1153	Three-Dimensional Design	3
ART 1213	Drawing I	3
ART 1223	Drawing II	3
CO 1003	Fundamentals of Public Speaking	3

### Survey Program

ART 2103	Photography Survey	3
ART 2303	Printmaking Survey	3
Choose two of the following:		6
ART 2013	Painting Survey	
ART 2213	Life Drawing I	
ART 2403	Sculpture Survey	
ART 2503	Ceramic Art Survey	

### Art History and Theory Program

ART 1013	Art History I	3
ART 1023	Art History II	3
ART 3633	History of Photography (or approved photo/film based art history course)	3
Art History Electives		6

### Concentration Core

ART 3223	Darkroom Basics	3
ART 3233	Studio Lighting	3
ART 3873	Digital Photography	3
ART 4223	Alternative Photography	3
or ART 4443	Alternative Color	
ART 4583	Photographic Portfolio I	3
ART 4593	Photographic Portfolio II	3

### Concentration Electives

Must be selected from list or with consent of Concentration Coordinator.		12
ART 3243	Intermediate Darkroom	
ART 3303	Printmaking II	
ART 3803	Gallery Management	
ART 4223	Alternative Photography	
ART 4443	Alternative Color	
ART 4660	Advanced Studio - Photography	
ART 4693	Internship in Fine Art	
ART 4873	Digital Imaging	
CO 3713	Digital Communication	

Art Studio Electives	15
<b>Total Hours</b>	<b>123</b>

## Art Minor

The Department of Art offers a minor in Art. The minor consists of 18 credit hours of courses with an ART prefix. One or more 1000-level courses and one 2000-level course must be completed in addition to at

least three 3000- or 4000-level courses. For an Art minor, a student may take all Art studio courses or a combination of Studio and Art History.

## Art History Minor

A minor in Art History consists of 18 credit hours. A student must take

ART 1013	Art History I	3
ART 1023	Art History II	3
Choose four of the following:		12
ART 3143	Italian Renaissance Art History	
ART 3603	Directed Writings in Modern Art History	
ART 3613	Art and Film	
ART 3623	Art in France: 1850-1900	
ART 3653	Roman Baroque Art	
ART 3663	Medieval Stained Glass	
ART 3673	The Gothic Cathedral	
ART 3683	The History of Art and Religion	
ART 4573	Critical Issues in Recent Art	
Other approved Art History courses		
<b>Total Hours</b>		<b>18</b>

## Accreditation

Mississippi State University is an accredited institutional member of the National Association of Schools of Art and Design.

## Interior Design

**Department Head: Dr. Beth R. Miller**

Office: 125 Etheredge Hall

The Interior Design Department offers students the opportunity to develop an ability to identify, analyze, and create solutions using critical thinking and spatial comprehension in solving design problems in the built environment. The program prepares future professional designers to enhance the function and quality of interior spaces for the purpose of improving the quality of life, increasing productivity, and protecting the health, safety, and welfare of the public as well as protecting the environment. Practical studio experience builds competency in design theory; the specification of interior materials and finishes; lighting, universal design, and computer-aided design; building and life safety codes; historical interiors; professional practices; interior construction and furniture design; space planning and programming; and graphic and verbal communication skills.

## Accreditation

The Bachelor of Science in Interior Design degree program is fully accredited by the Council for Interior Design Accreditation (CIDA) and the National Association of Schools of Art and Design (NASAD).

## Curriculum Progression and Portfolio Review

All students are required to obtain a grade of "C" or better for all major core courses. Students who obtain a "D" or an "F" must retake the course. Only one retake of any course is allowed.

2nd year Portfolio Review: Each student is required to participate in a portfolio review between the second and third year to determine a

student's admission to upper level courses. The 2nd year portfolio review will consist of original work from ID foundation courses.

Students must have a cumulative GPA of 2.5 or higher and a 2.5 in the Interior Design major core. Students failing to pass the review will not be allowed to enter ID 3614 Interior Design Studio III or ID 3663 Color and Lighting for Interiors. Students will have two opportunities for portfolio submission.

**Senior Portfolio and Exhibit:** Each senior is required to submit a professional portfolio for faculty review and provide work for a senior exhibit in the spring of their senior year.

## Internships

All Interior Design majors are required to complete an internship the summer following either their Junior or Senior year. The internship offers employment experiences through a wide range of projects in the design field. Many ID students are placed in interior design and architecture firms across the United States.

## Financial Requirements

Costs for an interior design education are somewhat higher than other disciplines. In addition to standard costs of fees, tuition, room and board, books, field trips, etc., an interior design student must buy required drawing equipment and materials for drawings and models during the school year. A student should budget for at least \$300 per semester for these extra costs.

Due to the technological aspect of the profession, each student is required to purchase a computer in their first year in the program. Computer requirements are available on the website: [www.caad.msstate.edu/caad\\_web/id/home](http://www.caad.msstate.edu/caad_web/id/home) ([http://www.caad.msstate.edu/caad\\_web/id/home/](http://www.caad.msstate.edu/caad_web/id/home/)).

## Field Trips

Field trips are an important part of the curriculum. The observations and experiences from field trips cannot be replaced by library research or reports. Because field trips are a vital part of the design education experience, the cost is an additional charge to the student's account to ensure that all students are able to take part in these essential learning opportunities.

## Interior Design major

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Math

MA 1313	College Algebra	3
MA 1323	Trigonometry	3

#### Natural Sciences

CH 1043	Survey of Chemistry I	3
See General Education courses		6

#### Humanities

See General Education courses		6
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<b>Fine Arts</b>		
ID 3643	History of Interiors I	3
<b>Social Sciences</b>		
PSY 1013	General Psychology	3
EC 2113	Principles of Macroeconomics	3
or EC 2123	Principles of Microeconomics	
<b>Major Core</b>		
ART 1123	Design I	3
ART 1133	Design II	3
ART 1213	Drawing I	3
ART 2103	Photography Survey	3
or CO 3403	Photographic Communication	
ID 1683	Interior Design Graphics	3
ID 1694	Interior Design Studio I	4
ID 2103	CAD for Interior Design	3
ID 2203	Rendering	3
ID 2614	ID Studio II	4
ID 2633	Interior Materials, Treatments, and Resources	3
ID 2664	Textiles for Interiors	4
ID 3363	3/D CAD/Modeling	3
ID 3603	Digital Design for Interiors	3
ID 3611	Career and Portfolio Development	1
ID 3614	Interior Design Studio III	4
ID 3624	Interior Design Studio IV	4
ID 3633	Interior Design Detailing and Construction Documents	3
ID 3653	History of Interiors II	3
ID 3663	Color and Lighting for Interiors	3
ID 3673	Environments for Special Needs	3
ID 4611	Principles of LEED	1
ID 4644	Interior Design Studio V	4
ID 4651	Internship Placement	1
ID 4654	Interior Design Studio VI	4
ID 4661	Senior Portfolio Production	1
ID 4662	Professional Practice for Interior Design	2
ID 4693	Furniture Design	3
ID 4753	Interior Design Internship	3
Free Elective		3
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Writing Requirement</b>		
Satisfied by the successful completion of ID 4662		
<b>Computer Literacy Requirement</b>		
Satisfied by the successful completion of ID 2103		
<b>Total Hours</b>		<b>124</b>

## Lighting Design Minor

The Lighting Design minor provides students with the opportunity to study new technological advances and design in the field of lighting.

Students not in the College of Architecture, Art, and Design who are interested in this minor should contact an Interior Design Advisor. In

order to be successful in this minor, you must be able to use AutoCAD or similar software. The minor will enable students to explore the intersection between lighting and their primary degree. The integration of the disciplines such as architecture, art, and communications will substantially enhance the student's education and prepare them for a broader field of employment.

Students are required to take 16 credit hours from the courses listed below. Some courses require instructor permission. Additionally, students must follow the appropriate prerequisites for the listed courses.

#### Required Courses

ID 3663	Color and Lighting for Interiors	3
ID 4673	Integrated Lighting Solutions	3
ID 4683	Lessons from the Theatre: Architectural Lighting Design	3
ART 3233	Studio Lighting	3
CO 2524		

### Interior Design Studies Minor

The Interior Design Program offers a Minor in Interior Design Studies for non-Interior Design majors. A minimum of 18-19 hours of interior design courses (as selected from the list below) are required to obtain the Minor in Interior Design Studies. Students interested in this minor should contact an Interior Design Advisor.

#### Course Selection

Students are required to take ID 2603 Interior Design Fundamentals, then choose an additional 15-16 hours from the courses listed below. Some courses require Instructor permission. Additionally, students must follow the appropriate prerequisites for the listed courses.

#### Required Course

ID 2603	Interior Design Fundamentals	3
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#### Elective Courses (choose 15-16 hours)

##### Courses not requiring Instructor Permission

ID 1683	Interior Design Graphics	3
ID 2203	Rendering	3
ID 2403		3
ID 3603	Digital Design for Interiors	3
ID 3643	History of Interiors I	3
ID 3653	History of Interiors II	3
ID 3673	Environments for Special Needs	3
ID 4611	Principles of LEED	1

##### Courses requiring Instructor Permission

ID 2103	CAD for Interior Design	3
ID 3363	3/D CAD/Modeling	3
ID 3633	Interior Design Detailing and Construction Documents	3
ID 4693	Furniture Design	3

## School of Architecture

Director: Dr. Karen Spence

Academic Records Assistant: Pandora Prater

Academic Advising: Laura Mitchell

Office: 240 Giles Hall

## General Information

Architecture offers the opportunity for individuals to engage in a career that improves the physical world, addresses the problems of our society, and gives form to modern culture. Meeting these demands requires a highly trained profession composed of dedicated men and women. The School of Architecture serves as the educational foundation of the profession in the State of Mississippi, teaching skills and developing a range of understandings to prepare the student for his or her role in the practice of architecture.

The School of Architecture offers an intense, carefully structured, and rich array of courses that constitute a solid foundation for architectural practice. The totality of these courses provides students with an awareness of the diversity and complexity of today's professional world. Each course has its own important role in developing the knowledge, collaborative skills, and abilities required of architects in a contemporary practice.

The School of Architecture at Mississippi State University is the professional school for the State of Mississippi and is the only accredited program in the state. To meet the needs of the state and region, the School was established in 1973 with the support of an Advisory Committee of the Mississippi Chapter of the American Institute of Architects.

## Accreditation

In the United States, most registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit professional degree programs in architecture offered by institutions with U.S. regional accreditation, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted an eight-year term, an eight-year term with conditions, or a two-year term of continuing accreditation, or a three-year term of initial accreditation, depending on the extent of its conformance with established education standards. Doctor of Architecture and Master of Architecture degree programs may require a non-accredited undergraduate degree in architecture for admission. However, the non-accredited degree is not, by itself, recognized as an accredited degree.

Mississippi State University School of Architecture offers the following NAAB-accredited degree program:

B. Arch. (152 undergraduate semester credits)

Next Accreditation Visit: 2024

The Bachelor of Architecture program at the School of Architecture at Mississippi State University has been continuously accredited since its inception. In 2016 the School was reaccredited for another full eight-year term.

## Admissions

Acceptance to the School of Architecture is limited and highly competitive. The School of Architecture has a rigorous application process. Unfortunately, due to guidelines and standards related to the limited size of our program (including facilities and faculty/staff), the School of Architecture is not in a position to accommodate all of the applicants who have been accepted at MSU and wish to study architecture.

Prospective students should read carefully the application/admission materials on the School's web site and communicate with the School of Architecture to request current information. Touring facilities and meeting the School's admissions coordinator is encouraged.

#### Application Process:

- a. Apply to Mississippi State University.
- b. Submit all required materials including high school transcripts and ACT or SAT scores to MSU
- c. Indicate your choice of major as "Architecture."
- d. Once admitted to MSU, complete the School of Architecture online application, which is found on the applicant's [my.msstate.edu](http://my.msstate.edu) (<http://my.msstate.edu/>) homepage.

Architecture online applications must be received on or before January 15. Applications are reviewed and ranked as received. Places for students with qualified applications received after this date will be considered as space permits. These applications will be wait-listed to fill-in openings if they become available.

The School of Architecture considers applicants as follows:

- a. Students accepted to begin in the Fall Architecture Program (in the fall term). Entrance to the Fall Architecture Program is extremely competitive and has academic prerequisites. Students with an ACT score of 26 or better (or the SAT equivalent) and a 3.5 GPA or greater may qualify for Early Acceptance if their formal online Architecture Application submission is received prior to December 15 (depending on available space).
- b. Students not accepted into the Fall Architecture Program. Students who are not accepted into the fall term are classified as *Undeclared – architecture concentration*. The *Undeclared – architecture concentration* students follow a similar course of study, but do not take ARC 1536 and ARC 1546 (first year studio courses). There are many reasons why a student may not be admitted to the Fall Architecture Program: late architecture application, lower ranking in the applicant pool, lack of math pre-requisites, and/or failing to submit an online Architecture Application. The *Undeclared – architecture concentration* student may attend MSU and continue to pursue the study of architecture. Once the student enters the university in the Fall and completes required first year courses for the *Undeclared – Architecture concentration* curriculum while maintaining a cumulative grade point average of at least a 2.5, the student may be eligible for the following *Summer Architecture Program*. Students interested in this path need to be in contact with the School Advisor at the end of the fall term and beginning of the spring term as intentions to enter the program need to be shared with the School by March 1. During the Summer Program terms, the student will take ARC 1536 (<http://catalog.msstate.edu/search/?P=ARC%201536>) and ARC 1546 (<http://catalog.msstate.edu/search/?P=ARC%201546>) (first year studio courses). Successful completion of these summer studios will allow the student to join the second year in the fall.
- c. Students may receive transfer credit for non-professional courses completed at other universities, colleges, and community colleges, provided a grade of C or better is received for each course. Transfer credit from other architecture programs is reviewed by the admissions committee and the director. Transfer credit for courses listed as technical, vocational, or architectural is solely at the discretion of the department. In addition to transcripts, course descriptions, syllabi,

examples of work or a portfolio may all be required to receive any credit for such courses.

## Finances

Costs for an architectural education are higher than in other disciplines. In addition to standard costs of fees, tuition, room, board, books, etc, an architecture student must buy required drawing equipment and materials for drawings and models during the school year. Additionally, at least one major field trip is required each year. Charges for field trip expenses are collected with tuition and currently range from \$600 in first year to over \$3,700 in fifth year for a two-week study abroad program. These charges are intended to cover transportation and lodging during field trips. These fees are not typically refundable after the first day of classes. Students are required to purchase a laptop computer in their first year, selected from a range of models approved by the School.

## Scholarships

A number of scholarship opportunities as well as design competitions and awards are available to students within the School of Architecture. See the School's website for additional information. Normal MSU Scholarships are available to in-state and out-of-state students. Inquiries for financial aid or assistance should be sent directly to the MSU Department of Student Financial Aid and/or Office of Admissions and Scholarships.

## Counseling

Once accepted into the School of Architecture, students are required to maintain at least an MSU 2.0 cumulative quality point average to remain in design courses. At the end of the fourth year, a student must have completed all required courses in order to advance to the fifth year. Any student who receives a grade of D or lower for two sequential design courses must repeat both of these courses and receive a grade of C or higher in both courses to advance in the program, or receive the Bachelor of Architecture degree. If a studio course is failed, a grade of C must be received to advance in the program, or receive the Bachelor of Architecture degree.

## Curriculum

The curriculum is divided into three levels: the first-year level is defined as the pre-professional program; the second and third year levels comprise the professional core; the fourth year comprises topical and capstone studios, and the fifth-year provides the transition to professional practice and includes a comprehensive capstone project. The first four years are at the main campus of MSU in Starkville; the fifth year is at the Stuart C. Irby Studios at the Jackson Center in downtown Jackson, MS. Students cannot progress to the fifth year until all undergraduate courses (1000-4000-level taken during the first four years of the program) have been satisfactorily completed.

The curriculum is composed of four areas of study representing:

- (1) Design, (2) History/Theory, (3) Technology, (4) Professional Practice
  - a. Design - concerned with the understanding of form, shape, and space responsive to human needs and programs, together with development of architectural communication skills and ecological thinking.
  - b. History/Theory - composed of architectural history and philosophy, current architectural ideas, and future implications.

- c. Technology - providing basic knowledge in physical systems of structures, materials, construction, sustainability, and service systems of plumbing, electrical, heating, and air conditioning.
- d. Professional Practice - representing the tools necessary to direct the processes of architecture, integrated project delivery, areas of economics, real estate, finance, land use, law, and office practice.

Located at the Jackson Center in downtown Jackson, the fifth-year offers the student the opportunity to develop depth and expertise through research and design projects focused on urban issues. The city provides a major resource for the activities and a laboratory for continued study. Professionals involved in all areas of the built environment contribute to the teaching. This experience provides a transition from the academic foundation to the professional realities of architecture.

## General Education Requirements

EN 1103 or EN 1104	English Composition I Expanded English Composition I	3
EN 1113 or EN 1173	English Composition II Accelerated Composition II	3
<b>Mathematics</b>		
MA 1613	Calculus for Business and Life Sciences I <sup>1</sup>	3
<b>Science</b>		
PH 1113	General Physics I	3
PH 1123	General Physics II	3
ARC 2713	Environmental Building Systems I <sup>2</sup>	3
<b>Humanities</b>		
ARC 2313	History of Architecture I <sup>3</sup>	3
ARC 3313	History of Architecture II <sup>3</sup>	3
<b>Fine Arts</b>		
See General Education courses		3
<b>Social Sciences</b>		
See General Education courses		6
<b>Major Core</b>		
ARC 1536	Architectural Design I-A	6
ARC 1546	Architectural Design I-B	6
ARC 2536	Architectural Design II-A	6
ARC 2546	Architectural Design II-B	6
ARC 3536	Architectural Design III-A	6
ARC 3546	Architectural Design III-B	6
ARC 4536	Architectural Design IV-A	6
ARC 4546	Architectural Design IV-B	6
ARC 5576	Architectural Design V-A	6
ARC 5589	Architectural Design V-B	9
ART 1213	Drawing I	3
ART 1223	Drawing II <sup>4</sup>	3
ARC 2313	History of Architecture I (see Gen. Ed.) <sup>3</sup>	3
ARC 3313	History of Architecture II (see Gen. Ed.) <sup>3</sup>	3
ARC 3323	History of Architecture III	3
ARC 4313	Architectural Theory	3
ARC 2713	Environmental Building Systems I (see Gen. Ed.) <sup>2</sup>	3
ARC 3723	Environmental Building Systems II	3
ARC 2723	Materials	3

ARC 3713	Assemblages	3
ARC 3904	Architectural Structures I	4
ARC 3914	Structures II	4
ARC 4733	Site Planning for Architects	3
ARC 5383	Legal Aspects of Architecture	3
ARC 5443	Architectural Programming	3
ARC 5493	Architectural Practice	3
ARC 5353	Philosophy of Architecture	3
ARC 5623	Theory of Urban Design	3
Approved Electives		12

### Oral Communication Requirement

Satisfied by successful completion of Architectural Design courses.

### Writing Requirement

Satisfied by successful completion of ARC 4313

<b>Total Hours</b>	<b>152</b>
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<sup>1</sup> MA 1313 College Algebra and MA 1323 Trigonometry should be completed prior to beginning studies in architecture. Students may satisfy math prerequisite requirements of MA 1313 College Algebra with a 24 ACT Math score. Students may also take the College Level Examination Program (CLEP) exam to place out of MA 1313. Students with a 26 ACT Math score may satisfy the prerequisite of PH 1113 General Physics I.

<sup>2</sup> Counted as both Science requirement and Major Core

<sup>3</sup> Counted as both Humanities requirement and Major Core

<sup>4</sup> ART 1223 Drawing II is required of all students receiving a grade of "C" or less in ART 1213 Drawing I.

## Minor in Architectural Studies

The School of Architecture offers a minor in architectural studies. The minor consists of 18 credit hours of ARC courses. The following courses are available to receive a minor:

### Required

ARC 1013	Architectural Appreciation	3
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### Taken without instructor approval:

ARC 2313	History of Architecture I	3
ARC 3313	History of Architecture II	3
ARC 3323	History of Architecture III	3
ARC 4313	Architectural Theory	3
ARC 2713	Environmental Building Systems I	3
ARC 4733	Site Planning for Architects	3

### Require consent of instructor for enrollment:

ARC 2723	Materials	3
ARC 3713	Assemblages	3
ARC 3723	Environmental Building Systems II	3
ARC 3573	The Art/Architecture of Packaging	3
ARC 4990	Special Topics in Architecture	3

## Historic Preservation Certificate

The Historic Preservation certificate (HPC) offered by the School of Architecture will complement existing B. Arch degree tracks by adding an opportunity to students from any program to complete a formal and coherent grouping of courses with a focus in historic



preservation. The goal of the HPC is to introduce a certification vehicle which presents an academic path for the identification, examination, and archiving of the historic, architectural, and cultural context of the state of Mississippi. Recipients of the certificate will be equipped with academic and professional knowledge, technical skills, and research experience to work with professionals from the construction and design industries, municipalities, property developers, and preservationists in the recognition, renovation, and restoration of real property for reuse in society. Students will need to complete five (5) undergraduate and/or graduate courses totaling fifteen (15) credit hours.

#### Required Courses

ARC 3323	History of Architecture III	3
ARC 4623/6623	Historic Preservation Research Methods	3
ID 4403/6403	Introduction to Historic Preservation	3

#### Approved Electives (select two courses)

LA 2652	Landscape Architecture Precedent Studies	2
LA 3554	Landscape Architecture Design III - Small Town/Rural Context	4
LA 3623	Urban Planning Theory	3
LA 3654	Landscape Architecture Design IV: Urban Design	4
BL 4333	Real Estate Law	3
AN 2203	Introduction to Race and Ethnicity	3
AN 2510	Archaeological Field Methods: Survey	1-6
AN 4143	Ethnographic Methods	3
AN 4173	Environment and Society	3
AN 4523	Public Archaeology	3
AAS 4363	African-American History and Culture	3
AAS 4373	History of Modern Civil Rights Movement	3
ID 3653	History of Interiors II	3
REF 3333	Principles of Real Estate	3
REF 3433	Real Property Evaluation	3
ARC 5623	Theory of Urban Design (required for students in the Architecture program)	3
ARC 4613	CREATE Common Ground	3
<b>Total hours</b>		<b>15</b>

# College of Arts & Sciences

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**RICK TRAVIS, Dean**

**Tommy Anderson, Associate Dean**

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## General Information

The College of Arts & Sciences provides the fundamental training needed by all persons who wish to become college graduates. Students in all undergraduate schools and colleges in the University take more than half their courses during the first two years in the College of Arts & Sciences. In addition, the College provides pre-professional curricula for students who take their professional training elsewhere. Thus, pre-medical, pre-dental, pre-pharmacy, pre-law, pre-ministerial, pre-optometry, medical records administration, pre-nursing, and physical therapy training are available within the College of Arts & Sciences.

Majors are offered in the following: anthropology, biological sciences, chemistry, communication, criminology, economics, English, foreign languages, general liberal arts, general science, geoscience, history, interdisciplinary studies, international business, mathematics, medical technology, microbiology, music, physics, political science, philosophy, psychology, sociology, and social work.

Students who are undecided about a specific curriculum should select the Undeclared category. Advisors are available to assist these students in developing their educational and career goals. A student is permitted to delay a decision as to a field of concentration for one year.

Minors are available in the following: aerospace studies, African American studies, anthropology, biological sciences, chemistry, communication, data analytics and society, English, foreign languages, gender studies, geography, geology, geoscience, history, international studies, leadership, linguistics, mathematics, philosophy, physics, political science, psychology, religion, social justice studies, sociology, and statistics.

In addition to these majors and minors, courses are offered in Air Force ROTC, archaeology, Army ROTC, corrections, and gerontology. Information concerning these offerings can be found in this section of the catalog.

## Mission

The educational mission of the College of Arts & Sciences is two-fold: to provide students with a liberal education that will facilitate intellectual development and stimulate a life-long pursuit of knowledge, and to give students an in-depth education in at least one specialized area necessary to prepare them for a career or for advanced study.

The College offers curricula in the fine arts, the humanities, the sciences, and the social sciences. These curricula are designed to introduce students to the basic methods of inquiry in diverse disciplines, to develop their analytical abilities, to improve their skills in writing and speaking, and to broaden their perspectives on humanity and culture in the natural and

technological worlds. Additionally, they provide intensive preparation in one or more academic disciplines.

A liberal education attained in this context should ensure that graduates of the College have gained an understanding and appreciation of human culture. They should have examined the social, historical, political, philosophical, and economic dimensions of the human condition and humankind's perception of the world as it is expressed through the fine arts, language, and literature. They should have learned the use of quantitative and scientific methods and should have participated in the universal quest to comprehend natural phenomena and to utilize this knowledge beneficially and ethically.

## Advising

Students in the College of Arts & Sciences are assigned an advisor in their home department, and the student's advisor assignment may be updated throughout their time in the major. Students should consult their assigned advisor for course scheduling each semester and for assistance in navigating academic concerns and needs.

## Degrees

The College of Arts & Sciences offers three degrees: the Bachelor of Arts, the Bachelor of Social Work, and the Bachelor of Science. All B.A., B.S., and B.S.W. students take a common set of requirements consisting of 25-29 semester credit hours in basic skills, 9-10 semester credit hours in natural sciences, 6 semester credit hours each in humanities and social sciences, and 3 semester credit hours in fine arts, computer literacy, and a junior/senior level writing course. The B.A. and B.S.W. curricula require 12 additional semester credit hours each in humanities and social sciences. The requirements for all three degrees as well as the curricula for specific areas of study are described below. Details for B.S.W. degree requirements are listed under Social Work.

In order to qualify for a second bachelor's degree at Mississippi State University, the candidate must meet the following requirements:

- The student must satisfy all course requirements for the degree sought; and
- The student must satisfy residency requirements at Mississippi State University after the first degree has been conferred (30 hours upper division work).

The major department from which the second degree is sought shall determine completion of requirements.

## College Requirements for All A&S Degrees

The College of Arts & Sciences has identified graduation requirements that must be satisfied by all students pursuing degrees conferred by the College. Furthermore, these requirements (listed immediately below) must be satisfied from a list of courses approved by the College. These approved courses are taken from a longer list of courses satisfying general education requirements, which can be found in the Academic Policies section of this Bulletin. However, majors in the College of Arts & Sciences must be aware that there are numerous courses on the General Education list that are not on the College approved list. Copies of the College courses approved list are available both from the Dean's Office and from advisors.

## Bachelor of Arts Degrees and Requirements

A Bachelor of Arts degree is offered in the following areas: anthropology, chemistry, communication, criminology, economics, English, foreign languages, general liberal arts, history, mathematics, music, philosophy, political science, and sociology. A minimum of 120-124 credit hours is required in all B.A. programs, 31 of which must be upper-division (3000-level or higher) courses in residence at Mississippi State University through Arts & Sciences. The Bachelor of Social Work is offered in Social Work and follows the same basic regulations as the B.A. degree except that courses must be taken in proper sequence and a minimum of 124 hours is required.

The liberal arts include certain basic academic disciplines that contribute to the development of intelligent, moral beings. Over the centuries various subjects have at one time or another been spoken of as "liberal arts," but the objective of liberal-arts training has remained unchanged. Whether students major in liberal arts or whether they merely take a few basic courses in that field, the liberal arts will enable them to develop those fundamental habits of good citizenship and cultural awareness that are expected of all members of our society.

The curriculum in liberal arts at Mississippi State University is intended to provide:

- a broad educational experience in the liberal arts, regardless of professional objectives;
- adequate preparation for admission to professional schools and graduate schools in the liberal arts disciplines;
- specialized training of a professional or pre-professional nature, as offered by the several liberal-arts departments.

## Bachelor of Science Degrees and Requirements

A Bachelor of Science degree is offered in the following areas: biological sciences, chemistry, general science, geoscience, interdisciplinary studies, mathematics, medical technology, microbiology, physics, and psychology.

The Bachelor of Science degree is awarded:

- on the completion of not fewer than 124 semester credit hours of study including 31 upper-division Arts & Sciences approved credits and the common curricula for Arts & Sciences approved by the dean and an official advisor.
- on the transfer of satisfactory credits from other institutions, provided the candidate, during at least one academic year in actual residence, receives 31 credits in upper-division courses in the College of Arts & Sciences.

## Graduation Requirements in the College

Arts & Sciences majors are responsible both for knowing the graduation requirements associated with their degree program and for keeping track of their own progress toward graduation. Departmental advisors are available to offer students informed answers to their questions and, during registration, to review and approve their course schedules. In addition to the graduation requirements outlined above, students

pursuing majors in the College of Arts & Sciences need to be aware of a number of special requirements having to do with graduation.

- 75-hour check sheets: Students who have completed 75 or more semester hours (including 'S' hours) must meet with their advisors and complete a 75-hour check sheet or they will be unable to register for courses. A completed 75-hour check sheet allows a student to determine which graduation requirements are not completed at the time the check sheet is filled out; this then allows the student to identify those remaining courses they still need to pass in order to graduate. A 75-hour check sheet cannot be completed until all transfer course work and/or independent study is on record with the Office of the Registrar.
- Off-Campus Study: Arts & Sciences majors are expected to take courses on the Mississippi State University campus when possible. If the desired courses are not offered, or if special circumstances exist, students may receive permission from the Dean to take courses off campus.
- CLEP Credit: The College does not allow graduation requirements in English Composition, Literature, or Public Speaking to be satisfied by the awarding of CLEP credit.
- PE: Only two 1-hour PE courses may be used toward graduation requirements.

## English and Foreign Language Requirements

The English and foreign language requirements apply to all Arts & Sciences students. Since departments have the authority to require specific foreign languages for their majors, students must become familiar with the language required by their individual major. The foreign language requirement is ordinarily satisfied:

The B.A. degree requires a 3rd-semester proficiency in a foreign language. Students may fulfill the requirement through placement tests administered by the Department of Classical and Modern Languages and Literature or by passing nine hours of a foreign language. One year of a foreign language taken at the high school level allows a student to bypass one semester of foreign language. Students are encouraged to take the foreign language placement test before enrolling in a foreign language course.

The B.S. degree requires a 2nd-semester proficiency in a foreign language. Students may fulfill the requirement through placement tests administered by the Department of Classical and Modern Languages and Literature or by passing six hours of a foreign language.

**Students For Whom English is a Second Language.** Students for whom English is a second language must fulfill the English and foreign language requirements as stated in this bulletin. Most majors allow these students to use their native languages to fulfill the foreign language requirement, but students planning to use their native language in order to satisfy the foreign language requirement are urged to check with their major department to determine if that language is acceptable to the department. The following conditions must be met for students using a native language:

- Complete a Request for Foreign Language Requirement Exception form and obtain approval by the Associate Dean for Academic Affairs
- The native language is a recognized mode of communication in conducting official business in a given country and taught in the

primary and secondary schools of the country (regional languages and dialects do not qualify as official languages).

- c. If the student is a native speaker of one of the major languages taught on campus, credit will be satisfied by taking a 4000+ level course in that language.
- d. If the student is a native speaker of any other language, the student may choose an alternate course from a list provided by and approved in writing by the Associate Dean for Academic Affairs.

In the Department of English, a maximum of 12 semester hours total of English as a Second Language (ESL) and freshman composition courses including the required EN 1103 and EN 1113 may be counted for graduation. Proper placement of international students from ESL courses into English composition courses is important to students' academic success.

## Pre-Professional Curricula

The College offers appropriate curricula for students who plan to enter schools of dentistry, law, medicine, theology, nursing, optometry, pharmacy, and physical therapy. These are described with the departmental entries in the following pages.

## Arts & Sciences Core

In order to satisfy College graduation requirements, students seeking B.A., B.S., or B.S.W. degrees must take the number of courses indicated in each of the areas below. By satisfying these College requirements, students will also satisfy all analogous General Education requirements.

B.A. and B.S.W. students must complete 12 hours in A&S Humanities and 12 hours in A&S Social Sciences in addition to the two courses in the Humanities and Social Sciences required of all majors. Hence, a student must complete a total of 18 hours in A&S Humanities AND 18 hours in A&S Social Sciences.

These additional 24 hours are not limited to the specific courses listed below; they may be satisfied by others in the Arts & Sciences Humanities and Social Science disciplines as long as they satisfy the distribution requirements for the major.

While all of the courses below satisfy college-wide requirements, individual departments may require that particular courses in each area be taken to satisfy requirements for their majors.

NOTE: Courses separated by "OR" cannot be taken in combination. Students will not receive credit in Arts & Sciences for two courses which are separated by "OR."

Also, Honors classes satisfy requirements and students who qualify are encouraged to take the Honors sections.

### Basic Skills

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Oral Communication Requirement <sup>1</sup>

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Foreign Language

3 sem. for B.A.	One Foreign Language (1113, 1123, 2133)
2 sem. for B.S.	One Foreign Language (1113, 1123)

### Fine Arts

Choose one of the following:	3
AAS 1103	African American Music
ARC 1013	Architectural Appreciation
ART 1013	Art History I
ART 1023	Art History II
ART 1113	Art Appreciation
CO 1503	Introduction to the Theatre
HON 3173	Honors Seminar in Fine Arts
MU 1103	African American Music
MU 1113	History and Appreciation of Music
MU 1123	History and Appreciation of American Music
MU 1133	The History of Rock and Roll
MU 1143	The History of Jazz
MU 1163	Introduction to Music in Film
MU 1173	Music of the Beatles
MU 2173	Women in Music
MU 3013	Survey of Western Music History I
PE 1323	History and Appreciation of Dance

### Humanities

B.S. degree	Requires one literature and one history from core listing	6
B.A. and B.S.W.	Requires one literature from core listing, one history from core listing, and one philosophy course plus an additional 9 hours of A&S Humanities electives covering two areas	18

### Humanities - A&S Core

AAS 2363	Introduction to African American Literature
or EN 2363	Introduction to African American Literature
AAS 3013	African American History to 1865
or HI 3013	African American History to 1865
AAS 3023	African American History since 1865
or HI 3023	African American History since 1865
EN 2203	Introduction to Literature
EN 2213	English Literature Before 1800
EN 2223	English Literature After 1800
EN 2243	American Literature Before 1865
EN 2253	American Literature After 1865
EN 2273	World Literature Before 1600
EN 2283	World Literature After 1600
HI 1003	History of Science in Six Ideas
HI 1013	History of Technology in Six Objects
HI 1063	Early U.S. History
HI 1073	Modern U.S. History
HI 1163	World History Before 1500
HI 1173	World History Since 1500
HI 1213	Early Western World
HI 1223	Modern Western World

HI 1313	East Asian Civilizations to 1300
HI 1323	East Asian Civilizations since 1300
HON 1163	The Quest Begins

**Humanities - A&S Electives**

AAS 1063	Introduction to African American Studies
AAS 1000-4999	Any AAS course cross-listed with EN, HI, PHI, or REL
EN 2000-4999	Any EN course above freshman composition courses
FL 2000-4999	Any FL course outside of levels I-V of a foreign language
GS 1000-4999	Any GS course cross-listed with EN, HI, PHI, or REL
HI 1000-4999	Any HI course
HON 3183	Honors Seminar in the Humanities
PHI 1000-4999	Any PHI course
REL 1000-4999	Any REL course

**Social and Behavioral Sciences**

B.S.	Requires 6 hours in different disciplines from core listing	6
B.A. and B.S.W.	Requires 6 hours from core listing plus an additional 12 hours of A&S Social Science electives; students are allowed a maximum of 6 hours in one discipline and must cover four disciplines within the total 18 hours; only one EC and one CO from the below list allowed; PS 1182 and PS 1192 are not allowed	18

**Social Science - A&S Core**

AN 1103	Introduction to Anthropology
AN 1143	Introduction to Cultural Anthropology
AN 1543	Discovering Archaeology: Past Meets Present
AN 2403	Introduction to the Study of Language
or EN 2403	Introduction to the Study of Language
CO 1223	Introduction to Communication Theory
or CO 1403	Introduction to the Mass Media
EC 1033	Economics of Social Issues
or EC 2113	Principles of Macroeconomics
or EC 2123	Principles of Microeconomics
GR 1123	Introduction to World Geography
GR 2013	Human Geography
HON 1173	The West and the Wider World
HON 3143	Honors Seminar in Social Science
PS 1113	American Government
PS 1313	Introduction to International Relations
PS 1513	Comparative Government
PSY 1013	General Psychology
PSY 3073	Psychology of Interpersonal Relations
SO 1003	Introduction to Sociology
SO 1103	Contemporary Social Problems
SO 1203	Sociology of Families

**Social Sciences - A&S Electives**

AAS 1000-4999	Any AAS course cross-listed with AN, CRM, PS, or SO
AN 1000-4999	Any AN course
CRM 1000-4999	Any CRM course
GS 1000-4999	Any GS course cross-listed with AN, CRM, PS, SO, or SW
GR 1000-4999	Any GR course outside of GR 1114 and GR 1604
PS 1000-4999	Any PS course
PSY 1000-4999	Any PSY course
SO 1000-4999	Any SO course
SW 1000-4999	Any SW course

**Computer Literacy**

One 2-3 hour course required. Consult advisor. 2-3

**Mathematics & Statistics<sup>2</sup> 3-6**

MA 1313	College Algebra
or MA 1103	College Algebra Linked Lab- Corequisite Model
or MA 1213	Math in Your World
MA 1323	Trigonometry
MA 1613	Calculus for Business and Life Sciences I
MA 1713	Calculus I
MA 1723	Calculus II
MA 2733	Calculus III
MA 2743	Calculus IV
MA /ST 2113	Introduction to Statistics
MA /ST 3123	Introduction to Statistical Inference

**Natural Sciences<sup>3</sup> 6-9**

AN 1344	Biological Anthropology: The Making of Us
BIO 1004	Anatomy and Physiology
BIO 1023	Plants and Humans
BIO 1123	Animal Biology
BIO 1134	Biology I
BIO 1144	Biology II
BIO 2113	Plant Biology
BIO 3103	Genetics I
BIO 3304	General Microbiology
CH 1043	Survey of Chemistry I
or CH 1213	Chemistry I
CH 1053	Survey of Chemistry II
or CH 1223	Chemistry II
CH 1051	Experimental Chemistry
CH 1211	Investigations in Chemistry I
CH 1221	Investigations in Chemistry II
GG 1111	Earth Sciences I Laboratory
GG 1113	Survey of Earth Sciences I
GG 1121	Earth Sciences II Laboratory
GG 1123	Survey of Earth Sciences II
GR 1114	
GR 1604	
HON 3163	Honors Seminar in Natural Sciences
PH 1011	Physical Science Laboratory I
PH 1063	Descriptive Astronomy
PH 1021	Physical Science Laboratory 2

PH 1013	Physical Science Survey I	
PH 1023	Physical Science Survey 2	
PH 1113	General Physics I	
PH 2213	Physics I	
PH 1123	General Physics II	
PH 2223	Physics II	
PH 1133	General Physics III	
PH 2233	Physics III	
<b>Junior/Senior Writing</b>		
Consult advisor for selections.		3

<sup>1</sup> Air Force ROTC students may substitute AS 3013 and AS 3023. Some majors satisfy the oral communication requirement within the major. See advisor.

<sup>2</sup> Either two courses required or one MA course at the level of MA 1613 or higher (with the exception of MA 2113/ST 2113).

<sup>3</sup> B.S. majors must take two lab courses. B.A. and B.S.W. majors must take one lab course in the Life Sciences AN or BIO, one lab course in the Physical Sciences CH, GG, GR, PH, and a third science elective (lab not required).

## Minor in Data Analytics and Society

The minor in Data Analytics and Society introduces students to the collection, management, analysis, and visualization of data in a social-science context. Students may select from courses in basic coding, data management, data visualization/communication, mapping/GIS, ethics, and policy implications/applications. The minor will help students understand how data analytics is applicable to their areas of interest in social science and humanities fields. The minor is intentionally oriented to introductory data analytics coursework paired with social and political research applications.

The Data Analytics and Society minor is open to all majors across the university. Students wishing to obtain the minor must complete the requirements below. It is strongly recommended that students take MA/ST 2113 Introduction to Statistics in preparation for the minor. Only nine credits from any one department may count toward the minor. At least 6 hours must be at the upper-division level. Additionally, at least half of the required hours must be taken at MSU and students must achieve a minimum 2.0 grade point average in all courses taken as part of the minor. Reasonable course substitutions may be approved; students must consult with the minor advisor prior to course registration.

The minor will be advised by the Department of Anthropology and Middle Eastern Cultures.

CSE 1284	Introduction to Computer Programming	4
<b>Applied Data Analytics</b>		<b>6-8</b>

Choose at least 6 hours from the following:

AN 3563	Data Analytics for Anthropology	
AN 4143	Ethnographic Methods	
CO 3221	Applied Communication & Media Studies	
CO 3223	Communication & Media Research Methods	
CO 4293	Communication & Media Studies Capstone	

CO 4803	Research in Public Relations and Advertising	
EN 3414	Critical Writing and Research in Literary Studies	
GR 2313	Maps and Remote Sensing	
GR 3303	Survey of Geospatial Technologies	
GR 4303	Principles of GIS	
PS 2713	Introduction to Engineering and Public Policy	
or GE 2713	Introduction to Engineering and Public Policy	
PS 4464	Political Analysis	
PSY 3104	Introductory Psychological Statistics	
PSY 3314	Experimental Psychology	
PSY 4653	Cognitive Science	
or CSE 4653	Cognitive Science	
PSY 4733	Memory	
PSY 4743	Psychology of Human-Computer Interaction	
or IE 4123	Psychology of Human-Computer Interaction	
PSY 4753	Applied Cognitive Psychology	
REL 3033	Theory and Method in the Study of Religion	
SO 3213	Introduction to Social Research	
SO 4123	Poverty, Analysis: People, Organization and Program	
SO 4703	Population Problems and Processes	
SO 4804	Social Research Practice	
PHI 4163	Research Ethics	3

### Electives **6-7**

Choose at least 6 hours from the following:

AN 3523	North American Archaeology	
AN 4133	Medical Anthropology	
AN 4163	Anthropology of International Development	
AN 4303	Human Variation and Origins	
AN 4313	Human Osteology	
AN 4523	Public Archaeology	
BQA 3123	Business Statistical Methods II	
BQA 4413	Business Forecasting and Predictive Analytics	
BQA 4423	Business Decision Analysis	
CO 3713	Digital Communication	
CSE 1384	Intermediate Computer Programming	
CSE 2383	Data Structures and Analysis of Algorithms	
CSE 4763	Ethical and Legal Issues in Computing	
EN 4463	Studies in Second Language Acquisition	
GG 4543	Community Engagement in Environmental Geosciences	
GR 4123	Urban Geography	
HI 1013	History of Technology in Six Objects	
PHI 3323	Medical Ethics	
PHI 4143	Philosophy of Science	
PHI 4223	Philosophy of Cognitive Science	
PSY 3343	Psychology of Learning	
PSY 3503	Health Psychology	

PSY 3623	Social Psychology
PSY 3713	Cognitive Psychology
PSY 4423	Sensation and Perception
PSY 4713	Language and Thought
SW 3003	Social Work with At-Risk Populations
SW 3013	Human Behavior and the Social Environment I
SW 3023	Human Behavior and the social Environment II
SW 4533	Substance Abuse and Addictions in Social Work Services
SW 4543	Gender and Food
SW 4613	Child Welfare Services
SW 4633	Social Work in Health Care
SW 4643	Social Work Services in Schools
<b>Total Hours</b>	<b>19-22</b>

## Minor in International Studies

The Minor in International Studies is designed to enhance students' understanding of the global environment in which they are living. Students completing this program will develop some proficiency in a foreign language, have experience living in another country, and have some general background of different cultures and societies. The Introduction to International Relations course serves as a broad introduction to the political, military, economic, and cultural interaction of state and on-state actors at the global level. The Principles of Macroeconomics course provides students with the background needed to build a deeper understanding of common issues of trade and development encountered in International Studies. The two upper division courses serve as capstones to bring the ideas of students in the program together from the perspective of their selected approaches -- formalized as Tracks -- to the minor. A total of 21 approved hours must be completed in this minor.

### Course Options:

#### Required Minor Courses

PS 1313	Introduction to International Relations	3
EC 2113	Principles of Macroeconomics	3
Approved Study Abroad		3
Elective Course with International focus		6

#### Choose a Track:

#### Diplomacy and Governance (DG) Track 6

PS 4343	International Conflict and Security	
Foreign Languages Upper Level Course		

#### Cultures and Traditions (CT) Track 6

PS 4623	Politics of the Third World	
Foreign Languages Upper Level Course		

#### National Security (NS) Track 6

PS 4343	International Conflict and Security	
MA 3123	Introduction to Statistical Inference	

#### Total Hours 21

For additional information, contact the Office of Study Abroad or visit the web site at [international.msstate.edu/current/minor/index.php](http://international.msstate.edu/current/minor/index.php). (<http://international.msstate.edu/current/minor/>)

## Minor in Organizational Leader Development

Organizational Leader Development is an academic discipline with applicability to all Mississippi State University students. The Organizational Leader Development minor can be applied in military, government, and business. The program provides a curriculum that develops students into agile leaders who can think creatively and critically, enabling them to lead and solve complex organizational matters. Students will also be able to develop others in their organization, producing a more effective environment. This is achieved through classroom training, leadership labs, and comprehensive summer training\*.

\*Summer training is only for contracted cadets and will not prevent general students from obtaining the organizational skills minor.

### Course Options:

MS 2113	Leadership and Ethics	3
MS 2123	Army Doctrine and Decision Making	3
MS 3114	Training Management and Warfighting Functions	4
MS 3124	Applied Leadership in Small Unit Operations	4
MS 4114	The Army Officer	4
MS 4124	Company Grade Leadership	4
<b>Total Hours Required</b>		<b>22</b>

## Minor in Medical Humanities

The Medical Humanities minor is designed to provide students with an interdisciplinary perspective on biomedicine, health, and the health professions. The program requires 15 credit hours (5 courses) spanning the Arts & Sciences curriculum, which will introduce students to the critical humanities and social science perspectives on medicine and healthcare. Students who earn the Medical Humanities minor will have acquired a proficiency in critical, interdisciplinary studies of health and medicine.

Admission: The Medical Humanities minor is open to undergraduate students in good standing who are currently enrolled at the university in any major. The program requires a minimum of 15 semester hours with a grade of C or above in each course.

HI 4883	U.S. History of Medicine	3
or HI 1003	History of Science in Six Ideas	
PHI 3323	Medical Ethics	3
Electives		9

Choose from the following:

AN 1344	Biological Anthropology: The Making of Us	
AN 2103	Nutritional Anthropology	
AN 3343	Introduction to Forensic Anthropology	
AN 4133	Medical Anthropology	
AN 4303	Human Variation and Origins	
AN 4313	Human Osteology	
AN 4323	Plagues and People	
AN 4333	Anthropology of Violence	
CO 4283	Health Communication	
HI 4293	History of Gender and Science	

PHI 4173	Philosophy of Biology
PHI 4223	Philosophy of Cognitive Science
PSY 3363	Behavioral Modification
PSY 3503	Health Psychology
PSY 4323	History of Psychology
PSY 4403	Biological Psychology
PSY 4413	Cognitive Neuroscience
REL 3483	Judeo-Christian Ethics
SO 4423	Health and Society
SO 4433	Sociology of Death and Dying
SW 3003	Social Work with At-Risk Populations
SW 4623	Social Work with the Aged
SW 4633	Social Work in Health Care
Other courses, including special topics courses (2990 and 4990) and graduate courses will be considered for elective credit on a case-by-case basis.	
<b>Total Hours Required</b>	<b>15</b>

## Minor in Social Justice Studies

Social justice studies is an interdisciplinary field that examines the causes and consequences of social inequities; types and forms of social change; and applied approaches to advancing social justice and equity. Social justice studies examines both the historical roots and contemporary forms of injustice and emphasizes applied and community-engaged learning as well as more traditional academic study. Only 9 hours from a single department may be counted toward the minor, and at least 12 hours must be 3000-4000 level.

GS 1303	Introduction to Social Justice Studies	3
or SO 1303	Introduction to Social Justice Studies	
or SJ 1303	Introduction to Social Justice Studies	
SJ 4993	Social Justice Studies Capstone <sup>1</sup>	3
Causes and Consequences of Social Injustice		6
Choose from the following:		
AAS 1103	African American Music	
AAS 2203	Introduction to Race and Ethnicity	
or AN 2203	Introduction to Race and Ethnicity	
or SO 2203	Introduction to Race and Ethnicity	
AAS 2363	Introduction to African American Literature	
or EN 2363	Introduction to African American Literature	
AAS 3013	African American History to 1865	
or HI 3013	African American History to 1865	
AAS 3023	African American History since 1865	
or HI 3023	African American History since 1865	
AAS 3353	Race, Crime and Justice	
or SO 3353	Race, Crime, & Justice	
or CRM 3353	Race, Crime and Justice	
AAS 3713	History of African American Women	
or GS 3713	History of African American Women	
or HI 3713	History of African American Women	
AAS 4343	Studies in African American Literature	
or EN 4343	Studies in African American Literature	
AAS 4363	African-American History and Culture	
or HI 4363	African American History and Culture	

AAS 4393	Postcolonial Literature and Theory
or EN 4393	Postcolonial Literature and Theory
AAS 4643	Race and the Media
AN 4173	Environment and Society
or SO 4173	Environment and Society
AN 4323	Plagues and People
AN 4333	Anthropology of Violence
CO 4323	Mass Media and Society
CRM 2003	Crime, Justice, and Inequality
CRM 3343	Gender, Crime, and Justice
or GS 3343	Gender, Crime, and Justice
CRM 3363	Globalization and Crime
CRM 3503	Violence in the United States
CRM 4233	Juvenile Delinquency
or SO 4233	Juvenile Delinquency
CRM 4243	Drugs, Crime and Control
or SO 4243	Drugs, Crime and Control
CRM 4253	White Collar and Computer Crime
CRM 4323	Victimology
or SO 4323	Victimology
CRM 4343	Media, Crime and Justice
or SO 4343	Media, Crime and Justice
CRM 4523	Law and Society
or SO 4523	Law and Society
EN 4333	Southern Literature
GR 2013	Human Geography
GR 4123	Urban Geography
GR 4263	Geography of the South
GS 1173	Introduction to Gender Studies
or AN 1173	Introduction to Gender Studies
or SO 1173	Introduction to Gender Studies
GS 3033	
GS 4233	Gender and Media
or CO 4233	Gender and Media
GS 4263	Gender Communication
or CO 4263	Gender Communication
GS 3513	Women and Literature: Selected Topics
or EN 3513	Women and Literature: Selected Topics
GS 4133	Feminist Theories
or EN 4133	Feminist Theories
or SO 4133	Feminist Theories
GS 4413	Sociology of Gender and Sexuality
or SO 4403	Sociology of Gender and Sexuality
GS 4503	Gender and Work
or SO 4503	Gender and Work
GS 4543	Gender and Food <sup>1</sup>
or SO 4543	Gender and Food
or SW 4543	Gender and Food
HI 3333	Mississippi History
HI 4273	Women in American History
HI 4283	History of Southern Women
HI 4293	History of Gender and Science



HI 4343	Immigration and Ethnicity in the United States
HI 4393	Rural America
PHI 3173	Social and Political Philosophy
PHI 3183	African American Philosophy
PHI 3313	Environmental Ethics
PS 4523	Democracy and Inequality
PS 4643	Ethnic Conflict
PS 4653	Nationalism
PSY 3203	Psychology of Gender Differences
PSY 4223	Drug Use and Abuse
REL 3103	Religion & U.S. Culture
REL 3113	Religions and Environment
REL 3143	African American Religious Experience
SO 1103	Contemporary Social Problems
SO 3003	Social Inequality
SO 3503	Violence in the United States
SO 4273	Sociology of Education
SO 4423	Health and Society
SO 4703	Population Problems and Processes
SW 2303	Social Welfare Policy I
SW 2323	Social Welfare Policy II
SW 3003	Social Work with At-Risk Populations <sup>1</sup>
Applied Learning and Social Change <span style="float: right;">6</span>	
Choose from the following:	
AAS 3043	Modern Civil Rights Law
or PS 3043	Modern Civil Rights Law
AAS 4273	African American Politics
or PS 4273	African American Politics
AAS 4373	History of Modern Civil Rights Movement
or HI 4373	History of Modern Civil Rights Movement
AAS 4383	African American Leadership in the Twentieth Century
AAS 4983	African Americans and the Law
or HI 4983	African Americans and the Law
AN 3343	Introduction to Forensic Anthropology
CO 4043	Communication and Leadership <sup>1</sup>
CO 4213	Political Communication <sup>1</sup>
CO 4253	Elements of Persuasion <sup>1</sup>
CO 4273	Intercultural Communication <sup>1</sup>
CO 4283	Health Communication <sup>1</sup>
CO 4313	Mass Media Law
CO 4803	Research in Public Relations and Advertising <sup>1</sup>
CO 4813	Public Relations in Organizations <sup>1</sup>
CRM 4153	Mentoring for At-Risk Youths <sup>1</sup>
GG 4543	Community Engagement in Environmental Geosciences <sup>1</sup>
GS 4143	Gender, Race, and Social Movements
or AAS 4143	Gender, Race, and Social Movements
or SO 4143	Gender, Race, and Social Movements
HI 3343	Delta History Service and Experiential Spring Break <sup>1</sup>

PS 3013	Political Leadership
PS 3063	Constitutional Powers
PS 3073	Civil Liberties
PS 3183	Law and Politics
PS 3193	Intergovernmental Relations
PS 4113	State Government
PS 4163	The Chief Executive
PS 4173	Legislative Process
PS 4183	Judicial Process
PS 4193	Mississippi Judicial System
PS 4203	Political Parties and Electoral Problems
PS 4213	Campaign Politics
PS 4223	The Dynamics of American Democracy
PS 4233	Interest Groups
PS 4243	State Election Policy and Politics
PS 4263	Mississippi Government and Politics
PS 4293	Political Behavior
PS 4393	The Global Context
PS 4464	Political Analysis <sup>1</sup>
PS 4633	Democracy and Democratization
PS 4743	Environmental Policy
PSY 2123	
PSY 3123	
PSY 4133	
SW 2313	Introduction to Social Work/Social Welfare
<b>Total Hours</b>	<b>18</b>

<sup>1</sup> Indicates applied or community-engaged learning course. Students must take at least one community-engaged learning course in addition to the Capstone to fulfill minor requirements. Students may petition the minor advisor to count courses not on this list as appropriate.

## Medical Humanities Certificate

The Medical Humanities Certificate is designed to provide students with an interdisciplinary perspective on biomedicine, health, and the health professions. The program requires 15 credit hours (5 courses) spanning the Arts & Sciences curriculum, which will introduce students to critical humanities and social science perspectives on medicine and healthcare. Students who earn the Medical Humanities Certificate will have acquired a proficiency in critical, interdisciplinary studies of health and medicine.

The Medical Humanities Certificate is open to undergraduate students in good standing who are currently enrolled at the university in any major. The certificate program requires a minimum of 15 semester hours with a grade of C or above in each course.

### Required Courses

HI 4883	U.S. History of Medicine	3
PHI 3323	Medical Ethics	3

### Electives

AN 1344	Biological Anthropology: The Making of Us	3
AN 2103	Nutritional Anthropology	3
AN 2990	Special Topics in Anthropology	3
AN 4133	Medical Anthropology	3
AN 4313	Human Osteology	3

AN 4323	Plagues and People
AN 3343	Introduction to Forensic Anthropology
AN 4303	Human Variation and Origins
AN 4990	Special Topics in Anthropology
CO 4283	Health Communication
HI 1003	History of Science in Six Ideas
HI 4293	History of Gender and Science
PHI 4173	Philosophy of Biology
PHI 4223	Philosophy of Cognitive Science
PSY 3363	Behavioral Modification
PSY 3503	Health Psychology
PSY 3723	
PSY 4323	History of Psychology
PSY 4403	Biological Psychology
REL 3483	Judeo-Christian Ethics
SO 4423	Health and Society
SO 4433	Sociology of Death and Dying
SW 3003	Social Work with At-Risk Populations
SW 4623	Social Work with the Aged
SW 4633	Social Work in Health Care

\*Other courses, including special topics courses (2990 and 4990) and graduate courses, will be considered for elective credit on a case-by-case basis.

**Total Hours** 15

## African American Studies

African American Studies (AAS) brings together an interdisciplinary community of scholars to offer courses leading to a minor. Our faculty is committed to exploring creative approaches to research and teaching by making the study of African Americans a central element in their scholarship and courses. Our faculty also promote research across departmental boundaries, thereby producing scholarship touching upon politics, identity, religion, and other variables. The interdisciplinary methodology of AAS informs students who work in a variety of disciplines, including history, political science, sociology, anthropology, music, economics, literature, education, and psychology. While the majority of our courses examine the history and culture of African Americans, the minor concentration also enables students to study Africans in the homeland and the Diaspora.

The interdisciplinary minor in African American Studies consists of 18 credit hours offered through several departments within the College of Arts & Sciences. The courses included in the minor focus on aspects of the African American experience. To earn the minor a student must take a total of 18 credit hours consisting of AAS 1063, at least 6 credit hours in the category of Humanities and Fine Arts, at least 6 credit hours in the category of Social Science, and a 3 credit hour elective that can be fulfilled by any course in the AAS curriculum at the 3000 or 4000 level. No more than fifty percent of the AAS minor can be completed by courses from any academic department.

### Required Course

AAS 1063	Introduction to African American Studies	3
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### Humanities and Fine Arts Requirements

Choose 6 hours from the following:

AAS 3013	African American History to 1865
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or HI 3013	African American History to 1865
AAS 3023	African American History since 1865
or HI 3023	African American History since 1865
AAS 3713	History of African American Women
or HI 3713	History of African American Women
AAS 4363	African-American History and Culture
or HI 4363	African American History and Culture
AAS 4373	History of Modern Civil Rights Movement
or HI 4373	History of Modern Civil Rights Movement
AAS 4783	African Civilization to 1880
or HI 4783	African Civilization to 1880
AAS 4793	Modern Africa
or HI 4793	Modern Africa
AAS 4093	The African Diaspora
AAS 4383	African American Leadership in the Twentieth Century
AAS 4983	African Americans and the Law
or HI 4983	African Americans and the Law
AAS 2363	Introduction to African American Literature
or EN 2363	Introduction to African American Literature
AAS 4343	Studies in African American Literature
or EN 4343	Studies in African American Literature
AAS 4393	Postcolonial Literature and Theory
or EN 4393	Postcolonial Literature and Theory
AAS 1103	African American Music
or MU 1103	African American Music
AAS 3153	African Art and Culture
AAS 2990	Special Topics in African American Studies
AAS 4990	Special Topics in African American Studies

Other courses as approved by program director

### Social Sciences Requirements

Choose 6 hours from the following:

AAS 3043	Modern Civil Rights Law
or PS 3043	Modern Civil Rights Law
AAS 4273	African American Politics
or PS 4273	African American Politics
AAS 4543	African Politics
or PS 4543	African Politics
AAS 2203	Introduction to Race and Ethnicity
or SO 2203	Introduction to Race and Ethnicity
or AN 2203	Introduction to Race and Ethnicity
AAS 3353	Race, Crime and Justice
or SO 3353	Race, Crime, & Justice
AAS 4643	Race and the Media
or SO 4643	Race and the Media
or CO 4643	Race and the Media
AAS 3193	African Cultures
or AN 3193	African Cultures
AAS 2990	Special Topics in African American Studies
AAS 4990	Special Topics in African American Studies
PS 4253	Southern Politics
PS 4643	Ethnic Conflict

Other courses as approved by program director

<b>Elective</b>	<b>3</b>
<b>Total Hours</b>	<b>18</b>

## Department of Anthropology and Middle Eastern Cultures

**Undergraduate Coordinator: Dr. Anna Osterholtz**

Office: 106 Cobb Institute of Archaeology

Anthropology is the study of humans as biological and cultural beings. Its subfields include archaeology, biological anthropology, cultural anthropology, and linguistics. Students majoring in anthropology may undertake course work in all four subfields, with concentrations offered in archaeology and cultural and biological anthropology.

Anthropology is a particularly broad major, designed for students who are preparing for employment with research organizations or museums, cultural research management for administrative and research positions with state or federal governments (such as state highway departments, medical examiner's offices, and the National Park Service), and with human service agencies, non-governmental organizations (NGO's), or organizations that involve work in both the U.S. and foreign countries. The undergraduate major in anthropology also prepares students for graduate training in professional fields such as environmental and sustainability studies, planning, law, medicine, public health, forensics, and public administration, as well as for graduate training in anthropology leading to college and university teaching and research positions.

A student wishing to pursue a program leading to a Bachelor of Arts with a major in anthropology is required to complete the program of study outlined on this page. Students are encouraged to take elective courses in related fields which will strengthen their academic training and job skills. These may include courses in history, human biology, disease, and anatomy, soils, geology, criminology, and geographic information systems (GIS).

Students are eligible for membership in the Alpha chapter of Lambda Alpha, the national anthropology honor society. In order to be considered, a student must have at least a 2.50 overall GPA, with a 3.00 GPA in anthropology courses, and have earned a minimum of 12 semester hours credit in anthropology. Part-time jobs are available for anthropology majors through the Department of Anthropology and Middle Eastern Cultures and through the Cobb Institute of Archaeology.

The Anthropology faculty and staff are housed in the Cobb Institute of Archaeology. Facilities include archaeology, bioarchaeology, and forensics laboratories and a museum. The museum houses artifacts from Mississippi and the Middle East, including replicas of large-scale relief sculptures and statues from Assyria and Egypt.

Anthropology may be used as a minor field of study at both the undergraduate and graduate levels. Fifteen hours (nine hours must be 3000 level or above), including AN 1103, constitute an undergraduate minor. Requirements for an anthropology minor at the graduate level will be established in consultation with the anthropology graduate advisor. Courses taken for an undergraduate or graduate minor must be taught by anthropology faculty.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

Foreign Language I		3
Foreign Language II		3
Foreign Language III		3

### Humanities

Literature	A&S core	3
History	A&S core	3
Philosophy	A&S core	3
Humanities Elective <sup>1</sup>		9

### Mathematics

MA /ST 2113	Introduction to Statistics	3
or MA 1323	Trigonometry	
or MA 1613	Calculus for Business and Life Sciences I	
or MA 1713	Calculus I	

### Fine Arts

See A&S Core List		3
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### Natural Sciences

Physical Sciences w/lab - A&S core		3-4
Life Science w/ lab - A&S core		3-4
Natural Science Elective - A&S core		3-4

### Social Sciences

A&S core		6
Social Sciences Electives <sup>2</sup>		12

### Major Core

AN 1143	Introduction to Cultural Anthropology	3
AN 1344	Biological Anthropology: The Making of Us	4
AN 1543	Discovering Archaeology: Past Meets Present	3
AN 3513	Artifact Analysis	3
AN 3563	Data Analytics for Anthropology	3
AN 4123	Anthropological Theory	3
Anthropology Elective		3
Anthropology Upper Division Electives		18

### Oral Communication Requirement

Satisfied with AN 4123 in the major

### Jr/Sr Writing

Satisfied with AN 4123 in the major

### General Electives

Consult advisor		14-17
<b>Total Hours</b>		<b>123</b>

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Humanities electives must be courses in A&S and must cover two disciplines.

<sup>2</sup> Social Science electives must be courses in A&S. The total 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only one EC and one CO from A&S core list allowed.

## Middle Eastern Studies Minor

The Middle Eastern Studies (MES) minor is offered to MSU students as formal acknowledgement of the completion of a specialized program of study over and above their normal degree requirements that leads to greater proficiency in areas related to Middle Eastern Studies. The MES minor requires a minimum of 18 credit hours. Students must complete at least 9 hours (3 courses) from the Core Course List, and 9 hours (3 courses) from the Elective Course List. Only one Special Topics (2990, 4990) or Directed Individual Study (4000) in Middle Eastern Cultures, Religion, or Anthropology will be accepted for completion of this minor.

Students must choose three of the following:

AN 3553	Near Eastern Archaeology	9
or MEC 3553	Near Eastern Archaeology	
or REL 3553	Near Eastern Archaeology	
HI 4403	The Ancient Near East	9
or MEC 4403	The Ancient Near East	
or REL 4403	The Ancient Near East	
HI 4413	Ancient Greece and Rome	9
MEC 3473	Islam	
or REL 3473	Islam	
MEC 4000	Directed Individual Study <sup>1</sup>	9

Students must select three of the following:

AN 1143	Introduction to Cultural Anthropology	9
AN 3533	Rise of Civilization	
AN 3553	Near Eastern Archaeology	
or MEC 3553	Near Eastern Archaeology	9
or REL 3553	Near Eastern Archaeology	
AN 3540	Archaeological Travel and Participation Program	
FLH 1113	Greek I	9
FLH 1123	Elementary Ancient Greek II	
FLL 1113	Latin I	
FLL 1123	Latin II	9
GR 4283	Geography of Islamic World	
HI 4403	The Ancient Near East	
or MEC 4403	The Ancient Near East	9
or REL 4403	The Ancient Near East	
HI 4413	Ancient Greece and Rome	
MEC 3473	Islam	9
or REL 3473	Islam	
REL 1213	Introduction to the Old Testament	
REL 1223	Introduction to the New Testament	9
REL 2233	Introduction to Old Testament Archaeology	
or MEC 2233	Introduction to Old Testament Archaeology	
REL 3203	The Prophets of Ancient Israel	9
REL 4143	Classical Mythology	
or FL 4143	Classical Mythology	

**Total Hours** **18**

<sup>1</sup> May use only one Directed Individual Study/Special Topic. This also includes AN/REL 2990, 4000, and 4990.

## Department of Biological Sciences

The Department of Biological Sciences provides an outstanding educational experience across the entire field of biology. Our expert faculty have diverse research and teaching interests that span molecular and cellular biology, microbiology, computational biology, evolutionary biology, genetics, and ecology, of all living organisms. Our faculty are actively engaged in highly interdisciplinary cutting-edge research and are committed to providing students with an extensive exposure to biological processes and systems and a deep understanding of biology at environmental, organismal, cellular, and molecular levels through engaging lectures and hands-on laboratory experiences. Graduates leave the department with the knowledge base and critical thinking skills to be successful in graduate programs leading to M.S. or Ph.D., medical, dental and veterinary schools, health professional schools, research, and teaching.

Majors offered in the department are the B.S. in Biological Sciences, B.S. in Medical Technology, and a B.S. in Microbiology. Students must earn a grade of C or higher in all BIO courses applied toward the biological sciences or microbiology major requirements.

Graduate programs offered in the department are the M.S. in Biological Sciences, Ph.D. in Biological Sciences, and an M.S. in General Biology, a distance program for science teachers. An accelerated Master's program is available to outstanding students engaged in undergraduate research.

## Medical Technology Major (MEDT)

**Major Advisor: Brandy Roberts, Dir. of Undergraduate Advising**  
Office: 115 Harned Hall

Medical technologists are prepared for positions in hospital laboratories, clinics, research laboratories, the Public Health Service industry, and in various local, state and federal health organizations.

The medical technology curriculum leading to the Bachelor of Science degree from Mississippi State University includes three years of study at Mississippi State University and one year of study in a hospital School of Medical Technology accredited by the National Accrediting Agency for Clinical Laboratory Sciences. Admission to the hospital school is competitive. A student who has satisfactorily completed the three years on the campus and has gained admission to a hospital school will register for the hospital phase and will be considered to be enrolled at Mississippi State during the final year of study. Graduates are prepared for certification by several national agencies.

## Biological Sciences Major (BIO)

**Major Advisor: Brandy Roberts, Dir. of Undergraduate Advising**  
Office: 115 Harned Hall

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	

EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

**Foreign Language**

Foreign Language I		3
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Foreign Language II		3
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**Humanities**

Literature - A&S core		3
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History - A&S core		3
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**Mathematics**

MA 1713	Calculus I	3
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ST 2113	Introduction to Statistics	3
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or ST 3123	Introduction to Statistical Inference	
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**Fine Arts**

A&S core		3
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**Natural Sciences**

Satisfied with the major		
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**Social Sciences**

A&S core <sup>1</sup>		6
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**Oral Communication**

CO 1003	Fundamentals of Public Speaking	3
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or CO 1013	Introduction to Communication	
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**Jr/Sr Writing**

Satisfied with BIO 3104 in the major		
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**Major Core - Biological Sciences**

BIO 1111	Welcome to Biological Sciences	1
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BIO 1134	Biology I	4
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BIO 1144	Biology II	4
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BIO 2103	Cell Biology	3
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BIO 2113	Plant Biology	3
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BIO 2513	Animal Diversity	3
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BIO 3104	Ecology	4
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BIO 3304	General Microbiology	4
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BIO 4133	Human Genetics	3
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BIO 4113	Evolution	3
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Additional department requirements:

CH 1213	Chemistry I	3
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CH 1223	Chemistry II	3
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CH 1211	Investigations in Chemistry I	1
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CH 1221	Investigations in Chemistry II	1
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CH 4513	Organic Chemistry I	3
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CH 4523	Organic Chemistry II	3
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CH 4511	Organic Chemistry Laboratory I	1
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CH 4521	Organic Chemistry Laboratory II	1
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PH 1113	General Physics I	3
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PH 1123	General Physics II	3
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or PH 1133	General Physics III	
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**Additional Science Electives**

Choose 5 courses from the following:		15-20
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BCH 4013	Principles of Biochemistry	
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BCH 4603	General Biochemistry I	
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BCH 4613	General Biochemistry II	
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BIO 2213	Survey Plant Kingdom	
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Any BIO upper division course, excluding BIO 3004, BIO 3014, and BIO 4000

**General Electives** **14-19**

**Total Hours** **124**

Restriction: The following courses may not be used to satisfy any requirement for Biological Sciences majors: BIO 1004, BIO 1023, BIO 1123.

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Social Science courses must cover two disciplines and come from A&S core.

**Minor in Biological Sciences**

A minor in Biological Sciences is an exceptional accompaniment to many academic majors, as well as students pursuing pre-professional programs. Courses required for the minor provide students with specialized knowledge in the life sciences and enhance understanding of current developments in science.

BIO 1134	Biology I	4
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BIO 1144	Biology II	4
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BIO 2103	Cell Biology	3
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BIO 4113	Evolution	3
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BIO 4133	Human Genetics	3
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Choose one of the following: 3-4

BIO 2213	Survey Plant Kingdom	
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Any 3000- or 4000- level BIO course excluding BIO 3004, BIO 3014, and BIO 4000

**Total Hours** **20-21**

**Microbiology Major (MIC)**

**Major Advisor: Brandy Roberts, Dir. of Undergraduate Advising**

Office: 115 Harned Hall

**General Education and College Requirements****English Composition**

EN 1103	English Composition I	3
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or EN 1104	Expanded English Composition I	
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EN 1113	English Composition II	3
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or EN 1173	Accelerated Composition II	
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**Foreign Language**

Foreign Language I		3
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Foreign Language II		3
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**Humanities**

Literature - A&S core		3
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History - A&S core		3
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**Mathematics**

MA 1713	Calculus I	3
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ST 2113	Introduction to Statistics	3
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or ST 3123	Introduction to Statistical Inference	
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**Fine Arts**

A&S core		3
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**Natural Sciences**

Satisfied within the major

**Social Sciences**A&S core <sup>1</sup> 6**Oral Communication**CO 1003 Fundamentals of Public Speaking 3  
or CO 1013 Introduction to Communication**Jr/Sr Writing**

Satisfied with BIO 4405, BIO 4442, and BIO 4463 in the major

**Departmental Core**BIO 1111 Welcome to Biological Sciences 1  
BIO 1134 Biology I 4  
BIO 1144 Biology II 4  
BIO 2103 Cell Biology 3**Major Core**BIO 3304 General Microbiology 4  
BIO 4405 Pathogenic Microbiology 5  
BIO 4413 Immunology 3  
BIO 4433 Principles of Virology 3  
BIO 4443 Bacterial Genetics 3  
BIO 4442 Bacterial Genetics Laboratory 2  
BIO 4463 Bacterial Physiology 3  
Microbiology Upper Division Electives, excluding BIO 3004,  
BIO 3014, and BIO 4000 <sup>2</sup> 8**Additional department requirements**CH 1213 Chemistry I 3  
CH 1223 Chemistry II 3  
CH 1211 Investigations in Chemistry I 1  
CH 1221 Investigations in Chemistry II 1  
CH 4513 Organic Chemistry I 3  
CH 4523 Organic Chemistry II 3  
CH 4511 Organic Chemistry Laboratory I 1  
CH 4521 Organic Chemistry Laboratory II 1  
PH 1113 General Physics I 3  
PH 1123 General Physics II 3  
or PH 1133 General Physics III**BCH Course - Choose One:** <sup>3</sup>BCH 4013 Principles of Biochemistry  
BCH 4603 General Biochemistry I  
BCH 4613 General Biochemistry II**General Electives** <sup>4</sup>

Consult advisor 20

**Total Hours** 124

Restriction: The following courses may not be used to satisfy any requirement for Biological Sciences majors: BIO 1004, BIO 1023, BIO 1123.

Note: Students must complete 31 upper division hours in A&amp;S in residence at MSU.

<sup>1</sup> Social Science courses must cover two disciplines and come from A&S core.<sup>2</sup> Applied microbiology courses are strongly recommended, regardless of the department in which they are offered (for example, Food Micro,

Environmental Micro, or Soil Micro). Upper division courses in Medical Technology or Biochemistry are also acceptable. Students should see their advisor for assistance in selecting courses for microbiology elective credit. Hours in excess of 8 will reduce the general electives requirement by an equal number.

<sup>3</sup> Students in the pre-professional/graduate track must take BCH 4603.

Students in the career track may take BCH 4013.

<sup>4</sup> Students planning to attend professional schools should check with the faculty advisor for that program to identify additional courses that may be needed. Such courses can be taken for general elective credit.**Minor in Microbiology**

The minor in microbiology provides a strong complement for students who are majoring in related scientific disciplines. This is particularly true for those who have an interest in the role of microorganisms in industry, agriculture, or health. Students will develop a comprehensive understanding of microbial processes and interactions, including infectious agents of plants and animals as well as host responses to those pathogens.

BIO 1134 Biology I 4  
BIO 3304 General Microbiology 4  
BIO 4405 Pathogenic Microbiology 5  
Choose two of the following: 6-7  
BIO 4413 Immunology  
BIO 4433 Principles of Virology  
BIO 4443 Bacterial Genetics  
BIO 4463 Bacterial Physiology  
BIO 4414 Microbiology of Foods**Total Hours** 19-20**Medical Technology Major (MEDT)** <sup>1</sup>**Major Advisor: Brandy Roberts, Dir. of Undergraduate Advising**

Office: 117 Harned Hall

**General Education and College Requirements****English Composition**EN 1103 English Composition I 3  
EN 1113 English Composition II 3  
or EN 1173 Accelerated Composition II**Foreign Language**

2 semesters - one Foreign Language (see advisor) 6

**Humanities**

Literature - see A&amp;S requirements 3

History - see A&amp;S requirements 3

**Mathematics**

MA 1313 College Algebra 3

MA 1323 Trigonometry 3

or ST 3123 Introduction to Statistical Inference

**Fine Arts**

See A&amp;S requirements 3

**Natural Sciences**

See Major Core - Consult Advisor for specifics 9-12

**Social Sciences**

Must be from 2 different areas - See University/A&amp;S Core 6

**Major Core**

BIO 1134	Biology I	4
BIO 3004	Human Anatomy	4
BIO 3303	Parasitology	3
BIO 3304	General Microbiology	4
BIO 4133	Human Genetics	3
BIO 4303	Bioinstrumentation	3
BIO 4405	Pathogenic Microbiology	5
BIO 4413	Immunology	3
BIO 4610	Urinalysis	2-6
BIO 4620	Hematology	2-9
BIO 4630	Special Topics	1-9
BIO 4640	Clinical Micro	2-9
BIO 4650	Immunohematology	2-9
BIO 4660	Serology/Immunology	2-9
BIO 4670	Clinical Chemistry	2-9
BCH 4013	Principles of Biochemistry	3
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II	1
CH 4513	Organic Chemistry I	3
CH 4523	Organic Chemistry II	3
General and Science Electives		9
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Computer Literacy Requirement</b>		
Satisfied by successful completion of BIO 3303, BIO 4303, and BIO 4405		
<b>Writing Requirement</b>		
Satisfied by successful completion of BIO 3303, BIO 4303, and BIO 4405		
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> In affiliated hospital schools of Medical Technology, admission is on a competitive basis.

## Program Consultants in Cooperating Hospitals

Mississippi State University maintains close contact with the teaching personnel in medical technology at the following hospitals in the area:

- Jennifer Knight, MHS, MLS(ASCP), affiliate faculty and Program Director, Mississippi Baptist Medical Center, Jackson, Miss.
- Lee Montgomery, MT (ASCP), affiliate faculty and Program Director, North Mississippi Medical Center, Tupelo, Miss.
- Holly Covas, MT (ASCP), affiliate faculty and Program Director, Vanderbilt University Medical Center, Nashville, Tenn.
- Dr. Nathan Johnson, Chair and Professor, Department of Laboratory Sciences at the University of Arkansas for Medical Sciences

## Department of Chemistry

**Undergraduate Coordinator: Dr. Whitnee Nettles,**  
wnettles@chemistry.msstate.edu

**Academic Coordinator: Ericka Akins, eakins**  
(eakins@chemistry.msstate.edu)@chemistry.msstate.edu  
(tfultz@chemistry.msstate.edu)

1115 Hand Chemical Laboratory

Website: www.chemistry.msstate.edu

The Department of Chemistry offers two degree programs: the Bachelor of Science (B.S.) and the Bachelor of Arts (B.A.) degrees. A total of 124 hours is required to complete each degree program. Our chemistry degree programs provide an excellent foundation for career paths in graduate school, teaching, medicine, pharmacy, dental, and numerous industry positions.

The B.S. degree program offers three additional concentrations: the American Chemical Society (ACS) concentration, the Pre-Medical concentration, and the Pre-Pharmacy concentration. The ACS concentration is designed to prepare graduates for a career in industry or to further their education through graduate studies. The American Chemical Society (ACS) has continually approved the department and its curriculum since 1941, certifying degrees earned by completing the B.S. degree with the ACS concentration. The Pre-Medical concentration is intended to aid students in meeting medical school pre-requisites. This concentration combines required biology courses with specific chemistry courses designed to prepare students for the rigors of medical schools, dental schools, or other professional schools. Our Pre-Medical concentration is based on the pre-requisites required by the University of Mississippi Medical Center (UMMC). The Pre-Pharmacy concentration is designed to meet the pre-requisites for the School of Pharmacy at the University of Mississippi. These requirements mirror those of other pharmacy schools, but students who wish to attend other pharmacy schools should communicate this information to their advisor.

The B.A. degree program has a stronger liberal arts emphasis and could serve as a preparation for a secondary teaching career, chemical sales, or further study at a professional school.

The Department of Chemistry also offers a M.S. (non-thesis and thesis) and Ph.D. in Chemistry (see the Graduate Catalog for description of programs and requirements for more information on these advanced degrees).

### Chemistry Minor Requirements

Students in other majors may earn a minor in Chemistry by achieving at least a 2.00 average in a total of 22 hours of chemistry (CH) courses with 14 of the hours in upper-division courses (3000-4000 level), and a minimum of 11 of the total hours completed at MSU. Students interested in a chemistry minor should contact the Academic Coordinator.

## B.S. in Chemistry

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3

or EN 1173	Accelerated Composition II	
<b>Foreign Language</b>		
Foreign Language I		3
Foreign Language II		3
<b>Humanities</b>		
Literature - A&S core		3
History - A&S core		3
<b>Mathematics</b>		
MA 1713	Calculus I	3
MA 1723	Calculus II	3
<b>Fine Arts</b>		
A&S core		3
<b>Natural Sciences</b>		
Satisfied within the major		
<b>Social Sciences</b>		
A&S core <sup>1</sup>		6
<b>Major Core</b>		
Student should check for prerequisites for all courses. See advisor.		
CH 1141	Professional Chemistry: Paths	1
CH 1234	Integrated Chemistry I <sup>1</sup>	4
CH 1244	Integrated Chemistry II <sup>3</sup>	4
CH 2141	Professional Chemistry: Tools	1
CH 3213	Inorganic Chemistry	3
CH 3311	Analytical Chemistry I Laboratory	1
CH 3313	Analytical Chemistry I	3
CH 3141	Professional Chemistry: Literature	1
CH 4141	Professional Chemistry: Research	1
CH 4351	Analytical Chemistry Laboratory II	1
CH 4353	Analytical Chemistry II	3
CH 4554	Integrated Organic I <sup>4</sup>	4
CH 4564	Integrated Organic II <sup>5</sup>	4
CH 4711	Senior Seminar	1
<b>Oral Communication Requirement</b>		
Satisfied with CH 1141, 2141, 3141, 4141, and 4711 sequence in major		
<b>Jr/Sr Writing</b>		
Satisfied with CH 3141, 4141, and 4711 sequence in major		

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Social Science electives must cover two disciplines and come from A&S core; students in Pre-Medicine concentration must take PSY 1013; students in Pre-Pharmacy concentration who plan to attend the University of Mississippi School of Pharmacy should take EC 2123.

<sup>2</sup> CH 1234 can be replaced by CH 1213 and CH 1211

<sup>3</sup> CH 1244 can be replaced by CH 1223 and CH 1221

<sup>4</sup> CH 4554 can be replaced by CH 4513 and CH 4511

<sup>5</sup> CH 4564 can be replaced by CH 4523 and CH 4521

Choose one of following paths to complete the B.S. degree:

## B.S. with non-A.C.S. certification

CH 4403	Biophysical Chemistry	
& CH 4421	and Physical Chemistry Laboratory II	
or CH 4413	Thermodynamics and Kinetics	
or CH 4423	Quantum Mechanics and Spectroscopy	
CH 4411	Physical Chemistry Laboratory I	1
or CH 4421	Physical Chemistry Laboratory II	
CH Electives <sup>6</sup>		6
PH 2213	Physics I	3
or PH 1113	General Physics I	
PH 2223	Physics II	3
or PH 1123	General Physics II	
PH 2233	Physics III	3
or PH 1133	General Physics III	
<b>General Electives</b>		
Consult advisor		40
<b>Total Hours</b>		<b>124</b>

<sup>6</sup> Advisor approved CH or BCH upper-division courses

## A.C.S. concentration

CH 4603	Undergraduate Research	3
CH 4411	Physical Chemistry Laboratory I	1
CH 4413	Thermodynamics and Kinetics	3
or CH 4403	Biophysical Chemistry	
CH 4421	Physical Chemistry Laboratory II	1
CH 4423	Quantum Mechanics and Spectroscopy	3
BCH 4603	General Biochemistry I	3
BCH 4613	General Biochemistry II	3
or CH 4213	Advanced Inorganic Chemistry I	
CH 4800	Undergraduate Research in Chemistry	4
CH Electives <sup>6</sup>		1
PH 2213	Physics I	3
PH 2223	Physics II	3
PH 2233	Physics III	3
MA 2733	Calculus III	3
<b>General Electives</b>		
Consult advisor		27
<b>Total Hours</b>		<b>124</b>

<sup>6</sup> Advisor-approved CH or BCH upper division courses

## Pre-Medical concentration

Student should check for prerequisites for all courses. See advisor.

CH 4403	Biophysical Chemistry	4
or CH 4413	Thermodynamics and Kinetics	
or CH 4423	Quantum Mechanics and Spectroscopy	
CH 4411	Physical Chemistry Laboratory I	1
or CH 4421	Physical Chemistry Laboratory II	
CH Elective		1
BCH 4603	General Biochemistry I	3



BCH 4613	General Biochemistry II	3
PH 2213	Physics I	3
or PH 1113	General Physics I	
PH 2223	Physics II	3
or PH 1123	General Physics II	
PH 2233	Physics III	3
or PH 1133	General Physics III	
BIO 1134	Biology I	4
BIO 1144	Biology II	4
BIO 2103	Cell Biology	3
BIO 3004	Human Anatomy	4
BIO 3014	Human Physiology	4
<b>General Electives</b>		
Consult advisor <sup>6</sup>		20
<b>Total Hours</b>		<b>124</b>

<sup>6</sup> Recommended Electives: BIO 3304, BIO 3103 or BIO 4133, BIO 4413, MA/ST 2113 or MA/ST 3123

## Pre-Pharmacy Concentration

CH 4403	Biophysical Chemistry	3
or CH 4413	Thermodynamics and Kinetics	
or CH 4423	Quantum Mechanics and Spectroscopy	
CH 4411	Physical Chemistry Laboratory I	1
or CH 4421	Physical Chemistry Laboratory II	
CH Elective		1
BCH 4603	General Biochemistry I	3
BCH 4613	General Biochemistry II	3
BIO 1134	Biology I	4
BIO 1144	Biology II	4
BIO 2103	Cell Biology	3
BIO 3004	Human Anatomy	4
BIO 3014	Human Physiology	4
BIO 3304	General Microbiology	4
PH 2213	Physics I	3
or PH 1113	General Physics I	
PH 2223	Physics II	3
or PH 1123	General Physics II	
PH 2233	Physics III	3
or PH 1133	General Physics III	
ST /MA 2113	Introduction to Statistics	3
or ST 3123	Introduction to Statistical Inference	
or MA 3123	Introduction to Statistical Inference	
CO 1003	Fundamentals of Public Speaking	3
Advisor approved electives <sup>6</sup>		10
<b>Total Hours</b>		<b>124</b>

Note: University of Mississippi School of Pharmacy requires EC 213, ST 2113, and CO 1003

<sup>6</sup> Recommended electives: PHI 3323, BIO 3103 or BIO 4133, BIO 4413, BIO 4405

## B.A. in Chemistry

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

Foreign Language I		3
Foreign Language II		3
Foreign Language III		3

#### Humanities

Literature - A&S core		3
History - A&S core		3
Philosophy - A&S core		3
Humanities Electives <sup>1</sup>		9

#### Math

MA 1713	Calculus I	3
MA 1723	Calculus II	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	
or MA 3123	Introduction to Statistical Inference	
or ST 3123	Introduction to Statistical Inference	

#### Fine Arts

A&S core		3
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#### Natural Sciences

Satisfied within the major		9-12
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#### Social Sciences

A&S core		6
Social Sciences Electives <sup>2</sup>		12

#### Major Core

Student should check for prerequisites for all courses. See advisor.

CH 1141	Professional Chemistry: Paths	1
CH 1234	Integrated Chemistry I <sup>3</sup>	4
CH 1244	Integrated Chemistry II <sup>4</sup>	4
CH 2141	Professional Chemistry: Tools	1
CH 3311	Analytical Chemistry I Laboratory	1
CH 3313	Analytical Chemistry I	3
CH 3141	Professional Chemistry: Literature	1
CH 3213	Inorganic Chemistry	3
or CH 4403	Biophysical Chemistry	
or CH 4413	Thermodynamics and Kinetics	
or CH 4423	Quantum Mechanics and Spectroscopy	
CH 4141	Professional Chemistry: Research	1
CH 4554	Integrated Organic I <sup>5</sup>	4
CH 4564	Integrated Organic II <sup>6</sup>	4
CH 4711	Senior Seminar	1
PH 2213	Physics I	3
or PH 1113	General Physics I	
PH 2223	Physics II	3

or PH 1123	General Physics II	
PH 2233	Physics III	3
or PH 1133	General Physics III	

**Oral Communication Requirement**

Satisfied with CH 1141, 2141, 3141, 4141, and 4711 sequence in the major

**Jr/Sr Writing**

Satisfied with CH 3141, 4141, and 4711 sequence in the major

Note: Student must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> <p>Humanities electives must be courses in A&S and must cover two disciplines.</p>

<sup>2</sup> <p>Social Science electives must be courses in A&S. The total 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only on EC and one CO from A&S core list allowed.</p>

<sup>3</sup> <p><courseinline id="1">CH 1234%7CCode</courseinline> can be replaced by <courseinline id="2">CH 1213%7CCode</courseinline> and <courseinline id="3">CH 1211%7CCode</courseinline></p>

<sup>4</sup> <p><courseinline id="4">CH 1244%7CCode</courseinline> can be replaced by <courseinline id="5">CH 1223%7CCode</courseinline> and <courseinline id="6">CH 1221%7CCode</courseinline></p>

<sup>5</sup> <p><courseinline id="7">CH 4554%7CCode</courseinline> can be replaced by <courseinline id="8">CH 4513%7CCode</courseinline> and <courseinline id="9">CH 4511%7CCode</courseinline></p>

<sup>6</sup> <p><courseinline id="10">CH 4564%7CCode</courseinline> can be replaced by <courseinline id="11">CH 4523%7CCode</courseinline> and <courseinline id="12">CH 4521%7CCode</courseinline></p>

Choose one of following paths to complete the B.A. degree:

**B.A., no specified concentration**

CH or BCH Electives	6
General Electives - consult advisor	21
<b>Total Hours</b>	<b>124</b>

**Pre-Health Professional concentration**

BCH 4603	General Biochemistry I	3
BCH 4613	General Biochemistry II	3
BIO 1134	Biology I	4
BIO 1144	Biology II	4
BIO 2103	Cell Biology	3
BIO 3004	Human Anatomy	4
BIO 3014	Human Physiology	4
General Electives - consult advisor	2	
<b>Total Hours</b>	<b>124</b>	

**Department of Classical & Modern Languages and Literatures****B.A. in Foreign Languages**

Department Head: Robert M. West, Professor

Graduate Coordinator: Kelly Moser, Associate Professor

Undergraduate Coordinator: Amie Russell, Instructor II

Office: 1500 Lee Hall

Foreign language majors prepare for careers in government (State Department, foreign service, diplomatic corps, FBI, CIA, USIA, the military, immigration, etc), international business, the human services fields, teaching at all levels (secondary school, junior college, university), and other language-related jobs.

Programs of study leading to the Bachelor of Arts (B.A.), the joint Bachelor of Arts and Bachelor of Business Administration, and the Master of Arts (M.A.) in Foreign Languages are offered. For the B.A., the department offers five major concentrations: Asian Studies, Classics, French, German, and Spanish. Education students desiring Foreign Language teaching certification must see appropriate guidelines from the Department of Curriculum, Instruction, and Special Education for the language requirements.

The Department sponsors four honor societies: Pi Delta Phi (French), Delta Phi Alpha (German), Sigma Delta Pi (Spanish), and Eta Sigma Phi (Classics). Information about membership requirements may be obtained from the Head of the Department. The Department also sponsors language clubs which provide social and cultural activities for faculty and students.

The Bachelor of Arts in Foreign Languages is awarded upon the successful completion of a minimum of 123 semester hours, including the following areas:

- General Education Requirements
- Bachelor of Arts Common Requirements
- Note that degree requirements vary among the concentrations. It is the student's responsibility to meet the requirements of the chosen concentration, as listed below.
- Study abroad is highly recommended. Foreign Language majors interested in following this recommended course of study should notify the advisor as soon as possible, so that a plan of study can be developed to make sure graduation requirements are met.
- The hours needed for graduation will depend upon the entry level of study into the major language; a minimum of eight, 3-credit hour courses in the chosen concentration at the 3000-level, or higher, is required.

\*Note: Asian Studies is structured to allow the student to choose an East Asian language that may be either Chinese or Japanese in addition to literature and culture courses.

**International Business Program**

A Five-Year Double Degree Program:

B.A. in Foreign Languages & B.B.A. in Business Administration

Office: 210 McCool Hall

**Major Advisor - Business Administration: Clinical Assistant Professor Travis Wiseman**

**Major Advisor - Foreign Languages: Instructor Amie Russell**  
1500 Lee Hall

The International Business Program provides students with an academic background and work experience to help ensure success in the marketplace. Students receive a double degree at graduation reflecting the dual concentration in Business: B.B.A. (with an international focus and a specific discipline such as Marketing or Finance); and in the Arts: B.A. (language and cultural proficiency). This is additional to the first two years

of study developing abilities in writing, math, sciences, and computer literacy.

The hallmarks of this program include a work internship and an outside the country academic experience of a full summer or one semester duration (generally taken the last of the 4th year or beginning of the 5th year). The internship is ideally reflective of the student's specific business discipline and the study abroad is reflective of the student's language proficiency area. The student who selects to combine the work and abroad experience must petition the IB Director for approval. Minimum acceptable levels are:

- WORK: 10 continuous weeks of international tasks and responsibilities;
- ABROAD: 6 continuous weeks in one location for cultural immersion.

The total number of semester credit hours (SCH) will be 154 for most students. The program has five main components:

- a core of basic skills, including courses in writing, mathematics, sciences, and communication (30 SCH);
- a core of humanities and social science courses selected to fit the special needs of international business major, emphasizing both the history and culture of other societies and the ways these societies relate to our own (27 SCH);
- intensive training to develop proficiency in one foreign language and its associated cultures and literatures (35 SCH);
- a thorough grounding in business techniques and practices, including 33 SCH of general business courses, up to 12 SCH of international business courses, and 15 SCH in one of six functional/discipline emphasis in business (accounting, finance, information systems<sup>1</sup>, economics, management, marketing<sup>1</sup>, or risk management, insurance and financial planning<sup>1</sup>).
- a one-semester internship program with an international business (4 SCH).

Students interested in following this recommended course of study should notify the Department Head of Classical & Modern Languages and Literatures and the Director of International Business Academic Programs. Students must have the Director's written approval to join the International Business Program. Students must meet all graduation requirements for the College of Business and the College of Arts & Sciences. These requirements include a 2.5 GPA in Upper Division Business courses and 31 resident credit hours of Upper Division Arts & Sciences courses. International Business students must also have an overall and previous semester GPA of 2.67 to be eligible for internship and study abroad. Students are reminded that an International Business degree is a double major, and they must see an adviser in Classical & Modern Languages and Literatures in addition to any advising they have from the College of Business.

## B.A. in Foreign Languages

**Major Advisor: Instructor Amie Russell**

**Associate Professor Kelly Moser (M.A. program)**

Office: 1500 Lee Hall

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
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or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

See each concentration

### Humanities

FL 4143	Classical Mythology	3
Literature - see University/A&S Core		3
History - see University/A&S Core		3
Philosophy Elective - see advisor		3
Humanities Electives <sup>1</sup>		6

### Math

See University/A&S requirements	3
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### Fine Arts

See A&S Requirements	3
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### Natural Sciences

Physical Science w/Lab <sup>2</sup>	3-4
Biological Science w/Lab <sup>3</sup>	3-4
Natural Science Elective <sup>4</sup>	3

### Social Sciences

See A&S requirements	6
Social Sciences Electives <sup>5</sup>	12

### Oral Communication Requirement

See each concentration	3-4
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For Classics:<sup>6</sup>

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

or a course satisfying the oral communication requirement in one of the CMLL modern language concentrations

### Writing Requirement

See each concentration	3-4
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### Computer Literacy

Consult advisor	2-3
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### General Elective<sup>7</sup>

Consult advisor - Study abroad and/or second language highly recommended.	19-28
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**Choose one of the following concentrations:**

## Asian Studies

**Choose the Chinese or Japanese language series: 15**

FLC 1113	Chinese I
& FLC 1123	and Chinese II
& FLC 2133	and Chinese III
& FLC 2143	and Chinese IV
& FLC 3153	and Chinese V

-OR-

FLJ 1113	Japanese I
& FLJ 1123	and Japanese II
& FLJ 2133	and Japanese III
& FLJ 2143	and Japanese IV
& FLJ 3153	and Japanese V

### Oral Communication Requirement

FLC 3163	Chinese VI	3
or FLJ 3163	Japanese VI	

**Writing Requirement**

FL Asia-related 4000-level course (or a course satisfying the writing requirement in one of the CMLL modern language concentrations); see advisor for courses	3
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**Asian Studies Electives**

FL Asia-related courses numbered 3000, 4000, or above; see advisor for courses	9
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**Asia-focused Courses**

Choose two of the following:	6
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FL Asia-related courses numbered 4000 and above

GR 4233	Geography of Asia
HI 4583	China Since 1800
HI 4593	Japan Since 1600
HI 4903	The Far East
REL 3213	World Religions I
REL 3453	Hinduism & Buddhism

For other Asia-related courses, consult advisor.

<b>Total hours</b>	<b>36</b>
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**Classics**

FLL 2133	Latin III (Latin I & II (or equivalents) do not count towards the 30-hour concentration but do count as electives for the degree)	3
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FLL 2143	Latin IV	3
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FLH 2133	Greek III (Greek I & II (or equivalents) do not count towards the 30-hour concentration but do count as electives for the degree)	3
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FLH 2143	Greek IV	3
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**Writing Requirement**

FLL 3111	Latin Prose Composition I	1
FLL 3121	Latin Prose Composition II	1
FLL 3131	Latin Prose Composition III	1

Choose two of the following:	6
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(Latin)

FLL 3173	Augustan Literature and Culture
FLL 4443	Caesar
FLL 4990	Special Topics in Latin

(Greek)

FLH 3013	Plato
FLH 4990	Special Topics in Greek

Choose three of the following:	9
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FL 4133	Roman Civilization
FL 4493	Greek Comedy and Tragedy
FL 4773	The Age of Homer
PHI 3023	History of Western Philosophy I
FL 4143	Classical Mythology

<b>Total hours</b>	<b>30</b>
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**French**

FLF 2133	French III	3
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FLF 2143	French IV (or equivalents; I & II do not count towards the 35-hour concentration, but do count as electives for the degree)	3
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**Writing Requirement**

FLF 3114	Advanced French Composition	4
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**Oral Communication Requirement**

FLF 3124	Advanced French Conversation	4
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FLF 3513	Survey of French Literature (both recommended)	3
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or FLF 3523 Survey of French Literature

French electives numbered 3000 and above	18
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<b>Total Hours</b>	<b>35</b>
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**German**

FLG 1113	German I	12
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& FLG 1123 and German II

& FLG 2133 and German III

& FLG 2143 and German IV (or equivalents)

<b>Oral Communication Requirement</b>	<b>3-4</b>
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FLG 3124 Advanced German Conversation

or FLG 3143 German Civilization

or FLG 3153 Modern German Culture

or FLG 3313 Business German I

<b>Writing Requirement</b>	<b>3-4</b>
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FLG 3114 Advanced German Composition (or any FLG 4000-level course)

German electives numbered 3000 and above	18
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<b>Total Hours</b>	<b>36-38</b>
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**Spanish**

FLS 1113	Spanish I	12
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& FLS 1123 and Spanish II

& FLS 2133 and Spanish III

& FLS 2143 and Spanish IV (or equivalents)

FLS 3143	Hispanic Civilization	3
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<b>Writing Requirement</b>	<b>4</b>
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FLS 3113 Advanced Spanish Composition

FLS 3111 Advanced Spanish Laboratory

<b>Oral Communication Requirement</b>	<b>4</b>
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FLS 3233 Advanced Spanish Conversation

FLS 3121 Advanced Spanish Conversation Practicum

Spanish Literature: See advisor for courses	6
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Spanish electives numbered 3000 and above	3
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Spanish electives numbered 4000 and above	6
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<b>Total Hours</b>	<b>38</b>
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**Total hours needed for major: 123**

<sup>1</sup> Must be from 2 different areas. See A&S Requirements.

<sup>2</sup> CH, GG, or PH; see A&S Requirements.

<sup>3</sup> BIO, EPP, or PO; see A&S Requirements.

<sup>4</sup> Consult advisor.

<sup>5</sup> Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics and one Communication allowed. See advisor.

<sup>6</sup> These 3 credit-hours do not count towards the 30 hour Classics concentration but are required for the degree. For all the other concentrations, the oral communication requirement is satisfied within the concentration.

<sup>7</sup> The general elective credits vary accordingly to the concentration. Consult advisor.

## International Business Program

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
ST 2113	Introduction to Statistics	3
or BQA 2113	Business Statistical Methods I	

#### Science

Life Science and Lab (BIO prefix)		3
Physical Science and Lab (CH, GG, OR PH prefix)		4

#### Humanities

EN 2273	World Literature Before 1600	3
or EN 2283	World Literature After 1600	
HI 1173	World History Since 1500	3
or HI 1223	Modern Western World	

#### Fine Arts

Choose one the following:		3
ARC 1013	Architectural Appreciation	
ARC 2313	History of Architecture I	
ART 1013	Art History I	
ART 1023	Art History II	
ART 1113	Art Appreciation	
ART 3143	Italian Renaissance Art History	
MU 1113	History and Appreciation of Music	
CO 1503	Introduction to the Theatre	
PE 1323	History and Appreciation of Dance	

#### Social/Behavioral Sciences

GR 1123	Introduction to World Geography	3
AN 1143	Introduction to Cultural Anthropology	3

#### College of Arts and Sciences Core

PHI 3013	Business Ethics	3
PS 1313	Introduction to International Relations	3
or PS 1513	Comparative Government	
Upper-level History Elective (see advisor)		3
Upper-level Social Science Elective (see advisor)		3
Choose one of the following:		3
FLF 1113	French I	
FLG 1113	German I	

FLS 1113	Spanish I	
Choose one of the following:		3
FLF 1123	French II	
FLG 1123	German II	
FLS 1123	Spanish II	
Choose one of the following:		3
FLF 2133	French III	
FLG 2133	German III	
FLS 2133	Spanish III	
Choose one of the following:		3
FLF 2143	French IV	
FLG 2143	German IV	
FLS 2143	Spanish IV	
Choose one of the following:		4
FLF 3114	Advanced French Composition	
FLG 3114	Advanced German Composition	
FLS 3113 & FLS 3111	Advanced Spanish Composition and Advanced Spanish Laboratory	
Choose one of the following:		4
FLF 3124	Advanced French Conversation	
FLG 3124	Advanced German Conversation	
FLS 3233 & FLS 3121	Advanced Spanish Conversation and Advanced Spanish Conversation Practicum	
Choose one of the following:		3
FLF 3143	French Civilization	
FLG 3143	German Civilization	
FLS 3143	Hispanic Civilization	
Choose one of the following:		3
FLF 3313	Business French I	
FLG 3313	Business German I	
FLS 3313	Economics of the Spanish-Speaking World	
Business-related Language course		3
See FL advisor for available courses		
Literature course in target language		3
See FL advisor for available courses		
<b>Foreign Language Elective</b>		<b>3</b>
See FL advisor for options		
<b>College of Business Core</b>		
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3123	Financial Management	3
MKT 3013	Principles of Marketing	3
MGT 3114		4
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Computer Literacy Requirement</b>		

BIS 1012	Introduction to Business Information Systems	2
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**Writing Requirement**

MGT 3213	Organizational Communications	3
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**International Business Core**

IB 1001	Introduction to International Business	1
IB 3900	Internship Work	1-6
IB 4903	Internship Academic Report	3
International Business Elective (see advisor)		3
MGT 4863	International Strategic Management	3

Free Electives

**Major Courses** **21-24**

Students must select 21 hours of upper level course work within a specific business discipline to complete the major. Accounting majors must complete 24 hours of upper level (3000+) course work for the Bachelor of Accountancy degree. Courses counting toward the required hours are provided below.

**Total Hours** **154****Accounting**

ACC 3003	Accounting Information Systems I	3
ACC 3013	Cost Accounting	3
ACC 3023	Intermediate Accounting I	3
ACC 3033	Intermediate Accounting II	3
ACC 3053	Accounting Information Systems II	3
ACC 4013	Income Tax I	3
ACC 4033	Auditing	3
Accounting Elective (see advisor)		3
3000-4000 level course		

**Business Information Systems**

BIS 1733	Visual Basic Programming	3
BIS 1753	Introduction to Business COBOL	3
BIS 3523	Advanced Languages I	3
BIS 3753	Business Database Systems	3
BIS 4753	Structured Systems Analysis and Design	3
BIS Electives	3000-4000 level courses	6

**Economics**

EC 3113	Intermediate Macroeconomics	3
EC 3123	Intermediate Microeconomics	3
EC 4323	International Economics	3
EC 4643	Economic Forecasting and Analysis	3
Economics Electives	3000-4000 level courses	9

**Finance**

FIN 3723	Financial Markets and Institutions	3
FIN 4223	Intermediate Financial Management	3
FIN 4243	Senior Seminar in Financial Management	3
FIN 4423	Investments	3
FIN 4923	International Financial Management	3
Finance Electives	4000-level courses	6

**Management**

MGT 3323	Entrepreneurship	3
MGT 3513	Introduction to Human Resource Management	3
MGT 3813	Organizational Behavior	3
MGT 4153	Management Seminar	3
MGT 4613	Cross-Cultural Management	3
Management Electives	3000-4000 level courses	6

**Marketing**

MKT 3933	International Marketing	3
MKT 4413	Consumer Behavior	3
MKT 4533	Marketing Research	3
MKT 4813	Marketing Management	3
Marketing Electives	3000-4000-level courses <sup>1</sup>	9

Footnotes

<sup>1</sup> See IB advisor for elective options, including a concentration in Supply Chain Management.

**Business Administration**

MKT 3933	International Marketing	3
FIN 4923	International Financial Management	3
EC 4323	International Economics	3
MGT 4613	Cross-Cultural Management	3
BL 4273	International Business Law	3
International Business Electives	See advisor	6

A minor in Foreign Languages with concentrations in Chinese, French, German, Italian, Japanese, Russian, and Spanish may be obtained upon satisfactory completion of 18 semester hours in one target language. Classics offers minors on two distinct tracks. A minor with concentration in Classical Languages requires 15 hours of courses taught in Greek or Latin, 12 of which must be Greek or Latin courses beyond the first year (i.e. not including FLL 1113, FLL 1123, FLH 1113, or FLH 1123); the remaining course may be any FL Classics course. A minor with concentration in Classical Civilizations requires 18 hours total, which may be a combination of any FL Classics courses (excluding FL 2123) and any courses taught in Greek (FLH) or Latin (FLL).

**Foreign Languages - Classical Languages Track**

Any FL Classics course	3
Greek (FLH) or Latin (FLL) courses beyond first year	12
<b>Total Hours</b>	<b>15</b>

**Foreign Languages - Classical Civilizations Track**

Any FL Classics courses (excluding FL 2123) or any courses taught in Greek (FLH) or Latin (FLL)	18
<b>Total Hours</b>	<b>18</b>

## World Language Teaching

The undergraduate minor in World Language Teaching (WLT) complements existing programs within the department, college, and across campus. The goal of the program is to provide interested students with a pathway to learn more about the teaching and learning of languages other than English within K-12 schools. Students must complete five courses totaling fifteen credit hours with a grade of B or better. The WLT minor is open to any undergraduate student in good standing enrolled at the university.

### Required Courses

FL 4203	Methods of Teaching K-8 World Languages	3
FL 4213	Methods of Teaching 9-12 World Languages	3
FL 4233	Linguistics for World Language Teachers	3
<b>Elective Courses (choose two) <sup>1</sup></b>		<b>6</b>
Any FLx (e.g., FLF, FLG, etc.) 4000-level course		
EN 4403	Introduction to Linguistics	
EN /FL 4463	Studies in Second Language Acquisition	
FL 4223	Foundations in Online Language Teaching	
FL 4243	Introduction to Ecolinguistics	
FL 4253	Biosemiotics	
<b>Total Hours</b>		<b>15</b>

<sup>1</sup> Other courses relevant to the minor may be approved on a case-by-case basis by the WLT coordinator.

## Department of Communication

**Dr. Terry Likes**, Department Head

**Haylee Crouch**, Advising/Recruiting Coordinator  
Office: 130 McComas Hall

The Bachelor of Arts degree in Communication is offered. The department offers concentrations in Broadcast and Digital Journalism, Communication and Media Studies, Print and Digital Journalism, Public Relations, and Theatre. Students may choose more than one concentration. Minors are available in all areas. In addition, the department offers numerous courses online throughout the year. Contact specific advisors for additional information.

The total major consists of 48-49 semester hours in Communication courses: 12 hours of the departmental core; and 36-37 hours of additional specified work in the concentration area(s). In addition, students complete the Arts & Sciences core curriculum and electives for a total of 124 semester hours leading to the B. A. Degree.

- A minimum grade of C in all Communication courses (or approved substitutes) is required. Students earning a grade lower than C in a Communication course must retake that course.
- Incoming freshmen must earn a score of 20 or higher on the ACT Enhanced English sub-scale before entering the major. Students who believe that the ACT does not accurately assess their language ability and who can present evidence of above average language skills (excellent English grades, extensive writing samples, etc.) will be given the opportunity to satisfactorily complete a screening test and gain admission to the major.

- No transfer student, either from another institution or within the university, will be accepted who has not earned a minimum 2.0 GPA on all college work attempted prior to entering the major.

Prospective students are reminded that Communication is a language intensive discipline. Students with only minimal oral and written language competency should expect to be at a competitive disadvantage in classes as well as in careers after graduation. Transfer students with less than a C in English composition courses may have difficulty with the advanced writing courses required in this major.

## Computer and Camera Requirements

The Department of Communication requires incoming B.A. Communication majors to purchase certain technology and equipment necessary for production and presentation of projects within departmental courses. All incoming students are required to purchase a personal laptop computer and software. Each concentration in the Department provides specific guidelines for hardware and software and a suggested timetable for purchases. The required computer and software must be selected from an approved departmental list of minimum hardware and software requirements available on the Department of Communication web site.

Financial aid that includes this requirement may be available by contacting the MSU Student Financial Aid and Scholarship office.

Additionally, upon enrollment in CO 3403 Photographic Communication or CO 3333 Advanced TV Production, students will be required to purchase a digital single-lens reflex (dSLR) camera. The required camera must be selected from an approved departmental list of minimum specifications. The approved list is available on the Department of Communication web site.

## Communication Lab Fees

Additional fees associated with class materials and technology are associated with certain classes in the Department and are automatically assessed to the students upon enrollment in those courses.

## Broadcast and Digital Journalism

The Broadcast and Digital Journalism concentration prepares students for work in television, radio, multi-media and other areas. Graduates work in front of and behind the camera. In addition to the expected journalistic jobs, graduates also find positions in extension service, university relations, government, and industry.

## Communication and Media Studies

Communication and Media Studies trains students to understand and investigate how humans use symbols to make meaning in interpersonal, mediated, professional, public, and political contexts. This concentration prepares students for careers in professional and public communication roles and with the research, writing, and presentation skills needed for graduate study.

## Print and Digital Journalism

In addition to filling positions for newspapers, magazines, and digital publications in the state and around the country, graduates of the Print and Digital Journalism concentration obtain news-related jobs in universities, business, and industrial relations.

## Public Relations

The Public Relations concentration prepares students for a variety of professional positions. In addition to work with public relations and advertising firms, graduates are employed by colleges and schools, newspapers and broadcasting organizations, banks, churches, hospitals, insurance companies, businesses and corporations, charitable and political groups, and state and federal governments.

## Theatre

The Theatre concentration prepares well-rounded artists for performance or production careers in theatre, film, and education.

## Communication Minors

Minors in each of the concentration areas (Broadcast and Digital Journalism, Communication and Media Studies, Print and Digital Journalism, Public Relations, and Theatre) are available. Because of the differences between and among the disciplines in the department, students considering a minor are advised to meet with the department head or advising coordinator prior to making a decision regarding a minor. The Department of Communication endeavors to work with individual students so that the minor field combines appropriately with his/her major field of study. Students with majors in business, agriculture, social sciences, and the humanities are especially encouraged to consider a minor in one of the related areas.

## Professional Societies and Scholarships

Students in any of the departmental concentration areas with superior averages after completing certain courses may qualify for membership in the Theta Alpha Chapter of Lambda Pi Eta, the official honor society of the National Communication Association. Students in Theatre may be tapped for Alpha Psi Omega honorary after completing certain work in theatrical productions.

Numerous scholarships are available in the Department of Communication. See the department's website for a complete list of available scholarships.

Professional societies are available for students in most of the concentration areas. The Public Relations Student Society of America, the Public Relations Association of Mississippi, and the Southern Public Relations Federation provide pre-professional experience and contacts for students of Public Relations. Blackfriars is available to students of Theatre. The Student Broadcasting Association services students in the Broadcast and Digital Journalism concentration; this group is directly involved in the production of several television programs. A student chapter of the Broadcast Education Association is also available.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

Foreign Language I		3
Foreign Language II		3
Foreign Language III		3

### Humanities

Literature - A&S core		3
History - A&S core		3
Philosophy - A&S core		3
Humanities Elective <sup>1</sup>		9

### Math

Math - A&S core		3
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### Fine Arts

CO 1503	Introduction to the Theatre <sup>2</sup>	3
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### Natural Sciences

Physical Science w/Lab - A&S core		3-4
Life Science w/Lab - A&S core		3-4
Natural Science Elective - A&S core		3-4

### Social Sciences

PSY 1013	General Psychology	3
SO 1003	Introduction to Sociology	3
GR 1123	Introduction to World Geography	3
CO 1403	Introduction to the Mass Media	3
Social Science Electives <sup>3</sup>		6

### Oral Communication

Satisfied within the major core

### Jr/Sr Writing

Satisfied within each concentration

### Major Core

CO 1003	Fundamentals of Public Speaking <sup>4</sup>	3
CO 1223	Introduction to Communication Theory	3

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Humanities electives must be courses in A&S and must cover two disciplines.

<sup>2</sup> Required for Theatre concentration; students in other concentrations may substitute alternative A&S core fine arts course if taken prior to declaring major.

<sup>3</sup> Social Science electives must be courses in A&S and cannot be additional CO courses. The total 18 hours in Social Science must cover four disciplines: maximum of 6 hours per discipline; only one EC on A&S core list allowed.

<sup>4</sup> Required for all students in major; students may substitute CO 1013 if taken prior to declaring major; students cannot count both CO 1003 and CO 1013 toward graduation requirements.

## Choose one or more of the following concentrations:

### Broadcast and Digital Journalism Concentration

CO 2333	Television Production	3
CO 2413	Introduction to News Writing and Reporting	3
CO 3313	News Writing for the Electronic Media <sup>5</sup>	3
CO 3333	Advanced Television Production	3
CO 3403	Photographic Communication	3
CO 3713	Digital Communication	3
CO 4313	Mass Media Law	3
CO 4343	Backpack Video Journalism	3



CO 4394	Broadcast Capstone	4
CO 4403	Journalism Ethics	3
CO 4713	Multimedia Journalism	3
Communication Upper Division Elective - consult advisor		3
General Electives - consult advisor		9-12
<b>Total Hours</b>		<b>121</b>

## Communication and Media Studies Concentration

### Methods - choose from the following: 3-4

CO 3221	Applied Communication & Media Studies
CO 3223	Communication & Media Research Methods

### Theory - choose from the following: 6-7

CO 3233	Communication and Media Ethics
CO 4223	Advanced Communication Theory
CO 4243	Rhetorical Theory
CO 4253	Elements of Persuasion <sup>5</sup>
CO 4924	Film Theory

### Context - choose from the following: 18-20

CO 1021	Overcoming Communication Apprehension
CO 2904	Introduction to Film
CO 2253	Fundamentals of Interpersonal Communication
CO 3213	Small Group Communication
CO 3243	Advanced Public Speaking
CO 3903	Advanced Cinema Studies
CO 4043	Communication and Leadership
CO 4063	Family Communication
CO 4124	Topics in Film
CO 4203	Nonverbal Communication
CO 4213	Political Communication
CO 4233	Gender and Media
CO 4263	Gender Communication
CO 4273	Intercultural Communication
CO 4283	Health Communication
CO 4313	Mass Media Law
CO 4323	Mass Media and Society
CO 4433	Television Criticism
CO 4643	Race and the Media

### Capstone - choose from the following: 3

CO 4053	Internship in Communication
CO 4293	Communication & Media Studies Capstone

Communication Upper Division Electives - consult advisor 6

General Electives - consult advisor 6-13

**Total Hours 121**

## Print and Digital Journalism Concentration

CO 2333	Television Production	3
CO 2413	Introduction to News Writing and Reporting	3
CO 3403	Photographic Communication	3
CO 3423	Feature Writing <sup>5</sup>	3

CO 3433	Editing and Design	3
CO 3443	Advanced News Writing and Reporting <sup>5</sup>	3
CO 3713	Digital Communication	3
CO 4313	Mass Media Law	3
CO 4403	Journalism Ethics	3
CO 4494	Bulldog Online Newsroom	4
CO 4713	Multimedia Journalism	3
Communication Upper Division Electives - consult advisor		3
General Electives - consult advisor		9-12
<b>Total Hours</b>		<b>121</b>

## Public Relations Concentration

CO 2413	Introduction to News Writing and Reporting	3
CO 3803	Principles of Public Relations	3
CO 3813	Public Relations Case Problems	3
CO 3853	Public Relations Writing <sup>5</sup>	3
CO 3863	Public Relations Production	3
CO 3873	Public Relations Multimedia	3
CO 4253	Elements of Persuasion <sup>5</sup>	3
CO 4313	Mass Media Law	3
or CO 4323	Mass Media and Society	
CO 4803	Research in Public Relations and Advertising	3
CO 4813	Public Relations in Organizations	3
Communication Upper Division Electives - consult advisor		6
General Electives - consult advisor		10-13
<b>Total Hours</b>		<b>121</b>

## Theatre Concentration

CO 1542	Technical Theatre Practicum	2
CO 2503	Acting	3
CO 2512	Introduction to Theatrical Design	2
CO 2523	Introduction to Stagecraft	3
CO 3541	Theatre Performance Practicum	1
CO 3573	Script Analysis	3
CO 4503	History of Theatre 1: Classical <sup>5</sup>	3
CO 4513	History of Theatre 2: Contemporary <sup>5</sup>	3
CO 4523	Directing	3
CO 4591	Theatre Capstone	1
Design Requirement (choose 4 hours)		4
CO 3502	Costume Design	
CO 3512	Scenic Design	
CO 3522	Lighting for the Stage and Screen	
Sophomore Level Flexible Requirement (choose 1 hour)		1
CO 2531	Voice and Articulation	
CO 2551	Sound for the Stage and Screen	
CO 2561	Makeup for the Stage	
CO 2591	Auditioning and Monologues	
Junior Level Flexible Requirement (choose 5 hours)		5
CO 3532	Theatre for Change	
CO 3552	Professional Practice for Theatre	
CO 3583	Theatre for Young Audiences	

CO 3693	Drawing for the Theatre	
Senior Level Flexible Requirement (choose 3 hours)		3
CO 4533	Advanced Acting	
CO 4563	Stage and Production Management	
CO 4583	Playwriting	
General Electives - consult advisor <sup>6</sup>		9-12
<b>Total Hours</b>		<b>121</b>

<sup>5</sup> Satisfies Jr/Sr Writing requirement

<sup>6</sup> May need to be upper division level to meet A&S upper division requirement.

## Department of English

**Major Advisors: Professor Daniel Punday (Head)**  
**Associate Professor Shalyn Claggett (M.A. program)**  
**Associate Professor Ginger Pizer (B.A. program)**  
 Office: 2000 Lee Hall

The study of English not only gives students knowledge of language and literature but also helps to develop their ability to read perceptively, think critically, analyze problems, and write correctly and persuasively. For this reason, a major in English has traditionally been viewed as good training for careers in law, government, business, and publishing, as well as for careers in teaching and writing.

The department offers an undergraduate major (B.A.); undergraduate minors in English, creative writing, film studies, linguistics, and TESOL; and an M.A. The department also edits and publishes two distinguished journals. *Mississippi Quarterly* is a refereed scholarly journal dedicated to the life and culture of the American South, past and present. *Jabberwock Review* is a literary journal publishing stories, poems, and essays by writers across the country. Additionally, the department operates the university Writing Center to assist all MSU students with their writing.

The Department of English awards several scholarships annually: the Howell H. and Elizabeth S. Gwin Scholarships to outstanding juniors or seniors majoring in English and to graduate students in English; the Helen W. Skelton Annual Scholarship and the Ann Pittman Andrews Memorial Scholarship to full-time English majors maintaining at least a 3.0 GPA and demonstrating good character, leadership and financial need; the William H. Magruder Scholarship to an upper-division or graduate English major; the Roger LeMoyné Dabbs Memorial Scholarship to an English or Communication major; and the Eugene Butler Creative Writing Scholarship to an undergraduate or graduate student. The Department of English sponsors the Xi Kappa Chapter of Sigma Tau Delta National English Honor Society; memberships are offered by invitation to scholastically qualified junior and senior undergraduate students and to second-year graduate students who are English majors. The Department of English also offers the Nolan Book Award competition for junior and senior English majors and sponsors several writing contests and awards.

In addition to two semesters of freshman composition, which the department recommends be taken at the Accelerated or Honors level, English majors take four 2000-level literature surveys, EN 3414, and at least 21 additional hours of English electives, of which 15 hours must be 4000 level and taken in residence, distributed among three categories: Literature and Culture: Periods and Figures; Literature and Culture: Cultural Geographies; and Theory, Genre, and Methods.

English majors must attain a C or better in all English courses at the 2000 level or above in order for those courses to count toward the requirements of the major.

Students seeking secondary-school teaching certification should consult with an English Education advisor.

English minors take at least 18 hours of English electives with a grade of C or better beyond completion of the freshman composition requirement of their major. Of these hours, at least six must be at the 4000 level; these must be completed in residence. No more than six hours may be linguistics classes, i.e., classes which count toward the linguistics minor. No more than two classes may be classes which count toward the minor in Film Studies. Students who are earning the Creative Writing minor must complete 12 hours of English classes in addition to the requirements for that minor in order to earn the English minor as well. Students pursuing the English minor should consult the English major advisor to plan a minor program which will complement their major studies and career interests.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

Foreign Language I	3
Foreign Language II	3
Foreign Language III	3

### Humanities

History - A&S core	6
Philosophy - A&S core	3

### Math

A&S core	3
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### Fine Arts

A&S core	3
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### Natural Sciences

Physical Science w/Lab - A&S core	3-4
Life Science w/Lab - A&S core	3-4
Natural Science w/Lab - A&S core	3-4

### Social Sciences

A&S core	6
Social Science Electives <sup>1</sup>	12

### Major Core

Fourth semester in chosen Foreign Language	3	
Upper Division A&S Humanities (HI, FL, PHI) or Study Abroad Elective	3	
EN 1111	English Studies	1
EN 3414	Critical Writing and Research in Literary Studies	4
EN 4111	Portfolios and Reflective Writing	1
Choose four of the literature surveys below, including at least one focused on each of the following; English literature, American literature, pre-1800 literature, post-1800 literature. (A single course may satisfy multiple criteria simultaneously.)	12	

EN 2213	English Literature Before 1800
EN 2223	English Literature After 1800
EN 2243	American Literature Before 1865
EN 2253	American Literature After 1865
EN 2263	Multiethnic U.S. Literature
EN 2363	Introduction to African American Literature

**Upper Division Requirements****Literature and Culture: Periods and Figures**

Choose two of the following: 6

EN 4503	Shakespeare
EN 4513	Shakespeare
EN 4523	Chaucer
EN 4533	Milton
EN 4643	The Eighteenth-Century British Novel
EN 4653	The Nineteenth-Century British Novel
EN 4663	British and Irish Novel Since 1900
EN 4703	English Literature of the Sixteenth Century
EN 4713	English Literature of the Seventeenth Century
EN 4723	British Literature and Culture from 1600-1700
EN 4733	British Literature and Culture of the Eighteenth Century
EN 4883	Victorian Poets and Prose Writers
EN 4893	American Literature to 1800
EN 4903	Nineteenth-Century U.S. Literature
EN 4933	Survey of Contemporary Literature

**Literature and Culture: Cultural Geographies**

Choose one of the following: 3

EN 4333	Southern Literature
EN 4343	Studies in African American Literature
EN 4363	Studies in Global Anglophone Literatures
EN 4383	Digital Ethnic Studies
EN 4393	Postcolonial Literature and Theory
EN 4813	The World Novel Since 1900

**Theory, Genre, and Methods**

Choose one of the following: 3

EN 4323	Literary Criticism from Plato-Present
EN 4353	Critical Theory Since 1900
EN 4803	Types of Drama Since 1900
EN 4823	Poetry Since 1900
EN 4833	The American Short Story
EN 4923	American Novel Since 1900
EN 4924	Film Theory
EN 4943	Form and Theory of Fiction
EN 4953	Form and Theory of Poetry

**4000-Level Literature Elective**

Choose one more course listed above under Periods and Figures, Cultural Geographies, or Theory, Genre, and Methods 3

**Fields of English Studies**

Choose one of the following: 3

EN 3243	Writing Center Tutor Training
EN 3303	Creative Writing

EN 3313	Writing for the Workplace
EN 3333	Internship in English
EN 3423	Descriptive English Grammar
EN 3803	Intermediate Poetry Writing
EN 3903	Intermediate Fiction Writing
EN 4124	Topics in Film
EN 4223	Principles of Legal Writing
EN 4233	Composition Pedagogy
EN 4303	Craft of Poetry
EN 4313	Craft of Fiction
EN 4403	Introduction to Linguistics
EN 4413	History of the English Language
EN 4433	Approaches to TESOL
EN 4443	English Syntax
EN 4453	Methods in TESOL
EN 4463	Studies in Second Language Acquisition
EN 4473	Phonetics
EN 4493	TESOL Practicum
EN 4623	Language and Culture
EN 4633	Language and Society

**English Elective**

any EN course 3

**Oral Communication**CO 1003 Fundamentals of Public Speaking 3  
or CO 1013 Introduction to Communication**Jr/Sr Writing**

Satisfied within the major

**General Electives**

Consult advisor 15-19

**Total Hours 124**

Note: Students must earn a grade of C or higher in all English courses at the 2000 level or above.

Students must complete 31 upper division hours in A&amp;S in residence at MSU. Additionally, all English majors must earn 15 hours of Literature courses at the 4000 level in residence.

<sup>1</sup> Social Science electives must be courses in A&S. The total 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only one EC and one CO from A&S core list allowed.

## Linguistics Minor

Linguistics is the study of language, including the structure of sounds, words, and sentences, how our brains process it, how people learn it, and the roles it plays in our societies. Studying linguistics raises students' awareness of patterns in the language of their daily lives and can contribute to careers such as language teaching, editing and publishing, speech therapy, advertising, and more.

The Minor in Linguistics is open to undergraduate students in any major except General Liberal Arts with a focus in Linguistics.

The minor requires a minimum of 18 semester hours with a grade of C or above in each course. In addition to the courses listed below, up to two Special Topics or Directed Individual Study courses will count toward the

minor when approved in advance by the Linguistics Committee. Courses that are cross-listed in more than one department may be taken under any cross-listing.

<b>Required Course</b>	<b>3</b>
EN /AN 4403 Introduction to Linguistics	
<b>Minor Core Courses</b>	<b>9-15</b>
EN /AN 2403 Introduction to the Study of Language	
EN 3423 Descriptive English Grammar <sup>1</sup>	
EN 4413 History of the English Language	
EN 4443 English Syntax <sup>1</sup>	
EN 4463 Studies in Second Language Acquisition	
EN /PSY 4473 Phonetics	
EN /AN /SO 4623 Language and Culture	
EN /AN /SO 4633 Language and Society	
<b>Minor Electives</b>	<b>0-6</b>
AN 1103 Introduction to Anthropology	
AN 1143 Introduction to Cultural Anthropology	
AN 4143 Ethnographic Methods	
CO 4203 Nonverbal Communication	
CO 4273 Intercultural Communication	
CSE 3813 Introduction to Formal Languages and Automata	
PHI 1113 Introduction to Logic	
PHI 4223 Philosophy of Cognitive Science	
PSY 3713 Cognitive Psychology <sup>2</sup>	
PSY 3723	
PSY 4653 Cognitive Science <sup>2</sup>	
PSY 4713 Language and Thought	
<b>Total Hours</b>	<b>18</b>

<sup>1</sup> Only one of EN 3423 or EN 4443 may count toward the minor.

<sup>2</sup> Only one of PSY 3713 or PSY 4653 may count toward the minor.

## Creative Writing Minor

The minor in creative writing will focus on the study of poetry and fiction writing, including the learning of techniques, forms, and approaches of creative expression. Creative writing offers students the opportunity to use language as a means of making art that explores the complexity of human experience. A background in creative writing prepares students for a variety of future paths, including teaching, editing, publishing, law, advertising, public relations, and any career that places emphasis on the written word.

The minor requires 18 semester hours (six courses) with a grade of C or above in each course. Transfer credit awarded if approved by the Director of the Creative Writing program.

<b>Required Course</b>	<b>9</b>
EN 3303 Creative Writing	
EN 3803 Intermediate Poetry Writing	
EN 3903 Intermediate Fiction Writing	
Choose one or two of the following:	<b>3-6</b>
EN 4303 Craft of Poetry	
EN 4313 Craft of Fiction	

Choose one or two of the following (depending on major): **3-6**

<b>English Majors</b>	
EN 4943	Form and Theory of Fiction
EN 4953	Form and Theory of Poetry
<b>Non-English Majors</b>	
See advisor for list of approved electives	
<b>Total Hours</b>	<b>18</b>

## Film Studies Minor

The minor in Film Studies provides students with a strong background in the study of film language, history, theory, and production, emphasizing varied filmmaking practices throughout the world. Students will gain a proficiency in what filmmakers call "film language" and a working knowledge of film form. Students will be able to apply film language to the analysis of film, literature and art, and convergent media technologies. Students will learn the specificity of global film traditions through comparative study, will be introduced to the basics of film theory and production, and will gain knowledge of the economic, social, cultural, and historical roots of cinema from diverse parts of the world.

<b>Required Course</b>	<b>4</b>
ART /CO /EN 2904 Introduction to Film	
<b>Core Courses (select at least one core course from the list below. Students may take additional core courses to meet the electives requirement.)</b>	<b>3</b>
CO 3903 Advanced Cinema Studies	
ART /CO /EN 4124 Topics in Film	
ART /CO /EN 4924 Film Theory	
<b>Electives</b>	<b>12</b>
ART 2103 Photography Survey	
ART 3233 Studio Lighting	
ART 3613 Art and Film	
ART 3633 History of Photography	
ART 3643 Art of the Graphic Novel	
ART 3873 Digital Photography	
ART 4893 Video Art	
CO 2503 Acting	
CO 3403 Photographic Communication	
CO /GS 4233 Gender and Media	
CO 4423 Advanced Photo Communication	
CO 4504	
CO 4524	
CO /AAS /SO 4643 Race and the Media	
EN 2434 Literature and Film	
EN 3523 Shakespeare and Film	
<b>Total Hours</b>	<b>19</b>

<sup>1</sup> Only one of EN 3423 or EN 4443 may count toward the minor.

<sup>2</sup> Only one of PSY 3713 or PSY 4653 may count toward the minor.

## Certificate in TESOL

The certificate in Teaching of English to Speakers of Other Languages (TESOL) is designed to provide students with the theoretical and practical knowledge needed to begin a career in English language teaching. The program requires 15 credit hours (5 courses) in linguistics and English language teaching methods that introduce students to basic methods of linguistic analysis and principles of communicative language teaching. Students who earn the certificate will be prepared to teach English as a foreign language in countries outside the United States and English as a second language in positions inside the United States that do not require a teacher's license. The TESOL certificate alone does not lead to a K-12 teaching license, which is required to teach in the public school system in the U.S., but it can be added as an ESL supplemental endorsement to an existing or in-progress teaching license.

The certificate program is open to undergraduate and graduate students in good standing who are currently enrolled at the university in any major. The graduate-level certificate program is also open to non-degree-seeking students who have completed a bachelor's degree in any major.

The program requires a minimum of 15 hours with a grade of C or better in each course. Graduate students are required to attain a minimum GPA of 3.0 for their coursework.

Students must take the following courses in theoretical background:

EN 4403/6403	Introduction to Linguistics	3
EN 4463/6463	Studies in Second Language Acquisition	3
EN 4443/6443	English Syntax	3
Students must take two of the following courses in pedagogy:		6
EN 4433/6433	Approaches to TESOL	
EN 4453/6453	Methods in TESOL	
EN 4493/6493	TESOL Practicum	
<b>Total Hours</b>		<b>15</b>

## Department of Geosciences

**Department Head: Dr. John Rodgers**

Office: 108 Hilbun

Academic Coordinator: Tina Davis (Starkville campus) and Yasma Jacobs (Distance Learning)

B.S. and M.S. degrees in Geoscience and a PhD in Earth and Atmospheric Sciences are offered with emphasis in sub-disciplines described below. Minors are offered at both B.S. and M.S. levels in Geoscience.

The Department of Geosciences strives for an integrated, interdisciplinary study of the whole Earth from the bachelor's through the Ph.D. levels. Course offerings are grouped into six areas of emphasis:

- Professional Geology - physical, biological, and chemical aspects of the Earth;
- Geography - distribution of physical features and human interaction with the Earth;
- Environmental Geoscience - conservation and management of Earth resources and remediation of natural and human hazards;
- Broadcast Meteorology/Climatology - radio/television weathercasting;
- Professional Meteorology/Climatology - atmospheric processes and climatic variability; and

- Geographic Information Systems - spatial analysis and topological relationships of geographic data.

Within the six areas of emphasis outlined above, a student may further focus interests in a variety of areas including: water resources, hydrogeology and environmental clean-up and monitoring, petroleum exploration and services, construction and urbanization involving geological applications, geophysics and geochemistry, sedimentary geology and paleontology, Quaternary geology and karst processes, Geographic Information Systems, human or physical geography, or analysis and prediction of weather and climate. A minimum of 40 credit hours in geoscience courses is required for the geoscience degree. A grade of C or higher is required on all departmental courses to satisfy graduation requirements. Students in the professional geology concentration are required to take the Association of State Board of Geologists Fundamentals of Geology (ASBOG-FG) exam.

A minor in geoscience consists of a minimum of 14 credit hours in courses numbered 2000 and above, in addition to the first year courses. The following are examples of variations within a geoscience minor. A minor with a Geology emphasis should include physical (GG 1113/GG 1111) and historical geology (GG 1123/GG 1121) plus 14 hours 2000 and above for a total of 22 hours; for an Environmental Geoscience emphasis, physical and historical geology with laboratory plus introduction to environmental geology (GG 3133) and other course work 2000 and above for a total of 22 hours; for emphasis in Geography, cultural geography (GR 2013), world geography (GR 1123) and other course work 2000 and above; and Broadcast Meteorology/climatology, physical geography (GR 1113/GR 1111) and either introduction to environmental geology (GG 3133) or conservation of natural resources (GR 3113) and other course work 2000 and above for a total of 21 hours. Minors in Geoscience are also available at the M.S. level.

Three educational enhancement awards and eight scholarships are available to students majoring in Geoscience, namely the F.F. Mellen, Forrest W. Pace, and Summer Geology Educational Enhancement awards, and the George W. Bishop, the Paul H. Dunn Memorial, the Ronald Greeley Memorial, the Gordon W. Gulmon, the Sistrunk Endowed, the Mark Worthey Endowed, the Alex Herbst Memorial, and the Dr. Charles Wax Endowed Scholarship. The three Educational Enhancement Awards provide financial assistance to those enrolled in field geology camp during the summer. The eight scholarships are awarded to students for academic excellence. All are restricted to students at junior or senior rank, with the exception of the Sistrunk Endowed, the Worthey Endowed, and the Greeley Memorial Scholarships. The Dr. Charles Wax Endowed Scholarship is only for graduate students.

The Department of Geosciences encourages involvement in Sigma Gamma Epsilon, a nationally recognized honorary Earth Science society and Gamma Theta Upsilon, international honor society in geography. Requirements for acceptance in Sigma Gamma Upsilon include a grade-point average of at least 3.00 in 12 or more hours of geoscience and a cumulative average of 2.67. Requirements for Gamma Theta Upsilon are a grade-point average of at least 3.3 overall as well as in at least 9 hours of "GR" courses.

The Department of Geosciences participates with the National Weather Association (NWA) and the American Meteorological Society (AMS) in training individuals for the respective "Weathercaster Seals of Approval". The Office of the State Climatologist and the MSU Climatology Laboratory are housed in the Department and are strongly involved in

programs for all students with interests in professional and broadcast meteorology and climatology.

## Distance Learning Programs

The Department of Geosciences offers four distance learning programs listed below that can lead to a degree in Geosciences. Each program utilizes recorded lectures and the Internet for course instruction.

**Broadcast and Operational Meteorology Program.** A three-year, 17 course, 53 credit hour program of study that can lead to a B.S. degree in Geosciences. Primarily for individuals in television weather.

**Applied Meteorology Program.** A two-year, 12 course 36 credit hour program of study that leads to a M.S. degree in Geosciences. Primarily for individuals with meteorological, environmental, or hazards-related careers.

**Environmental Geoscience Program.** A 30-credit hour, non-thesis program that leads to a M.S. degree in Geosciences. It is designed for students interested in graduate study of a broad cross-section of the geosciences and is offered both on-campus and through distance education.

## Geosciences Major

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

Foreign Language I		3
Foreign Language II		3

#### Humanities

Literature - A&S core		3
History - A&S core		3

#### Mathematics

Specified in each concentration area

#### Fine Arts

A&S core		3
(CO 1503 is required for Broadcast Meteorology concentration)		

#### Natural Sciences

Specified in each concentration area

#### Social Sciences

GR 1123	Introduction to World Geography	3
A&S Core <sup>1</sup>		3
(CO 1403 is required for Broadcast Meteorology concentration)		

#### Major Core

Introductory Course with lab		
GG 1113	Survey of Earth Sciences I	4
& GG 1111	and Earth Sciences I Laboratory	
or GR 1113	Physical Geography	
& GR 1111	and Physical Geography Laboratory	

#### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Choose one of the following concentrations:

#### Professional Geology Concentration (GEOL)

The Professional Geology concentration is designed to prepare students for entry-level employment in the environmental consulting industry; state and federal government agencies; as well as energy and extraction industries, such as oil, gas, and coal. The Professional Geology degree also prepares students for application to a graduate program.

#### Mathematics

MA 1713	Calculus I	3
MA 1723	Calculus II	3

#### Natural Sciences

CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II	1
PH 1113	General Physics I	3
PH 1123	General Physics II	3
PH 1133	General Physics III	3
or GG 4233	Applied Geophysics	
or GG 4633	Introduction to Geochemistry	

#### Concentration Requirements

GG 1121	Earth Sciences II Laboratory	1
GG 1123	Survey of Earth Sciences II	3
GG 3133	Introduction to Environmental Geology	3
GG 3613	Water Resources <sup>1</sup>	3
GG 4114	Mineralogy	4
GG 4124	Petrology	4
GG 4201	Practicum on Paleontology	1
GG 4304	Principles of Sedimentary Deposits I	4
GG 4333	Geowriting <sup>2</sup>	3
GG 4414	Structural Geology	4
GG 4443	Principles of Sedimentary Deposits II	3
GG 4503	Geomorphology	3
GR 4303	Principles of GIS	3
GR 4633	Statistical Climatology	3
or ST 2113	Introduction to Statistics	
or ST 3123	Introduction to Statistical Inference	
GG 4446	Summer Geology Field Camp <sup>3</sup>	6

Choose one of the following: 3

GG 4113	Micropaleontology	3
GG 4133	Principles of Paleocology	
GG 4203	Principles of Paleobiology	

Choose one of the following: 6

GG 1133	Planetary Geology	
GG 3603	Introduction to Oceanography	
GG 4523	Coastal Environments	
GR 1133	Weather and Climate	

Choose three additional courses from the following lists: 9

Environmental Professional Emphasis

GG 4153	Engineering Geology	
GG 4613	Physical Hydrogeology	
GG 4633	Introduction to Geochemistry	
<b>Petroleum Professional Emphasis</b>		
GG 4063	Earth and Atmospheric Energy Resources	
GG 4233	Applied Geophysics	
GG 4433	Subsurface Methods	
<b>Geospatial Professional Emphasis</b>		
GR 4313	Advanced GIS	
GR 4333	Remote Sensing of the Physical Environment	
GR 4343	Advanced Remote Sensing in Geosciences	
GR 4363	Geographic Information Systems Programming	
<b>Total Hours</b>		<b>120</b>

## Environmental Geoscience Concentration (ENGS)

The Environmental Geoscience concentration is designed to be a flexible degree that provides a broad cross-section of the geosciences with emphasis on environmental stewardship. The degree can be molded with the assistance of an academic adviser to suit individual goals of students that do not readily align with other geosciences curricula. The degree prepares students to work as a geoscientist or prepares students for graduate school in the geosciences or other related fields.

### Mathematics

MA 1323	Trigonometry	3
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### Natural Sciences

A&S core science with lab		6-8
A&S core science - lab not required		3

### Concentration Requirements

GG 3133	Introduction to Environmental Geology	3
or GR 3113	Conservation of Natural Resources	
GG 3603	Introduction to Oceanography	3
GG 3613	Water Resources	3
GG 4333	Geowriting <sup>2</sup>	3
GR 1133	Weather and Climate	3
GR 1131	Weather and Climate Laboratory	1
GR 4303	Principles of GIS	3
ST 2113	Introduction to Statistics	3
GG/GR 4000+ Electives		18
Choose one of the following:		3
GG 1133	Planetary Geology	
GG 3133	Introduction to Environmental Geology (if not taken as a concentration course)	
or GR 3113	Conservation of Natural Resources	
GG 4523	Coastal Environments	
GG 4543	Community Engagement in Environmental Geosciences	
GR 2313	Maps and Remote Sensing	
GR 3113	Conservation of Natural Resources	
GR 4113		
GR 4813	Natural Hazards and Processes	

General Electives - consult advisor	33-35
<b>Total Hours</b>	<b>124</b>

## Geography Concentration (GPHY)

This program prepares students to work in a variety of fields across the social and natural sciences. A geography degree can provide the multidisciplinary foundation necessary for careers in government, environmental management, education, planning, and development. People with geography degrees have found employment with: the US Census Bureau, National Parks Service, the National Forest Service, and other federal government agencies, non-profit organizations focusing on community and international development, the environmental assessment industry, the GIS/geospatial industry, environmental and historical interpretation, and urban and regional planning. Our students also receive a strong foundation for further graduate studies in geography and related disciplines.

### Mathematics

MA 1323	Trigonometry	3
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### Natural Sciences

A&S core science with lab		6-8
A&S core science - no lab required		3

### Concentration Requirements

GG 4333	Geowriting <sup>2</sup>	3
GR 1133	Weather and Climate	3
GR 1131	Weather and Climate Laboratory	1
GR 2013	Human Geography	3
GR 2313	Maps and Remote Sensing	3
GR 4203	Geography of North America	3
GR 4303	Principles of GIS	3
ST 2113	Introduction to Statistics	3
GG/GR 4000+ Electives		15
Choose four of the following:		12
GG 3133	Introduction to Environmental Geology	
GG 3603	Introduction to Oceanography	
GG 3613	Water Resources	
GG 4523	Coastal Environments	
GR 3113	Conservation of Natural Resources	
GR 4113		
GR 4813	Natural Hazards and Processes	
Choose four of the following:		12
GR 4123	Urban Geography	
GR 4213	Geography of Latin America	
GR 4223	Geography of Europe	
GR 4233	Geography of Asia	
GR 4243	Geography of Russia and the Former Soviet Republics	
GR 4253	Geography of Africa	
GR 4263	Geography of the South	
GR 4283	Geography of Islamic World	
General Electives - consult advisor		15-17
<b>Total Hours</b>		<b>124</b>

## Broadcast Meteorology Concentration (BMP)

This program focuses on preparing students for a career in radio/television weathercasting. The coursework does not meet the requirements for the American Meteorological Society's Certified Broadcast Meteorological Seal of Approval because it lacks some of the math and physics requirements. Individuals can, however, be qualified to earn the National Weather Association Seal of Approval after working in the industry for three years.

### Mathematics

MA 1713	Calculus I	3
MA 1723	Calculus II	3

### Natural Sciences

CH 1043	Survey of Chemistry I	3
PH 1113	General Physics I (w/ lab)	3
PH 1123	General Physics II (w/ lab)	3

### Concentration Requirements

GR 1133	Weather and Climate	3
GR 1131	Weather and Climate Laboratory	1
GR 3011	Weather Analysis	1
GR 4423	Weather Forecasting I	3
GR 4433	Weather Forecasting II	3
GR 4623	Physical Meteorology	3
GR 4633	Statistical Climatology	3
or ST 3123	Introduction to Statistical Inference	
GR 4643	Physical Meteorology and Climatology I	3
GR 4693	Physical Meteorology and Climatology II	3
GR 4733	Synoptic Meteorology	3
GR 4783	Satellite Meteorology	3
or GR 4883	Radar Meteorology	
GR 4823	Dynamic Meteorology I	3
GR 4963	Mesoscale Meteorology	3
GR 4502	Practicum in Broadcast Meteorology I	2
GR 4512	Practicum in Broadcast Meteorology II	2
GR 4522	Practicum in Broadcast Meteorology III	2
GR 4532	Practicum in Broadcast Meteorology IV	2
CO 2333	Television Production	3
CO 2413	Introduction to News Writing and Reporting	3
CO 3313	News Writing for the Electronic Media <sup>2</sup>	3
CO 3333	Advanced Television Production	3
Choose three of the following:		9
GG 3603	Introduction to Oceanography	
GG 3613	Water Resources	
GG 4523	Coastal Environments	
GR 3113	Conservation of Natural Resources	
GR 4203	Geography of North America	3
GR 4303	Principles of GIS	
GR 4553	Computer Methods in Meteorology	
GR 4563	Aviation Meteorology	
GR 4613	Applied Climatology	
GR 4783	Satellite Meteorology ((if not taken as a concentration course))	
or GR 4883	Radar Meteorology	

GR 4813	Natural Hazards and Processes	
GR 4933	Dynamic Meteorology II	
GR 4943	Tropical Meteorology	3
General Electives - consult advisor		11
<b>Total Hours</b>		<b>124</b>

## Professional Meteorology Concentration (PMET)

This program focuses on the study of atmospheric processes and climatic variability. Upon completion of the program (operational emphasis), students will have met the coursework requirements for the National Weather Service, the private meteorology sector, or continue their education in graduate school. Students choosing the program with the broadcast emphasis can also work for the National Weather Service and also earn the American Meteorological Society's Certified Broadcast Meteorologist Seal of Approval.

### Mathematics

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3253	Differential Equations I	3

### Natural Sciences

CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
PH 2213	Physics I	3
PH 2223	Physics II	3

### Concentration Requirements

GG 4333	Geowriting <sup>2, 4</sup>	3
or CO 3313	News Writing for the Electronic Media	
GR 1133	Weather and Climate	3
GR 1131	Weather and Climate Laboratory	1
GR 3011	Weather Analysis	1
GR 4423	Weather Forecasting I	3
GR 4433	Weather Forecasting II	3
GR 4633	Statistical Climatology	3
or ST 3123	Introduction to Statistical Inference	
GR 4643	Physical Meteorology and Climatology I	3
GR 4693	Physical Meteorology and Climatology II	3
GR 4733	Synoptic Meteorology	3
GR 4783	Satellite Meteorology	3
or GR 4883	Radar Meteorology	
GR 4823	Dynamic Meteorology I	3
GR 4933	Dynamic Meteorology II	3
GR 4963	Mesoscale Meteorology	3
Choose three of the following:		9
GG 3603	Introduction to Oceanography	
GG 3613	Water Resources	
GR 4363	Geographic Information Systems Programming <sup>2</sup>	
GG 4523	Coastal Environments	
GR 3113	Conservation of Natural Resources	
GR 4203	Geography of North America	



GR 4303	Principles of GIS	
GR 4553	Computer Methods in Meteorology	
GR 4563	Aviation Meteorology	
GR 4613	Applied Climatology	
GR 4813	Natural Hazards and Processes	
GR 4783	Satellite Meteorology (if not taken as a concentration course)	
or GR 4883	Radar Meteorology	
GR 4943	Tropical Meteorology	
Specified Electives - consult advisor		18
<b>Total Hours</b>		<b>124</b>

## Geographic Information Systems (GIS) Concentration

This program provides a fundamental background in the geospatial sciences, including geographic information systems, remote sensing, spatial analysis, database management, geospatial modeling, and spatial programming. The geospatial sciences are applicable to many different fields and will prepare students for careers in: government agencies, urban and regional planning, environmental management, intelligence, natural areas management, local government, transportation planning and many others. This program also prepares students for further graduate studies in geospatial disciplines.

### Mathematics

MA 1323	Trigonometry	3
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### Natural Sciences

A&S core science with lab		6-8
A&S core science - no lab required		3

### Concentration Requirements

GR 1133	Weather and Climate	3
GR 1131	Weather and Climate Laboratory	1
GR 2313	Maps and Remote Sensing	3
GR 3303	Survey of Geospatial Technologies	3
GR 3113	Conservation of Natural Resources	3
GR 4303	Principles of GIS	3
GR 4313	Advanced GIS	3
GR 4323	Cartographic Sciences	3
GR 4333	Remote Sensing of the Physical Environment	3
GR 4343	Advanced Remote Sensing in Geosciences	3
GR 4353	Geodatabase Design	3
GR 4363	Geographic Information Systems Programming	3
GR 4373		
GR 4411	Remote Sensing Seminar	1
GG 4333	Geowriting <sup>2</sup>	3
CSE 1284	Introduction to Computer Programming	4
ST 3123	Introduction to Statistical Inference	3
or GR 4633	Statistical Climatology	
Choose two of the following:		6
GG 3133	Introduction to Environmental Geology	
GG 3603	Introduction to Oceanography	
GG 3613	Water Resources <sup>1</sup>	

GG 4523	Coastal Environments	
GR 4813	Natural Hazards and Processes	
GG/GR 4000+ Electives		12
General Electives - consult advisor		10-12
<b>Total Hours</b>		<b>124</b>

## Broadcast & Operational Meteorology Concentration (Distance Learning only)

### Mathematics

A&S core		3
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### Natural Sciences

A&S core science with lab		6-8
A&S core science - no lab required		3

### Concentration Requirements

GR 1133	Weather and Climate	3
GR 1131	Weather and Climate Laboratory	1
GR 4443	Weather Prediction I	3
GR 4453	Weather Prediction II	3
GR 4473	Numerical Weather Prediction	3
GR 4613	Applied Climatology	3
GR 4623	Physical Meteorology	3
GR 4633	Statistical Climatology	3
GR 4643	Physical Meteorology and Climatology I	3
GR 4713	Synoptic Meteorology I	3
or GR 4733	Synoptic Meteorology	
GR 4753	Satellite and Radar Meteorology	3
GR 4813	Natural Hazards and Processes	3
GR 4913	Thermodynamic Meteorology	3
or GR 4823	Dynamic Meteorology I	
GR 4923	Severe Weather	3
or GR 4963	Mesoscale Meteorology	
GG 3603	Introduction to Oceanography	3
GG 3613	Water Resources	3
GG 4333	Geowriting <sup>2</sup>	3
or CO 3313	News Writing for the Electronic Media	
General Electives - consult advisor		27-29
<b>Total Hours</b>		<b>124</b>

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Social Science courses must cover two disciplines and come from A&S core.

<sup>2</sup> Satisfies Jr/Sr Writing requirement

<sup>3</sup> From an approved university. Consult advisor.

<sup>4</sup> CO 3313 must be taken for the Broadcast Meteorology concentration.

## Department of History

**Major Advisor: Dr. Matthew Lavine**

Office: 213 Allen Hall

Among the humanities disciplines, history is unique in the emphasis it places on interpreting human experience over place and time. Historians study the evolution of human beings and societies, emphasizing the

importance of people's choices, values, and actions. History provides indispensable background and the social and political context for other academic disciplines and branches of knowledge.

Specialization in history on the undergraduate level has direct professional application in the field of secondary education and provides excellent preparation for careers in law, the ministry, communication, journalism, government service, the military, and business. The department maintains a close working relationship with other departments on campus, making it possible for students who desire to do so to pursue double majors, joining history with geography, English, political science, business, computer science, or other fields.

To earn a Bachelor of Arts degree with a major in history, a student must pass a minimum of 39 semester hours in history with a 2.50 average in those courses. All undergraduates majoring in history must complete two of the following basic sequences: HI 1063/HI 1073; HI 1163/HI 1173; HI 1213/HI 1223; HI 1313/HI 1323; HI 1003/HI 1013. Along with these basic sequences, students are required to take a minimum of two upper division courses from Category I, two upper division courses from Category II, two upper division courses from Category III, plus two upper division courses from any Category.

For information on which courses fit into particular categories, please contact an advisor. During their junior or senior years, majors must enroll in and pass with a grade of "C" or better, a course in Historiography and Historical Method (HI 3903). Fifteen hours of the upper division work (3000 and 4000 level courses) must be taken at Mississippi State. For a minor in history, a student must take a minimum of 18 semester hours of history including one of the basic sequences listed above plus twelve additional credit hours in history courses numbered 3000 and above including at least one at the 4000 level. Students interested in a major or minor in history should consult the undergraduate coordinator.

The Department of History offers work leading to both the M.A. and Ph.D. degrees. The prerequisite for admission to a graduate program in history is a minimum of 18 hours of undergraduate history courses. Students desiring to pursue graduate studies should consult the Graduate Coordinator.

Mississippi State has a chapter of Phi Alpha Theta, the international history honorary society.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

Foreign Language I	3
Foreign Language II	3
Foreign Language III	3

### Humanities

Literature - A&S core	3
Philosophy - A&S core	3
Humanities Electives <sup>1</sup>	9
*History requirement satisfied within the major.	3

### Math

MA 1313	College Algebra	3
or MA 1103	College Algebra Linked Lab- Corequisite Model	
or MA 1213	Math in Your World	

Second math - A&S core 3

### Fine Arts

A&S core 3

### Natural Sciences

Physical Science w/Lab - A&S core 3-4

Life Science w/Lab - A&S core 3-4

Natural Science Elective - A&S core 3-4

### Social Sciences

A&S core 6

Social Sciences Electives <sup>2</sup> 12

### Major Core

HI 3903 Historiography and Historical Method 3

Must choose two of the following sequences: 12

#### U.S. History

HI 1063 Early U.S. History

HI 1073 Modern U.S. History

#### World History

HI 1163 World History Before 1500

HI 1173 World History Since 1500

#### Western World

HI 1213 Early Western World

HI 1223 Modern Western World

#### East Asian Civ

HI 1313 East Asian Civilizations to 1300

HI 1323 East Asian Civilizations since 1300

#### History of Science and Technology

HI 1003 History of Science in Six Ideas

HI 1013 History of Technology in Six Objects

### Category I History Upper Division Electives (two courses) 6

HI 3013 African American History to 1865

HI 3023 African American History since 1865

HI 3183 World Environmental History

HI 3363 History of U.S. Transportation

HI 3713 History of African American Women

HI 3813 Modern Latin America

HI 3853 The United States and Latin America

HI 3893 20th Century World History

HI 4000 Directed Individual Study in History

HI 4193 U.S. Environmental History

HI 4273 Women in American History

HI 4283 History of Southern Women

HI 4293 History of Gender and Science

HI 4333 Native American History to 1830

HI 4343 Immigration and Ethnicity in the United States

HI 4363 African American History and Culture

HI 4373 History of Modern Civil Rights Movement

HI 4383 Native American History Since 1830

HI 4403	The Ancient Near East	
HI 4453	Greek History	
HI 4463	Roman History	
HI 4553	Science and Technology to Newton	
HI 4583	China Since 1800	
HI 4593	Japan Since 1600	
HI 4653	History of Science and Technology	
HI 4783	African Civilization to 1880	
HI 4793	Modern Africa	
HI 4853	Modern Mexico	
HI 4903	The Far East	
HI 4983	African Americans and the Law	
HI 4990	Special Topics in History	
<b>Category II History Upper Division Electives (two courses)</b>		<b>6</b>
HI 3703	The Western Church: Beginning to Reformation	
HI 3743	History of England	3
HI 3763	Hitler and Nazi Germany	
HI 3773	History of the Holocaust	
HI 3783	Modern European Imperialism	
HI 4000	Directed Individual Study in History	
HI 4213	History of Grand Strategy & International Security	
HI 4223	Intelligence Gathering in the 20th Century	
HI 4413	Ancient Greece and Rome	
HI 4593	Japan Since 1600	
HI 4603	Medieval Civilization	
HI 4613	History of the Soviet Union	
HI 4643	Renaissance and Reformation	
HI 4673	Europe, 1789-1914	
HI 4683	Europe: The First World War to Hitler	
HI 4693	Europe: The Second World War to the Common Market	
HI 4713	Tudor and Stuart England	
HI 4723	History of Britain Since 1688	
HI 4743	War, Diplomacy, and Statecraft in Europe, 1648-1989	
HI 4753	History of Russia	
HI 4763	History of Modern Germany	
HI 4773	History of Modern France	
HI 4990	Special Topics in History	
<b>Category III History Upper Division Electives (two courses)</b>		<b>6</b>
HI 3133	History of U.S. Popular Culture	
HI 3333	Mississippi History	
HI 3343	Delta History Service and Experiential Spring Break	
HI 3363	History of U.S. Transportation	
HI 4000	Directed Individual Study in History	
HI 4103	Colonial America	
HI 4123	Jacksonian America 1825 to 1850	
HI 4133	Civil War and Reconstruction 1850 to 1877	
HI 4143	Revolutionary America	
HI 4153	U.S. History 1877 to 1917	

HI 4163	U.S. 1917 - 1945	
HI 4173	U.S. History since 1945	
HI 4183	U.S. Economic History	
HI 4203	Diplomatic History of the U.S.	
HI 4233	American Military History	
HI 4243	American Life and Thought	
HI 4253	History of Religion in America	
HI 4263	America's Vietnam War	
HI 4303	The Old South	
HI 4313	The New South	
HI 4323	The American West	
HI 4393	Rural America	
HI 4493	Terrorism in America	
HI 4883	U.S. History of Medicine	
HI 4990	Special Topics in History	

History Upper Division Electives (two courses) 6  
(any upper-level HI course except HI 3903)

#### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Jr/Sr Writing

Satisfied with HI 3903 in the major

#### General Electives

Consult advisor	13-16
<b>Total Hours</b>	<b>124</b>

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Humanities electives must be courses in A&S and must cover two disciplines. Six of the elective hours may be HI courses.

<sup>2</sup> Social Science electives must be courses in A&S. The total 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only on EC and on CO from A&S core list allowed.

## Department of Mathematics and Statistics

**Department Head: Mohsen Razzaghi**

**Associate Director: Mohammad Sepehrifar**

**Graduate Coordinator: Seongjai Kim**

**Undergraduate Coordinator: Matt McBride**

**Associate Undergraduate Coordinator for Advising: Robert Banik**  
Office: 410 Allen Hall

The Department of Mathematics and Statistics offers a Bachelor of Arts degree and a Bachelor of Science degree. Both degrees are 124 hours. The department also offers undergraduate minors in mathematics and statistics which are described below.

Candidates for the Bachelor of Arts degree are required to complete a minimum of 36 hours of mathematics. Candidates for the Bachelor of Science degree are required to take a minimum of 42 hours of mathematics. Required courses for each degree are listed below. Students must also satisfy the General Education requirements and

College Core requirements, including speech, computer literacy and writing requirements.

Mathematics courses below Calculus I (MA 1713), do not count toward a degree in mathematics. Entering freshmen who plan to major in mathematics but do not meet the prerequisites for MA 1713 are encouraged to take the necessary courses during the summer in order to avoid adding one or two semesters to their degree. Otherwise, students who wish to major in mathematics but who do not meet the prerequisites of MA 1713 should join the undeclared major until they are ready to take Calculus I. At that time, they will be assigned an advisor in the Department of Mathematics and Statistics.

For all degree programs, including minors, a student must have an overall C average and a C average in the math classes which count toward the degree. Moreover, students pursuing a B.A. or B.S. degree in mathematics must have at least a GPA of 2.5 in Calculus I-IV, Linear Algebra and Differential Equations (MA 1713, MA 1723, MA 2733, MA 2743, MA 3113 and MA 3253). Students who fail to meet this requirement must withdraw from the B.A. and B.S. degree programs in Mathematics, subject to appeal to the department's undergraduate coordinator.

Regarding graduate study, the Department of Mathematics and Statistics offers a Master of Science in Mathematics, Master of Science in Statistics, and a Doctor of Philosophy in Mathematical Sciences. Major areas of study for the Doctor of Philosophy in Mathematical Sciences include applied and computational mathematics, ordinary and partial differential equations, functional analysis and operator theory, graph theory, geometric combinatorics, topology and statistics. Please see the graduate coordinator for more details.

## B.A. in Mathematics

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

3 semesters - one Foreign Language - see advisor	9
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#### Humanities

Literature - see University/A&S Core	3
History - see University/A&S Core	3
Philosophy - see University/A&S Core	3
From at least 2 different areas of Humanities	9

#### Math

See Major Core	6
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#### Fine Arts

See A&S Requirements	3
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#### Natural Sciences

BIO 1134	Biology I	4
or BIO 1144	Biology II	

AND

CH 1213	Chemistry I	3
CH 1223	Chemistry II	3
CH 1211	Investigations in Chemistry I	1

OR

PH 2213	Physics I	
PH 2223	Physics II	

#### Social Sciences Electives

Courses must spread over at least 4 disciplines with a max of one Economics and a max of 2 in each remaining discipline; 6 hours need to be from A&S requirements. 18

#### Major Core

Students should check for prerequisites for all courses and consult their advisor.

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3053	Foundations of Mathematics	3
MA 3113	Introduction to Linear Algebra	3
MA 3163	Introduction to Modern Algebra	3
MA 3253	Differential Equations I	3
MA 4633	Advanced Calculus I	3
Math Elective - 3000+		3
Math Elective - 4000		3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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#### Writing Requirement

MA 4213	Senior Seminar in Mathematics	3
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#### Computer Literacy

CSE 1233	Computer Programming with C	3
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#### General Electives

Consult advisor	16-28
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<b>Total Hours</b>	<b>124</b>
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(31 hours must be 3000/4000 from A&S)

## B.S. in Mathematics

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

2 semesters - one Foreign Language - see advisor	6
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#### Humanities

Literature - see University/A&S Core	3
History - see University/A&S Core	3

#### Math

See Major Core	6
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#### Fine Arts

See A&S Requirements	3
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#### Natural Sciences

Choose one of three options:	15-18
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##### Option 1

PH 2213	Physics I	
PH 2223	Physics II	
PH 2233	Physics III	

CH 1213	Chemistry I	
CH 1223	Chemistry II	
CH 1211	Investigations in Chemistry I	
<b>Option 2</b>		
PH 2213	Physics I	
PH 2223	Physics II	
PH 2233	Physics III	
PLUS choose two of the following:		
BIO 1134	Biology I	
BIO 1144	Biology II	
BIO 3103	Genetics I	
<b>Option 3</b>		
BIO 1134	Biology I	
BIO 1144	Biology II	
BIO 3103	Genetics I	
CH 1213	Chemistry I	
CH 1223	Chemistry II	
CH 1211	Investigations in Chemistry I	
<b>Social Sciences</b>		
See A&S Requirements		6
<b>Major Core</b>		
Students should check for prerequisites for all courses and consult their advisor.		
MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3053	Foundations of Mathematics	3
MA 3113	Introduction to Linear Algebra	3
MA 3163	Introduction to Modern Algebra	3
MA 3253	Differential Equations I	3
MA 4313	Numerical Analysis I	3
MA 4633	Advanced Calculus I	3
MA 4643	Advanced Calculus II	3
Math Elective (3000+)		3
Math Elective (4000)		3
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
<b>Writing Requirement</b>		
MA 4213	Senior Seminar in Mathematics	3
<b>Computer Literacy</b>		
CSE 1233	Computer Programming with C	3
<b>General Electives</b>		
Consult advisor		30-40
<b>Total Hours</b>		<b>124</b>

(31 hours must be 3000/4000 from A&S)

## "4+1" Accelerated Program

Highly qualified students with a 3.00 GPA or higher on a 4.00 scale in all undergraduate work with a 3.25 GPA or higher on a 4.00 scale in math/stats courses and a minimum of 60 completed hours of undergraduate work may apply for the accelerated BS/MS degree in Mathematics or Statistics. In addition to the admission requirements for a Master's

Degree program, the applicant should submit three recommendation letters from our current Graduate faculty in the program. The Department will reimburse the application fees during the first semester of starting the program. For details and specifics, please contact the Associate Undergraduate Coordinator for Advising.

## Statistics (ST)

**Major Advisor: Associate Professor Mohammad Sepehrifar**

**Statistics Minor:** A minor in statistics consists of ST 3123 Introduction to Statistical Inference and an additional 15 hours of ST 4000+ coursework.

Courses in statistics are designed to satisfy two objectives. The first objective is to provide graduate training for those students wishing to pursue a career as professional statisticians. Both graduate and undergraduate courses are available for this purpose. The second is to provide minors for students from other disciplines.

Graduate study is offered in the Department of Mathematics and Statistics leading to the degree of Master of Science in Mathematics, Master of Science in Statistics, and a Doctor of Philosophy in Mathematical Sciences. Many applied statistics courses are offered which are suitable for a minor in statistics at the master's or doctoral level. Specific course requirements for the graduate minor in statistics may be obtained from the Graduate Coordinator of the Department of Mathematics and Statistics.

Admission to the master's program in statistics is open to graduates in all disciplines. The program of study is a blend of both statistical theory and statistical methods. In addition, there is ample flexibility in the non-thesis option to allow a graduate student with special interests in an area of statistical application to minor in that particular applied field. The department awards a limited number of teaching assistantships. For further details, consult the Graduate Coordinator of the Department of Mathematics and Statistics.

## Math Minor

A minor in mathematics consists of the following courses, all of which must be completed with a grade of C or higher:

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3113	Introduction to Linear Algebra	3
MA 3253	Differential Equations I	3

One additional math course at the 3000 level and one additional 4000-level math course

## Department of Philosophy and Religion

### Philosophy Major (PR)

**Departmental Office: 1020 George Hall**

<http://www.philosophyandreligion.msstate.edu>

**Major Advisor/Undergraduate Program Coordinator for Philosophy: Barton Moffatt**

Office: 2140 George Hall

**Major Advisor/Undergraduate Program Coordinator for Religion:  
Joseph Witt**

Office: 2180 George Hall

Philosophy is the study of the basic concepts—such as reality, truth, and goodness—which underlie the more specialized pursuits of science, art, education, religion, etc. Although students often study philosophy for its own sake, the general perspective it provides, and the critical thinking skills it develops, are of immense practical value in any profession.

The baccalaureate degree in philosophy is the accepted major for those planning to enter graduate school in philosophy. It is, however, an excellent pre-law and pre-seminary degree and, because of its general nature, philosophy is highly appropriate as a double major with any other concentrated field of study.

The standard program leading to the Bachelor of Arts degree in philosophy has a major requirement of 30 hours, including Introduction to Philosophy, Introduction to Logic, Introduction to Ethics, History of Western Philosophy parts I and II, and Seminar in Philosophy. The final 12 hours, including six that must be PHI courses, are to be selected in consultation with, and with approval by, the major advisor.

The department also offers a minor in philosophy, with the requirements being 15 hours of PHI courses.

Students considering either a major or minor in philosophy should meet with one of the department's advisors as early in their careers as possible.

**General Education and College Requirements****English Composition**

EN 1103	English Composition I	3
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

**Foreign Language**

3 semesters - one Foreign Language - see advisor	9
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**Humanities**

Literature - see University/A&S Core	3
History - see University/A&S Core	3
Philosophy Elective - see major	3
Humanities Elective - see major. Must be from 2 different areas-see A&S Core	9

**Math**

MA 1323	Trigonometry	3
or ST 2113	Introduction to Statistics	

**Fine Arts**

See University/A&S Requirements	3
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**Natural Sciences**

Physical Sciences w/lab (CH, GG, PH) <sup>1</sup>	3-4
Biological Sciences w/lab (BIO, EPP, PO) <sup>1</sup>	3-4
Natural Science Elective <sup>2</sup>	3-4

**Social Sciences <sup>3</sup>**

See A&S requirements	6
Social Sciences Electives	12

**Major Core**

PHI 1103	Introduction to Philosophy	3
PHI 1113	Introduction to Logic	3

PHI 1123	Introduction to Ethics	3
PHI 3023	History of Western Philosophy I	3
PHI 3033	History of Western Philosophy II	3
PHI Electives		12

**Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

**Writing Requirement**

PHI 3133	Seminar in Philosophy	3
or REL 3033	Theory and Method in the Study of Religion	

**Computer Literacy**

Choose one of the following:	3	
TECH 1273	Computer Applications	
BIS 1012	Introduction to Business Information Systems	
CSE 1233	Computer Programming with C	
CSE 1273	Computer Programming with Java	

**General Electives**

Consult advisor	25
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**Total Hours** 124

(31 hours must be 3000/4000 from A&amp;S)

<sup>1</sup> See University/A&S Core.<sup>2</sup> Consult advisor.<sup>3</sup> Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor.**Religion Concentration (REL)****Program Coordinator and Advisor: Joseph Witt**

Office: 2180 George Hall

Religion refers to the basic human impulse to seek coherence in life, and to experience a sacred reality that guides and orders human existence. As an academic discipline the study of religion involves consideration of those writings, customs, and rituals that have historically served to form and distinguish religious groups. It includes examination of primitive religions and sectarian developments as well as study of the major world religions of both the east and west.

The Department of Philosophy and Religion offers a concentration in religion leading to the Bachelor of Arts degree in philosophy. This degree is an accepted major for graduate school, or for a career in a professional ministry or teaching. The broad historical and cultural orientation of the philosophy degree with a religion concentration makes it an excellent preparation for any career. It is highly appropriate as a double major, or as a minor in association with another field of study.

The major with the concentration in religion has a requirement of 30 hours. Of these, nine hours are required in philosophy. The philosophy component may be satisfied by taking either a) Introduction to Philosophy, Introduction to Logic, and either the Seminar in Philosophy or Theory & Method in Religion, or b) History of Western Philosophy I and II, and the Seminar in Philosophy. The remaining 21 hours must include Introduction to Religion, World Religions I and II, six hours of REL courses, and six hours of REL or PHI courses which are to be selected in consultation with, approved by, the Religion advisor.

The Department also offers a minor in Religion, with the requirement being 15 hours of any REL courses.

## General Education and College Requirements

See Philosophy Requirements above

<b>Concentration Core</b>		
REL 1103	Introduction to Religion	3
REL 3213	World Religions I	3
REL 3223	World Religions II	3
Choose one of the following combinations:		6
PHI 1103 & PHI 1113	Introduction to Philosophy and Introduction to Logic	
PHI 3023 & PHI 3033	History of Western Philosophy I and History of Western Philosophy II	
<b>Electives</b>		
REL/PHI Electives		12
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
<b>Writing Requirement</b>		
PHI 3133 or REL 3033	Seminar in Philosophy Theory and Method in the Study of Religion	3
<b>Computer Literacy</b>		
Choose one of the following:		3
TECH 1273	Computer Applications	
BIS 1012	Introduction to Business Information Systems	
CSE 1233	Computer Programming with C	
CSE 1273	Computer Programming with Java	
<b>General Electives</b>		
Consult advisor		25
<b>Total Hours</b>		<b>124</b>

(31 hours must be 3000/4000 level from A&S)

## Department of Physics and Astronomy

**Major Advisors: Torsten Clay, Mark Novotny, and Jeffry Winger**  
Office: 125 Hilbun Hall

Physics plays a basic role in all science and engineering disciplines. Physics is concerned with the study of the structure of matter, the nature of radiation, and the interaction of radiation and matter. Among the major branches are optical, laser, atomic, nuclear, molecular particle, condensed matter, bio-, astro-, plasma and computational physics. The B.S. program in physics provides an excellent, broadly based course of study with electives that allow the student to pursue his/her special interests in other subjects. The B.S. degree provides the necessary training for either employment in industry or government, or continued study at the graduate level.

The department also has a Physics/Pre-Medical curriculum for those students who wish to compete for admission to medical and dental schools. An applied physics curriculum is available for those who wish to work in research and development or pursue graduate work in applied physics, engineering physics or some branch of engineering. In addition, the department offers the Master of Science in physics, a Ph.D. in

physics, and a Ph.D. in Engineering with a concentration in applied physics. Information may be obtained by writing the Department of Physics and Astronomy, P.O. Box 5167, Mississippi State, MS 39762. <http://physics.msstate.edu/>

A minor in physics requires 12 hours of physics at the 3000 level or above. These courses should be selected in consultation with a physics advisor.

The following is a recommended physics B.S. curriculum. Requirements for graduation are 124 hours with a GPA of at least 2.0. In addition, the student is required to maintain at least a C average in all physics courses.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3
	or EN 1173 Accelerated Composition II	

### Foreign Language

2 semesters - one Foreign Language - see advisor	6
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### Humanities

Literature - see University/A&S Core	3
History - see University/A&S Core	3

### Math

See Major Core

### Fine Arts

See A&S Requirements	3
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### Natural Sciences

See Major Core

### Social Sciences

See A&S requirements	6
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### Major Core

Some substitutions for required courses are possible for double majors. Student should check prerequisites for all courses. Consult advisor.

PH 1063	Descriptive Astronomy	3
PH 2213	Physics I	3
PH 2223	Physics II	3
PH 2233	Physics III	3
PH 3613	Modern Physics	3
PH 4113	Electronic Circuits for Scientists	3
PH 4143	Intermediate Laboratory	3
PH 4213	Intermediate Mechanics I	3
PH 4323	Electromagnetic Fields I	3
PH 4413	Thermal Physics	3
PH 4513	Intermediate Optics	3
PH 4152	Modern Physics Laboratory	2
PH 4713	Introduction to Quantum Mechanics	3

### Physics Electives

6 hours; 3 hours must be above 3000 and 3 hours must be from:	6	
PH 4223	Intermediate Mechanics II	
PH 4333	Electromagnetic Fields II	
PH 4723	Applications of Quantum Mechanics	

**Required Math and Science Courses**

CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I (Lab)	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II (Lab)	1
MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3113	Introduction to Linear Algebra	3
MA 3253	Differential Equations I	3
MA 3353	Differential Equations II	3

**Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
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**Writing Requirement**

GE 3513	Technical Writing	3
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**Computer Literacy**

Choose one of the following: 3

CSE 1233	Computer Programming with C (recommended)	
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CSE 1284	Introduction to Computer Programming	
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**Science and Math Electives**

Consult advisor		9
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**General Electives**

Consult advisor		6
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**Total Hours** 124

(31 hours must be 3000/4000 from A&S)

**Physics/Pre-Medical Curriculum**

For this curriculum the required courses for the physics major are reduced by 9 hours of physics (two physics electives and PH 4413) and 3 hours of math (MA 3353). The recommended use of these 12 hours and 15 elective hours follows (check with Pre-medical advisor):

CH 4513	Organic Chemistry I	3
CH 4511	Organic Chemistry Laboratory I	1
CH 4523	Organic Chemistry II	3
CH 4521	Organic Chemistry Laboratory II	1
BCH 4013	Principles of Biochemistry	3
BIO 1134	Biology I	4
BIO 1144	Biology II	4
Choose two of the following:		8
BIO 3304	General Microbiology	
BIO 3504	Comparative Anatomy	
BIO 4504	Comparative Vertebrate Embryology	
BIO 4514	Animal Physiology	

**Total Hours** 27

**Applied Physics Curriculum**

For this curriculum the required physics courses for the physics major are reduced by 6 hours of physics electives. The recommended use of these 6 hours and 15 elective hours follows:

PH 4333	Electromagnetic Fields II	3
or ECE 3323	Electromagnetics II	
Technical electives; consult advisor		18

**Department of Political Science and Public Administration**

**Undergraduate Coordinator: Dr. Leslie Baker**

Office: 113 Bowen Hall

The Department of Political Science and Public Administration offers a Bachelor of Arts degree (B.A.) for individuals who have an interest in politics and who seek careers in the law, in federal, state, or local government (either administrative or elective), in the diplomatic service, with international organizations, in the business world, or in teaching. The Department also offers a Master of Arts degree in Political Science (M.A.), a Network of Schools of Public Policy, Affairs, and Administration Accredited graduate professional degree in Public Administration (M.P.P.A.) and a Ph.D. in Public Policy and Administration which prepare students for careers in the public service. Interested students should consult the undergraduate or graduate coordinator.

Students pursuing the B.A. degree in Political Science are required to complete PS 1113 and choose three of the following: PS 1313, PS 1513, PS 2403, PS 2703, or PS 2713. Students must also complete PS 4464 in their junior or senior year.

They must also complete a minimum of seven upper-division elective courses in Political Science (totaling at least 21 credits); of these seven courses, at least one must be completed in each of three of the four subfields of the discipline as displayed in the "Part III: Description of Courses" portion of this Bulletin (American Politics, International Politics, Political Theory, and Comparative Politics).

Political Science majors who wish to teach social studies in Mississippi may become certified by combining the Political Science major with appropriate courses in the College of Education; in Mississippi, it is not necessary to major in secondary education in order to become certified to teach. At the same time, majors in secondary education who plan to become social science teachers should consider a second major, or a minor in Political Science.

Students not majoring in Political Science may wish to select a minor. A minor consists of a minimum of 18 hours of course work in Political science at least nine of which must be at the 3000 level or above. Interested nonmajors should speak with the undergraduate coordinator to formulate a suitable program of study.

The John C. Stennis Scholarship in Political Science is awarded each spring to at least two graduating high school seniors and/or community-college graduates who are Mississippi residents, and who plan to major in Political Science at Mississippi State University. These scholarships carry a stipend of \$2,000 per year for four years or until graduation, whichever comes sooner.<sup>1</sup> The Stennis Scholarships are awarded to academically outstanding students who demonstrate the desire and potential to become actively involved as leaders in the political and governmental affairs of the community, state, or nation. For further information, consult the Head of the Department of Political Science and Public Administration, P.O. Box PC, Mississippi State, MS 39762 or telephone (662) 325-2711.



The Morris W. H. "Bill" Collins Scholarship may be awarded to one African American political science major who is a resident of Mississippi, who has earned 15 credits in Political Science at Mississippi State University, and who demonstrates potential for making contributions in some area of public service. This scholarship carries a stipend of \$1,500 per year for two years or until graduation, whichever comes first. For further information, consult the Head of the Department of Political Science, P.O. Box PC, Mississippi State, MS 39762 or telephone (662) 325-2711.

The Haley Barbour Scholarship is awarded each spring to one Political Science major, with two years of college remaining, who evidences a determination to become involved in the political life of the nation. The Barbour Scholarship carries a stipend of \$1,500 per year for a maximum of two years, typically the recipient's junior and senior years. For further information, consult the Head of the Department of Political Science and Public Administration, P.O. Box PC, Mississippi State, MS 39762 or telephone (662) 325-2711.

The Tip Allen Scholarships are awarded to Political Science majors who are participating in a public service internship in the summer, who have earned at least 12 credits in Political Science at MSU, and who demonstrate potential for making contributions in some area of public service.

The Dr. Marty Wiseman Scholarship is awarded to a Political Science major who has demonstrated achievement and a commitment to public service.

The Dr. Charles E. Menifield Public Service and Leadership Annual Scholarship is awarded to an African American Political Science major who has demonstrated leadership potential and a commitment to public service.

The following is a typical course of study for Political Science majors, but students should consult with their advisor in order to develop a program which is best for them. For more information contact: Dr. Brian Shoup at bds223@msstate.edu.

<sup>1</sup> Transfer students receive the stipend for two years or until graduation, which ever comes sooner.

## Minor in Pre-Law

Whit Waide, Advisor  
199 Bowen Hall  
wwaide@pspa.msstate.edu

The interdisciplinary minor in Pre-Law consists of 19 credit hours offered through several departments and programs throughout the university. The minor will consist of a two-semester prerequisite class called "Introduction to Law I and II" (PS 1182/1192), as well as the requirement that a student take PHI 1113 Introduction to Logic, and a Constitutional Law class (PS 3063, 3073, or AAS 3043/PS 3043) or Principles of Legal Writing (EN 4223). At least 9 of the 19 hours must be at the 3000 or 4000 level.

The Pre-Law minor is designed to be a curriculum that is consistent with the best practice in preparing undergraduates for the study of law. It has an interdisciplinary focus, creates a practicum like common experience, and focuses on analytic skill development. It will assist students in determining whether they desire to attend law school and will provide

exposure to what they will encounter should they decide to attend law school.

## Accelerated MPPA Program

Leslie Baker  
113 Bowen Hall  
ljb223@msstate.edu

Students with at least a 3.5 GPA can opt to apply for the Accelerated MPPA program in their senior year. This program allows students to take up to nine (9) credit hours of approved classes for both undergraduate AND graduate credit that can be applied towards their MPPA degree. In essence, students graduate with both a BA and a MPPA degree. Students apply for the graduate program in their senior year and take three approved cross-listed courses in their last semester that contribute to the program.

### Core Courses (27 Hours)

PPA 8103 Seminar in Public Administration  
PPA 8703 Government Organization and Administrative Theory  
PPA 8713 Public Personnel Management  
PPA 8723 Public Budgeting and Financial Management  
PPA 8733 Public Program Evaluation  
PPA 8743 Administrative Law  
PPA 8803 Research Methods for Public Affairs  
PPA 8903 Public Policy  
PPA 8983 Integrative Capstone

### Electives (12 Hours)

Each student must complete a 12-hour elective concentration to augment knowledge, skills, and abilities acquired in required courses. These courses are tailored to the student's career objective.

### Internship (3 Hours)

Each student completes an internship in a public or nonprofit agency. The internship is waived for students possessing at least one year of relevant work experience.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3
	or EN 1173 Accelerated Composition II	

### Foreign Language

3 semesters - one Foreign Language - see advisor 9

### Humanities

Literature - see General Education courses	3
History - see General Education courses	3
Philosophy Elective - Consult advisor	3
Humanities Electives - Must be from 2 different areas - see A&S	9
Core	

### Mathematics

above college algebra 3

### Fine Arts

See A&S Core List 3

**Natural Sciences**

Physical Sciences w/lab (CH, GG, PH) <sup>1</sup>	3-4
Biological Sciences w/lab (BIO, EPP, PO) <sup>1</sup>	3-4
Natural Science Elective <sup>2</sup>	3-4

**Social Sciences** <sup>3</sup>

See General Education courses	6
Social Sciences Electives	12

**Major Core**

PS 1113	American Government <sup>4</sup>	3
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**Introductory PS Courses**

Choose three of the following (one counts as a Social Science req):

PS 1313	Introduction to International Relations	
PS 1513	Comparative Government	
PS 2403	Introduction to Political Theory	
PS 2703	Introduction to Public Policy	
PS 2713	Introduction to Engineering and Public Policy	

**PS Upper Division Electives**

See advisors for selection <sup>5</sup> 21

**Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

**Writing Requirement**

PS 4464	Political Analysis	4
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**Computer Literacy**

PS 4464	Political Analysis	4
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**General Electives**

General Electives	18
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**Total Hours** 121

(31 hours must be A&S upper division)

<sup>1</sup> See General Education courses.

<sup>2</sup> Consult advisor.

<sup>3</sup> Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics - EC 1033 or EC 2113, can be chosen. See advisor.

<sup>4</sup> Also counts as Social Science Requirement.

<sup>5</sup> Must have at least one course from 3 of 4 areas as listed under the Political Science and Public Administration Department in the bulletin's Description of Courses: American Politics, International Politics, Political Theory, Comparative Politics. Only one directed individual study course and only one honors thesis course may be included.

**Minor in Pre-Law**

PHI 1113	Introduction to Logic	3
PS 1182	Introduction to Law I	2
PS 1192	Introduction to Law II	2
Choose one of the following:		3
AAS /PS 3043	Modern Civil Rights Law	
PS 3063	Constitutional Powers	
PS 3073	Civil Liberties	
EN 4223	Principles of Legal Writing	

**Elective Courses** <sup>1</sup>

9

African American Studies	
AAS 3043	Modern Civil Rights Law
AAS 4983	African Americans and the Law
Agricultural Economics	
AEC 4413	Public Problems of Agriculture
Anthropology	
AN 4633	Language and Society
Business	
BL 2413	The Legal Environment of Business
BL 3223	The Law of Commercial Transactions
BL 3233	Business Law for Resorts
BL 4263	Environmental Law
BL 4273	International Business Law
BL 4333	Real Estate Law
Communication	
CO 4243	Rhetorical Theory
CO 4253	Elements of Persuasion
CO 4313	Mass Media Law
Criminology	
CRM 3343	Gender, Crime, and Justice
CRM 3353	Race, Crime and Justice
CRM 4243	Drugs, Crime and Control
CRM 4253	White Collar and Computer Crime
CRM 4323	Victimology
CRM 4513	Correctional Systems
Economics	
EC 4043	Survey of Economics
EC 4223	Labor Law and Employment Policy
English	
EN 2243	American Literature Before 1865
EN 2253	American Literature After 1865
EN 2273	World Literature Before 1600
EN 2283	World Literature After 1600
EN 4223	Principles of Legal Writing
Foreign Languages	
FLL 1113	Latin I
FLL 1123	Latin II
FLL 2133	Latin III
FLL 2143	Latin IV
Food Science, Nutrition, & Health Promotion	
FNH 4333	Food Law
Forestry	
FO 4353	Natural Resource Law
Health Care Administration	
HCA 3813	Introduction to Healthcare Law and Regulation
History	
HI 3903	Historiography and Historical Method
Insurance	
INS 3103	Principles of Insurance
Philosophy	

PHI 1103	Introduction to Philosophy
PHI 1123	Introduction to Ethics
PHI 3113	Philosophy of Law
Political Science	
PS 2403	Introduction to Political Theory
PS 3063	Constitutional Powers
PS 3073	Civil Liberties
PS 3183	Law and Politics
PS 4113	State Government
PS 4173	Legislative Process
PS 4183	Judicial Process
PS 4193	Mississippi Judicial System
PS 4263	Mississippi Government and Politics
PS 4313	Principles of International Law
Psychology	
PSY 4353	Psychology and the Law
Religion	
REL 1213	Introduction to the Old Testament
Sociology	
SO 3343	Gender, Crime, and Justice
SO 3353	Race, Crime, & Justice
SO 4243	Drugs, Crime and Control
SO 4253	White Collar and Computer Crime
SO 4523	Law and Society
SO 4633	Language and Society
Sports Administration	
SS 3203	Sport Law

<sup>1</sup> Must be from at least two different disciplines

## Department of Psychology

**Undergraduate Coordinator: Dr. Danielle Nadorff**

Office: 214 Magruder

Mississippi State University offers majors leading to the B.S., the M.S., and Ph.D. degrees. Undergraduate students wishing to major in psychology must have a minimum 2.0 GPA on all college work attempted prior to entering the major. Transfer students also must have a minimum 2.0 GPA to be admitted to the psychology major. **Students must earn a grade of C or higher in all PSY courses applied toward the psychology major requirements.**

The Bachelor of Science degree program in psychology is designed to provide training either for immediate employment or for advanced training in psychology or related fields. Many careers in psychology require advanced study beyond the bachelor's degree, but there are also career opportunities at the bachelor's level.

A bachelor's degree in psychology prepares graduates to pursue:

- master's or doctoral study in psychology, such as clinical or counseling psychology, cognitive psychology, social psychology, developmental psychology, experimental psychology, forensic psychology, etc.
- graduate school in related areas such as guidance, clinical mental health counseling, school counseling, educational psychology,

rehabilitation, social work, criminology, law school, management, marketing, etc.

- admission to medical, nursing, or physical therapy school with a psychology major and all necessary science courses.
- immediate employment in private business, community mental health, or government (e.g., case management, social work, personnel work, quality control jobs, management training, marketing research, sales, etc.).

## B.S. in Psychology

The Bachelor of Science degree program in psychology provides students broad training in psychology while still ensuring adequate exposure to the humanities and social sciences. Foreign language proficiency at the second-semester level is required.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I <sup>1</sup>	3
EN 1113	English Composition II <sup>1</sup>	3
	or EN 1173 Accelerated Composition II	

### Foreign Language

2 semesters: one Foreign Language - see advisor	6
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### Humanities

Literature - see General Education courses	3
History - see General Education courses	3

### Mathematics

Advanced Math course	3
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### Fine Arts

See A&S Core List	3
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### Natural Sciences

Physical Sciences w/lab (CH, GG, PH) <sup>2</sup>	3-4
Biological Sciences w/lab (BIO, EPP, PO) <sup>2</sup>	3-4

<b>Natural Science Elective</b> <sup>3</sup>	<b>3-4</b>
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### Social Sciences Electives <sup>4</sup>

PSY 1013	General Psychology	3
Behavioral/Social Science (See Gen. Ed./A&S Core)		3

### Major Core

PSY 1021	Careers in Psychology (typically offered only in Spring)	1
PSY 3104	Introductory Psychological Statistics	4
PSY 3213	Psychology of Abnormal Behavior	3
PSY 3314	Experimental Psychology	4
PSY 3343	Psychology of Learning	3
PSY 3623	Social Psychology	3
PSY 3713	Cognitive Psychology	3
PSY 3803	Introduction to Developmental Psychology	3
PSY 4403	Biological Psychology	3
PSY Upper Division Electives <sup>5</sup>		18

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Writing Requirement

Satisfied by successful completion of PSY 3314

### Computer Literacy

Satisfied by successful completion of PSY 3314	
<b>General Electives</b>	
General Electives - enough to equal 124 total hours <sup>6</sup>	32-34
<b>Total Hours</b>	<b>121</b>
(31 hours must be A&S 3000/4000 work)	

- <sup>1</sup> Or equivalent
- <sup>2</sup> See General Education courses.
- <sup>3</sup> Consult advisor.
- <sup>4</sup> Must be from 2 different areas.
- <sup>5</sup> Psychology majors must take 18 additional 3000/4000 level Psychology credits (typically 6 courses) from among the courses offered by the department. Six of these credits may be from Directed Individual Study (PSY 4000) courses.
- <sup>6</sup> Consult advisor. No more than 2 one-credit PE courses may be counted toward graduation.

For a Psychology concentration in the B.S.I.S program of study, at least half of the classes (six hours for the 12-hour concentration or nine hours for the 18-hour concentration) must come from the list of core PSY courses while the remainder may come from the list of PSY electives. All of these must be upper-division courses. Students should see the undergraduate coordinator in the Psychology Department to plan a concentration that will complement their career interests.

### Minor in Psychology

For the 18-hour minor in Psychology, at least nine hours must come from the list of core PSY courses, while the remainder may come from the list of PSY electives. All minor courses must be upper-division. See <http://psychology.msstate.edu/undergraduate> (<http://psychology.msstate.edu/undergraduate/>) for detailed minor requirements. Students should consult a PSY major advisor to plan a minor program that will complement their major studies and career interests.

### Minor in Cognitive Science

A minor in Cognitive Science is designed for students who wish to pursue an interdisciplinary study of mind and thought. Students completing the program will have a broad understanding of the field of cognitive science and will have demonstrated an approach that highlights the interdisciplinary nature of Cognitive Science. The candidate must complete 18 hours of coursework from the approved list. All students will be required to pass PSY 4713/CSE 4633, PSY 3713, and a computer programming course (CSE 1233, CSE 1273, CSE 1284, or CSE 1384). In addition, all students must pass 9 hours of approved electives from two (2) departments from the following list:

- PSY 4423 Sensation and Perception
- PSY 4713 Language and Thought
- PSY 4733 Memory
- PSY 4743 Psychology of Human-Computer Interaction
- PSY 4753 Applied Cognitive Psychology/IE 4123 Psychology of Human-Computer Interaction
- PHI 4143 Philosophy of Science
- EN 4403 Introduction to Linguistics/AN 4403 Introduction to Linguistics
- EN 4443 English Syntax
- EN 4463 Studies in Second Language Acquisition
- EN 4633 Language and Society/SO 4633 Language and Society/AN 4633 Language and Society
- BIO 4133 Human Genetics
- CSE 3813 Introduction to Formal Languages and Automata

- CSE 4633 Artificial Intelligence
- CSE 4663 Human-Computer Interaction
- CSE 4833 Introduction to Analysis of Algorithms
- IE 4113 Human Factors Engineering

## Department of Sociology

### Social Work (SW)

**Program Director: Kenya M. Cistrunk**  
**Major Advisor: Mary Ann Dean**  
 Office: 298 Bowen Hall

The Social Work Program at Mississippi State University is accredited by the Council on Social Work Education. Social work is a challenging and rewarding profession with the primary goal of enhancing individual functioning and promoting human rights and social and economic justice. The Bachelor of Social Work graduate is prepared to pursue graduate social work education or to work as a generalist social work practitioner in a variety of practice settings. These include, but are not limited to the following: child welfare service agencies, family services, medical hospitals, mental health clinics, public health clinics, home health agencies, nursing homes, industries, juvenile and family court, shelters for battered women and children, neighborhood and community services.

The Social Work curriculum is grounded in a liberal arts perspective. This liberal arts perspective enhances the person-in-environment focus of generalist social work practice. A student may declare social work as a major at any time in his or her academic career. There is a formal admission process into the program. Some upper division courses are restricted to students who have been admitted to the program. To be eligible for admission to the social work program students must:

- a. Have a cumulative GPA of 2.0 with a 2.5 GPA for all social work courses;
- b. Complete two of the following social work courses with a minimum grade of "C": SW 2303 Social Welfare Policy I, SW 3003 Social Work with At-Risk Populations, and SW 3013 Human Behavior in the Social Environment I;
- c. Complete SW 2313 Intro to Social Work (including 30 hrs of service learning experience) with a minimum grade of "B";
- d. Complete an "Application for Admission" including three references on the designated program form;
- e. Participate in a personal interview with Social Work Admissions Committee.

The following liberal arts courses must be completed prior to petition for admission to the major:

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	
MA 1313	College Algebra	3
BIO 1004	Anatomy and Physiology	4
PS 1113	American Government	3
PSY 1013	General Psychology	3
SO 1003	Introduction to Sociology	3
EC 2113	Principles of Macroeconomics	3

Before enrolling in any social work classes, it is the responsibility of the student to consult with their social work advisor regarding any prerequisites for social work classes.

The criteria for remaining in the program include:

- a. Maintain an overall GPA of 2.0, with a 2.5 GPA for all social work courses.
- b. Must earn a minimum of a "C" in each social work course.
- c. Continue to demonstrate an aptitude for a social work career.
- d. Adhere to all academic expectations of the university and the social work program.
- e. Adhere to the National Association of Social Workers Code of Ethics.

## Sociology (SO)

**Undergraduate Advisor: Mary Ann Dean**

**Graduate Coordinator: Rachel Allison**

Office: 207 Bowen Hall

The following degree programs are offered: Bachelor of Arts, Master of Science, and Doctor of Philosophy.

Sociology is the scientific study of social life. With an interest in understanding human behavior, sociologists study such phenomena as deviant behavior, social organization, stratification, population, community, social institutions, race and ethnic relations, social problems, theory and methods of research.

Sociology majors are well prepared to enter many rewarding positions in the work force right out of college or further graduate training in law, business, community planning, architecture, medicine, politics or academics. Opportunities for employment include, but are not restricted to entry-level positions in administration, advertising, banking, counseling (family planning, career, substance abuse, etc.), health services, journalism, group and recreation work, marketing and market research, sales, non-profit organizations, teaching, criminal justice, social services and social research. In addition, sociology provides training that other liberal arts majors do not, such as the core elements of human interaction and relationships, and basic training for research analyst positions (in statistics and research methods, which include computer applications, for example).

Students are eligible for membership in the Mississippi Alpha chapter of Alpha Kappa Delta, the International Sociology Honor Society. To be considered for membership, a student must be an officially declared sociology major or demonstrate a serious interest in sociology, must be at least a junior, have at least a 3.00 overall GPA, and must have maintained a 3.00 GPA in sociology courses.

To earn a Bachelor of Arts degree with a major in sociology, a student is required to take 36 hours of sociology.

All new freshmen desiring to major in Sociology will be admitted into the Sociology major in the College of Arts and Sciences at Mississippi State University. For all other students wishing to major in Sociology, to be eligible for admission to the Sociology program, students must have a cumulative GPA of 2.0 or above on all college work attempted prior to entering the major. The criteria for remaining in the program include:

- a. Students must earn a minimum of a "C" in all Sociology courses. Students earning a grade lower than C in a Sociology course must retake that course.

- b. Students must maintain an overall GPA of 2.0 or above. Students who fall below the overall GPA of 2.0 must bring it up to 2.0 the next semester or drop the Sociology major.

### Sociology Major Course Requirements

The sociology major consists of a sequence of four levels of courses ranging from introductory to the more advanced and capstone courses. Students are expected to complete courses in the lower levels before taking courses in the more advanced levels. For example, students should complete Level 1 courses before completing Level II courses, etc. The lower level courses are prerequisites for the advanced level courses.

Required courses include: SO 1003 Introduction to Sociology, SO 2203 Introduction to Race and Ethnicity, SO 3103 Social Theory I, SO 3213 Introduction to Social Research, and SO 4804 Social Research Practice.

Students are also required to take one of the following courses: SO 3003 Social Inequality, SO 3013 Society and the Individual, or SO 3053 Organizations in Modern Society.

Finally, students must select any seven additional sociology courses, including any of those not listed above. A minimum of six of these courses must be 3000 or 4000 level.

## Criminology (CRM)

**Major Advisor: Mary Ann Dean**

Office: 207 Bowen Hall

The following degree program is offered: Bachelor of Arts.

Criminology, as a field, explores the nature and causes of crime. Criminology also examines the impact crime has on society and how society responds to the social problem of crime. The Bachelor's degree in Criminology will emphasize the study of types, patterns and trends in criminal behavior; the social etiology of crime; and the social response to crime and its effect on society. The program will also train students to analyze crime data, test explanations of crime and victimization, and critically evaluate crime theory and policy.

The Criminology program is appropriate for students wishing to pursue career paths in all justice related fields including: law enforcement; probation and parole; community based prevention and control programs; court based programs; and corrections. Because our program provides for a broad knowledge of the nature and trends of crime and an understanding of crime control policy along with methodological and critical thinking skills, our students will be prepared to assume positions of leadership across a range of career paths in crime and justice related professions, as well as be prepared for post-graduate studies in Sociology, Criminology, and Law and Legal Studies.

All new freshmen desiring to major in Criminology will be admitted into the Criminology major in the College of Arts and Sciences at Mississippi State University. All other students wishing to major in Criminology must have a cumulative GPA of 2.0 or above on all college work attempted prior to entering the major. The criteria for remaining in the program include:

- a. Students must earn a minimum of a "C" in all Criminology and Sociology courses. Students earning a grade lower than C in a Criminology or Sociology course must retake that course.

- b. Students must maintain an overall GPA of 2.0 or above. Students who fall below the overall GPA of 2.0 must bring it up to 2.0 the next semester or drop the Criminology major.

### Criminology Major Requirements

The BA in Criminology is a 36 credit hour major and is housed in the Sociology Department. All students will complete 18 hours in required course work: CRM 1003 Crime and Justice in America, CRM 2003 Crime, Justice, and Inequality, CRM 3603 Criminological Theory, SO 3213 Introduction to Social Research, SO 4804 Social Research Practice, and CRM 4803 Senior Seminar in Criminology. Students will also be required to take a minimum of three hours in each of three sub-areas of the program and nine hours of 3000- or 4000- level criminology electives. The sub-areas are: Criminal Behavior and Motivation, Social Dimensions of Crime, and Crime Control Policy and Practice.

Senior Internships will be available at various crime and justice related agencies. To qualify for an internship a student must have completed 24 hours of coursework within the criminology major and have earned a minimum of a 2.5 GPA in said coursework. Students will meet with the Criminology Program Coordinator to discuss the selection of an appropriate internship site. Students will be expected to have a minimum of 150 contact hours with the sponsoring internship agency, as well as meet specific course assignments. The internship is elective. Students will register for CRM 3033 Criminology Internship.

A senior thesis option is available for students who have completed a minimum of 24 hours of coursework within criminology and have at least a 3.0 GPA in said coursework. Students who qualify and have an interest in the senior thesis option will work individually with a faculty member to produce a research paper on an approved topic in criminology. The thesis option is elective and designed for students wishing to pursue graduate school in criminology or a related field. Students will register for CRM 4000 Directed Individual Study in Criminology: Senior Thesis as a six credit hour course.

### Applied Sociology (online degree)

The following degree program is offered: Bachelor of Science

Applied Sociology majors are well prepared to enter many rewarding positions in the workforce right out of college or further graduate training in law, business, community planning, architecture, medicine, politics, or academics. Opportunities for employment include, but are not restricted to entry-level positions in administration, advertising, banking, counseling (family planning, career, substance abuse, etc.), health services, journalism, group and recreation work, marketing and market research, sales, non-profit organizations, teaching, criminal justice, social services, and social research. In addition, applied sociology provides training that other liberal arts majors do not, such as the core elements of research methods and the training for research analyst positions in real-world settings.

All new freshmen desiring to major in Applied Sociology will be admitted into the Applied Sociology major in the College of Arts and Sciences at Mississippi State University. For all other students wishing to major in Applied Sociology, to be eligible for admission to the Applied Sociology program, students must have a cumulative GPA of 2.0 or above on all college work attempted prior to entering the major. The criteria for remaining in the program include:

- a. Students must earn a minimum of a "C" in all Applied Sociology courses. Students earn a grade lower than C in an Applied Sociology course must retake that course.
- b. Students must maintain an overall GPA of 2.0 or above. Students who fall below the overall GPA of 2.0 must bring it up to 2.0 the next semester or drop the Applied Sociology major.

## Social Work

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

Foreign Language I	3
Foreign Language II	3

#### Humanities

Literature - A&S core	3	
History - A&S core	3	
PHI 1103	Introduction to Philosophy	3
or PHI 1113	Introduction to Logic	
or PHI 1123	Introduction to Ethics	
Literature Elective	3	
History Elective	3	
Humanities Elective <sup>1</sup>	3	

#### Mathematics

ST /MA 2113	Introduction to Statistics	3
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(Students who do not meet the ACT prerequisite for MA 2113/ST 2113 will first need to successfully complete MA 1103, MA 1313, or MA 1213. The course chosen to meet the prerequisite for MA 2113/ST 2113 will count toward free elective hours.)

#### Fine Arts

A&S core	3
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#### Natural Sciences

BIO 1004	Anatomy and Physiology	4
Physical Sciences w/lab - A&S core	3-4	
Natural Science Elective - A&S core	3-4	

#### Social Sciences

SO 1003	Introduction to Sociology	3
PS 1113	American Government	3
SW 3003	Social Work with At-Risk Populations	3
PSY 1013	General Psychology	3
EC 2113	Principles of Macroeconomics	3
AN 1103	Introduction to Anthropology	3
or AN 1143	Introduction to Cultural Anthropology	

#### Major Core

(See advisor for course sequencing!)

SW 2303	Social Welfare Policy I	3
SW 2313	Introduction to Social Work/Social Welfare	3
SW 2323	Social Welfare Policy II <sup>2</sup>	3

SW 3013	Human Behavior and the Social Environment I	3
SW 3023	Human Behavior and the social Environment II <sup>2</sup>	3
SW 4613	Child Welfare Services	3
SW 3213	Research Methods in Social Work <sup>2</sup>	3
Choose one of the following:		3
SW 3033	Seminar in Resilience	
SW 3043	Military Social Work	
SW 4623	Social Work with the Aged	
SW 4633	Social Work in Health Care	
SW 4643	Social Work Services in Schools	
SW 4533	Substance Abuse and Addictions in Social Work Services	
SW 4653	Social Work with Family Violence	
Students must successfully complete a formal admissions process prior to taking the following courses:		
SW 3513	Social Work Practice I <sup>2</sup>	3
SW 3523	Social Work Practice II <sup>2</sup>	3
SW 3533	Social Work with Communities and Organizations	3
Field Work includes full-time placement for one semester in a supervised agency setting.		
SW 4916	Social Work Field Practicum/Seminar I <sup>2</sup>	6
SW 4926	Social Work Practicum/Seminar II <sup>2</sup>	6
SW 4713	Social Work Senior Seminar <sup>2</sup>	3
<b>Oral Communication</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Jr/Sr Writing</b>		
Satisfied with SW 4713 in the major		
<b>Computer Literacy</b>		
TECH 1273	Computer Applications	3
<b>General Electives</b>		
Consult advisor		1-7
<b>Total Hours</b>		<b>124</b>

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Humanities elective must be course in A&S. Any History course 1000-4999

<sup>2</sup> Course has prerequisite. Check course description or consult advisor.

## Sociology

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

Foreign Language I		3
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Foreign Language II		3
Foreign Language III		3
<b>Humanities <sup>1</sup></b>		
Literature - A&S core		3
History - A&S core		3
Philosophy - A&S core		3
Humanities Elective <sup>1</sup>		9

#### Mathematics

MA 1313	College Algebra	3
or MA 1103	College Algebra Linked Lab- Corequisite Model	
or MA 1213	Math in Your World	

Second math - A&S core		3
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#### Fine Arts

A&S core		3
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#### Natural Sciences

Physical Sciences w/lab - A&S core		3-4
Life Science w/ lab - A&S core		3-4
Natural Science Elective - A&S core <sup>1</sup>		3-4

#### Social Sciences

See Major Core Level I

#### Major Core

(Courses in the major are sequenced by level)

Level I: Intro to the discipline		
SO 1003	Introduction to Sociology	3
PS 1113	American Government	3
EC 2113	Principles of Macroeconomics	3
Social Science - A&S core		
Social Science Electives <sup>2</sup>		
		6

#### Level II: Sociology Substantive Core

SO 2203	Introduction to Race and Ethnicity	3
Choose one of the following:		
SO 3003	Social Inequality	
SO 3013	Society and the Individual	
SO 3053	Organizations in Modern Society	

		3
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#### Level III: Tools and Skills

SO 3103	Social Theory I	3
SO 3213	Introduction to Social Research	3
SO 4804	Social Research Practice	4

#### Level IV: Sociology Electives

Sociology Elective		3
Sociology Upper Division Electives		18

#### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Jr/Sr Writing

Satisfied with SO 3103 in the major

#### General Electives

Consult advisor		12-15
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<b>Total Hours</b>		<b>124</b>
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Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Humanities electives must be courses in A&S and must cover two disciplines.

<sup>2</sup> Social Science electives must be courses in A&S. The total 18 hours in Level I/Social Science must cover four disciplines; maximum of 6 hours per discipline; only one EC and one CO from A&S core list allowed across the 18 hours.

## Criminology

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Languages

Foreign Language I		3
Foreign Language II		3
Foreign Language III		3

#### Humanities

Literature – A&S core		3
History – A&S core		3
Philosophy – A&S core		3
Humanities Electives <sup>1</sup>		9

#### Mathematics

MA 1313	College Algebra	3
or MA 1103	College Algebra Linked Lab- Corequisite Model	
or MA 1213	Math in Your World	
Second math - A&S core		3

#### Fine Arts

A&S core		3
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#### Natural Sciences

Physical Sciences w/lab - A&S core		3-4
Life Sciences w/lab - A&S core		3-4
Natural Science Elective - A&S core		3-4

#### Social Sciences

SO 1003	Introduction to Sociology	3
PS 1113	American Government	3
PSY 1013	General Psychology	3
Social Science Electives - A&S core <sup>2</sup>		9

#### Major Core

CRM 1003	Crime and Justice in America	3
CRM 2003	Crime, Justice, and Inequality	3
CRM 3603	Criminological Theory	3
SO 3213	Introduction to Social Research	3
SO 4804	Social Research Practice	4
CRM 4803	Senior Seminar in Criminology	3

#### Major Electives

##### Criminal Behavior and Motivation Area

Choose one of the following:		3
CRM 3313	Deviant Behavior.	
CRM 3503	Violence in the United States	

CRM 4233	Juvenile Delinquency
CRM 4243	Drugs, Crime and Control
CRM 4253	White Collar and Computer Crime

##### Social Dimensions of Crime Area

Choose one of the following:		3
CRM 3343	Gender, Crime, and Justice	
CRM 3353	Race, Crime and Justice	
CRM 3363	Globalization and Crime	
CRM 4323	Victimology	
CRM 4343	Media, Crime and Justice	

##### Crime Control Policy and Practice Area

Choose one of the following:		3
CRM 3103	Contemporary Issues in Criminal Justice	
CRM 3113	Community Crime Prevention and Policy	
CRM 3123	Policing and Society	
CRM 4513	Correctional Systems	
CRM 4523	Law and Society	

##### Criminology Upper Division Electives 9

##### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

##### Jr/Sr Writing

Satisfied with CRM 3603 in the major

##### General Electives

Consult advisor		12-15
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**Total Hours 124**

Note: Students must complete 31 upper division hours in A&S in residence at MSU.

<sup>1</sup> Humanities electives must be courses in A&S and must cover two disciplines.

<sup>2</sup> Social Science electives must be courses in A&S. The total 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only one EC and one CO from A&S core list allowed across the 18 hours.

## Applied Sociology (online degree)

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Languages

Foreign Language I		3
Foreign Language II		3
Foreign Language III		3

#### Humanities

Literature – A&S core		3
History – A&S core		3
Philosophy – A&S core		3
Humanities Electives <sup>1</sup>		9

#### Mathematics



MA 1313	College Algebra	3
MA /ST 2113	Introduction to Statistics	3
<b>Fine Arts</b>		
A&S core		3
<b>Natural Sciences</b>		
Physical Sciences w/lab - A&S core		3-4
Life Sciences w/lab - A&S core		3-4
Natural Science Elective - A&S core		3-4
<b>Social Sciences</b>		
Social Science - A&S core		6
Social Science Electives <sup>2</sup>		12
<b>Major Core</b>		
ASO 1003	Introduction to Applied Sociology	3
SO 1103	Contemporary Social Problems	3
SO 3003	Social Inequality	3
SO 3053	Organizations in Modern Society	3
ASO 3213	Applied Sociology Research Methods	3
ASO 4803	Applied Sociology Capstone	3
<b>Electives</b>		
Social Problems in Society		6
Choose 2 of the following:		
SO 3703	Racial and Ethnic Inequality	
SO 4273	Sociology of Education	
SO 4423	Health and Society	
SO 4703	Population Problems and Processes	
CRM 3103	Contemporary Issues in Criminal Justice	
Community, Policy, and Practice		6
Choose 2 of the following:		
SO 4123	Poverty, Analysis: People, Organization and Program	
ASO 4153	Internship in Applied Sociology	
SO 4503	Gender and Work	
SO 4733	Community: Organization and Relationships	
CRM 3113	Community Crime Prevention and Policy	
Applied Sociological Methods		6
Choose 2 of the following:		
ASO 3103	Program Evaluation	
ASO 3203	Survey Design and Evaluation	
ASO 4103	Applied Data Management	
ASO 4203	Focus Groups and Interviewing	
GR 4303	Principles of GIS	
<b>Oral Communication</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Jr/Sr Writing</b>		
Satisfied with ASO 4803 in the major		
<b>General Electives</b>		
Consult advisor		10-13
<b>Free Electives</b>		
Choose any 1 SO, ASO, SW, or CRM course		3
<b>Total Hours</b>		<b>124</b>

Note: Students must complete 31 upper division hours in A&S at MSU.

<sup>1</sup> Humanities electives must be courses in A&S and must cover two disciplines.

<sup>2</sup> Social Science electives must be courses in A&S. The total of 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only one EC and one CO from A&S core list allowed across the 18 hours

## Sociology Minor

To earn a minor in sociology, a student must take 18 hours of undergraduate sociology courses. SO 1003, SO 2203, and SO 3213 are required. The other three SO courses must be 2000 level or above and include at least one 4000 level SO course.

Students who wish to major or minor in the department should plan their programs with the departmental major advisor as soon as possible after entering the University and should consult with their advisor before each registration period. Programs are arranged individually to combine the most varied advantages consistent with the student's interest and purposes. Persons interested in secondary school teaching may elect sufficient courses in the College of Education to satisfy certification requirements for teaching social studies.

## Economics

**Major Advisor: Vicki Mann**  
vmann@business.msstate.edu

Economics is the scientific study of how people and institutions make choices concerning the use of society's scarce resources. It is a broad social science that shares common interests with both the behavioral sciences (e.g. sociology and psychology) and the decision sciences (e.g. finance and management). The importance of economic analysis is recognized by being the only social science in which a Nobel Prize is awarded. Economics students receive training in the methods and uses of economic analysis as applied to households, businesses, and governments.

The study of economics offers students many career options. Economics majors are found pursuing careers in industry, trade, finance, law, government, and education. An economics major or minor also helps prepare the student for graduate professional training in business, public administration, and law. The flexibility of the economics major is reflected in relatively high starting salaries and lifetime earnings of economists. Undergraduates at Mississippi State may pursue an economics major through either the College of Arts & Sciences (B.A. degree) as described below or through the College of Business and Industry (B.B.A. degree). The business program in economics is described later in this Bulletin.

## Economics Major

Students seeking the B.A. with a major in economics are required to complete all College of Arts & Sciences core and University general education requirements. Majors must also complete the program of study on this page, including 12 hours of advanced electives. Elective courses should be chosen with the advisor's approval and used to enhance the student's overall program. Although not required, economics majors may elect to pursue a minor in another discipline with the advisor's approval. Only grades of C or higher will be accepted for EC courses that are counted toward the major.

## Economics Minor

A minor in economics is attained by selecting, in consultation with the economics minor advisor, at least 15 hours of economics course work. Three hours of courses from finance (FIN) or agricultural economics (AEC) may be applied to the economics minor with approval from the advisor. All economics minors must register with the economics minor advisor in the Department of Finance and Economics, 312 McCool Hall. Students with majors in business, engineering, agriculture, the social sciences, mathematics, and pre-law are especially encouraged to consider the economics minor. Only grades of C or higher will be accepted for courses to counted toward the minor.

## Advising and Honors Organization

Academic advising and career counseling are available from the economics faculty for both majors and minors. Students interested in the study of economics should contact the Department of Finance and Economics, 312 McCool Hall. Any student who completes 12 credit hours of economics with at least a 3.0 GPA and has an overall GPA of 3.0 or higher is eligible for membership in Omicron Delta Epsilon, the international honor society in economics.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

3 semesters - one Foreign Language (see advisor)	9
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### Humanities

Literature - see A&S courses	3
History - see A&S courses	3
Humanities Elective <sup>1</sup>	9
Philosophy Elective - see A&S courses	3

### Math

MA 1613	Calculus for Business and Life Sciences I	3
ST 2113	Introduction to Statistics	3

### Fine Arts

See A&S Core Requirements	3
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### Natural Sciences

Physical Science w/Lab <sup>2</sup>	3-4
Biological Science w/Lab <sup>3</sup>	3-4
Natural Science Elective <sup>4</sup>	3-4

### Social Sciences <sup>5</sup>

Met in major requirement		
PS 1113	American Government	3
AN 1103	Introduction to Anthropology	3
PSY 1013	General Psychology	3
PS 1513	Comparative Government	3
SO 1003	Introduction to Sociology	3

### Major Core

EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3

EC 3113	Intermediate Macroeconomics	3
EC 3123	Intermediate Microeconomics	3
EC 4643	Economic Forecasting and Analysis	3
EC Upper Division Electives		12

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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### Writing Requirement

Satisfied by the completion of EC 3113 and EC 4643 in major core

### Computer Literacy

BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	

### General Electives

General Electives - See advisor	20
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<b>Total Hours</b>	<b>124</b>
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(31 hours must be A&S 3000/4000 work)

- Must be selected from 2 different areas. Not required to be selected from core listing; may have to be taken at Upper Division level to meet 32 hours A&S UD requirement.
- See A&S courses
- See A&S courses
- Consult advisor.
- Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor.

## Gender Studies Minor

**Advisor: Dr. Kimberly Kelly**

224 Allen Hall

Gender Studies is an interdisciplinary field that examines the complex interactions of gender with other social statuses such as race, class, sexuality, and nationality. Gender is a central aspect of personal and social identity, and a key sorting mechanism in social stratification. In addition to the field's examination of the historical contributions and concerns of women, gender studies also explores research addressing men as well as trans and non-binary people. Understanding the full range of gender identities and inequities enhances the abilities of students to succeed in a variety of fields and professions.

Undergraduate students earn a Gender Studies minor by completing 18 credits of course work from a variety of fields distributed as follows; only nine credits from any one department may count toward the minor.

### Required Course

SO /AN /GS 1173	Introduction to Gender Studies	3
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### Additional core courses

Choose two of the following:	6
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COE 4743	Gender Issues in Counseling
EN /GS 3513	Women and Literature: Selected Topics
HI 4273	Women in American History
PS 3033	Gender and Politics
PSY 3203	Psychology of Gender Differences
SO 4403	Sociology of Gender and Sexuality
SO /CRM 3343	Gender, Crime, and Justice

**Electives**

See Gender Studies Advisor for list of approved electives. 9

**Total Hours** 18

## Liberal Arts

**Advisor: Kate Sawaya**

Office: 513 Allen Hall

The College of Arts and Sciences recognizes that students' interests may include more than one discipline and that some majors are not formally available at MSU. Students who prefer to specialize in more than one field of study may earn a B.A. degree in Liberal Arts (BALA). Through BALA, students can pursue a major that crosses two or more disciplines offered in the College of Arts and Sciences.

The BALA degree requires satisfactory completion of the following:

- University General Education and College Core curriculum;
- College of Arts & Sciences B.A. requirements;
- Satisfactory completion of the BALA major core;
- A total of 121 semester hours;
- A 200-word minimum exit essay

The BALA major core consists of IDS 2111, GLA 4001, and a program of study consisting of at least 36 upper-division hours in approved emphasis areas.

Each BALA program of study must consist of a broad, but coherent pattern of courses in 2-4 disciplines within the College of Arts and Sciences. These disciplines make up the emphasis areas within a student's program of study. Students may propose an individualized combination of emphasis areas, or they may select a preestablished concentration pathway that specifies the emphasis areas they must complete.

Each emphasis area must comprise at least 9 hours of upper-division coursework in that discipline, and a minimum GPA of 2.0 is required in each area of emphasis.

Students seeking admission to the BALA major will be required to submit an application to be reviewed by the Liberal Arts committee. BALA applications must contain the following: completed BALA application form (see BALA advisor); student's proposed program of study; a 100-word entrance essay.

To ensure an orderly progression of work toward the degree, interested students should meet with the program's advisor as early as possible.

Liberal Arts is not suitable for students who are uncertain about their choice of a major; these students should see the Undeclared listing in the Academic Affairs section.

### Political Communication Concentration

The Political Communication Concentration combines coursework in Political Science and Communication and Media Studies. It prepares students for careers in campaigning, public address and public affairs, and any public-facing roles related to governmental agencies and policymaking. The Political Communication Concentration is particularly useful for students who want to pursue law school or professional careers in legislation, campaigning, lobbying, and community outreach.

## General Education and College Requirements

**English Composition**

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

**Foreign Language**

Foreign Language I	3
Foreign Language II	3
Foreign Language III	3

**Humanities**

Literature - A&S core	3
History - A&S core	3
Philosophy - A&S core	3
Humanities Electives <sup>1</sup>	9

**Math**

A&S core <sup>2</sup>	3
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**Fine Arts**

A&S core	3
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**Natural Sciences**

Physical Science w/Lab - A&S core	3-4
Life Science w/Lab - A&S core	3-4
Natural Science Elective - A&S core	3-4

**Social Sciences**

A&S core <sup>2</sup>	6
Social Sciences Electives <sup>3</sup>	12

**Major Core**

IDS 2111	Introduction to Interdisciplinary Studies	1
GLA 4001	Senior Project	1
Emphasis Area Courses <sup>4</sup>		36

**Oral Communication <sup>3</sup>** 3

CO 1003	Fundamentals of Public Speaking <sup>5</sup>	3
or CO 1013	Introduction to Communication	

**Jr/Sr Writing**

Consult advisor - may be specified in emphasis areas or concentrations	3
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**General Electives**

Consult advisor <sup>6</sup>	8-11
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**Total Hours** 121

Note: Students must complete 31 upper-division hours in A&S in residence at MSU.

<sup>1</sup> Humanities electives must be courses in A&S and must cover two disciplines.

<sup>2</sup> Concentrations may require specific courses; see concentration and consult advisor.

<sup>3</sup> Social Science electives must be courses in A&S. The total 18 hours in Social Science must cover four disciplines; maximum of 6 hours per discipline; only one EC and one CO from A&S core list allowed

<sup>4</sup> Concentrations require specific courses; see concentration and consult advisor. A minimum GPA of 2.0 is required in each area of emphasis.

<sup>5</sup> Concentration may require CO 1003; consult advisor.

<sup>6</sup> Concentrations may require other prerequisite coursework. Students should consult advisor and plan to take additional prerequisite courses as general electives.

## Political Communication Concentration

### Mathematics

MA /ST 2113	Introduction to Statistics
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### Social Science

PS 1113	American Government
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CO 1223	Introduction to Communication Theory
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### Oral Communication

CO 1003	Fundamentals of Public Speaking
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### Jr/Sr Writing

PS 4464	Political Analysis
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### Emphasis Area - Communication

Choose 18 hours:

CO 3803	Principles of Public Relations
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CO 3813	Public Relations Case Problems
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CO 3873	Public Relations Multimedia
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CO 3833	Interviewing in Communication
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CO 4043	Communication and Leadership
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CO 4203	Nonverbal Communication
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CO 4213	Political Communication
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CO 4253	Elements of Persuasion
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CO 4273	Intercultural Communication
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CO 4313	Mass Media Law
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### Emphasis Area - Political Science

Choose 18 hours:

PS 3013	Political Leadership
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PS 3033	Gender and Politics
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PS 3063	Constitutional Powers
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PS 3073	Civil Liberties
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PS 3183	Law and Politics
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PS 4173	Legislative Process
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PS 4283	Public Opinion
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PS 4293	Political Behavior
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PS 4703	Principles of Public Administration
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## General Science

### Major Advisor: Emily Cain

Office: 513 Allen Hall

For various reasons, a student may not require the intensive preparation that is typical of a professional curriculum. The general science curriculum is tailored for their needs. Flexibility is the key characteristic of the curriculum. The general science program is designed to give students a broad general education and at the same time teach them the fundamentals of science. By judiciously choosing their course of study, a student may use the general science curriculum in many ways. For example, by concentrating on biological science or chemistry the student may prepare for medical or dental school, and with appropriate choice of electives preparation for clinical and other laboratory positions in such fields as public health and marine biology is possible.

If the student is interested in interdisciplinary studies related to environmental science, the general science curriculum is suitable. Any one of the physical or biological sciences may be emphasized. The curriculum, however, involves courses from several sciences, and from other fields concerned with the environment. Persons trained in this option should be in demand in the health industry, science laboratories, federal, state, and local governmental agencies, and in industries involved with earth resources.

Successful completion of the University and curriculum requirements will result in the awarding of a B.S. degree in General Science.

The following requirements apply to all general science students:

- The B.S. Common Curriculum must be satisfied.
- A minimum of 60 credit hours in science, of which at least 30 must be in one science, is required.
- Electives must be approved by the faculty advisor.
- A total of 124 credit hours is required.
- A minimum grade of C is required for all Major Core courses, and in the 30 hours of one science.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
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or EN 1104	Expanded English Composition I	
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EN 1113	English Composition II	3
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or EN 1173	Accelerated Composition II	
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### Foreign Language

2 semesters - one Foreign Language (see advisor)	6
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### Humanities

Literature - see University/A&S Core	3
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History - see University/A&S Core	3
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### Mathematics

MA course above College Algebra	3
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### Fine Arts

See A&S requirements	3
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### Natural Sciences

Met in major core

### Social Sciences <sup>1</sup>

See A&S requirements	6
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### Major Core <sup>2</sup>

GG 1113	Survey of Earth Sciences I	3
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GG 1111	Earth Sciences I Laboratory	1
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CH 1211	Investigations in Chemistry I	1
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CH 1213	Chemistry I	3
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CH 1221	Investigations in Chemistry II	1
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CH 1223	Chemistry II	3
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CH 4511	Organic Chemistry Laboratory I	1
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CH 4513	Organic Chemistry I	3
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CH 4521	Organic Chemistry Laboratory II	1
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CH 4523	Organic Chemistry II	3
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PH 1113	General Physics I	3
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PH 1123	General Physics II	3
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BIO 1144	Biology II	4
BIO 3103	Genetics I	3
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
<b>Writing Requirement</b>		
Consult advisor and choose from the following:		
BIO 3013	Professional Writing for Biologists	
EN 3303	Creative Writing	
GE 3513	Technical Writing	
GG 4333	Geowriting	
<b>Computer Literacy</b>		<b>3-4</b>
Consult advisor for options		
<b>General Electives</b>		
Consult Advisor		13
<b>Total Hours</b>		<b>121</b>

- <sup>1</sup> Must be from 2 different areas and must be selected from University/A&S Core requirements.
- <sup>2</sup> Student should check for prerequisites for all courses. Consult advisor. Minimum of 60 hours in science, of which at least 30 must be in one science.
- <sup>3</sup> Consult advisor.

## Interdisciplinary Studies

**Major Advisors: Kasondra Harris and Kate Sawaya**  
Office: 513 Allen Hall

The Bachelor of Science in Interdisciplinary Studies is a university-wide degree coordinated through the College of Arts & Sciences by the Interdisciplinary Studies Committee. This multi-discipline academic program is appropriate for students motivated by specific interests not recognized in traditional majors and is not intended to compete with existing programs. All University requirements, including 31 hours of upper division course work and a year's residence, must be met for graduation.

The Bachelor of Science in Interdisciplinary Studies is intended to allow students maximum flexibility to custom-design a curriculum to meet their personal and career goals. A program of study must assure depth of study as well as breadth. Therefore, it must ensure that students take at least 36 upper-division hours in the areas they have chosen for emphasis and that they select a minimum of 12 hours in each of three areas or 18 hours in two. Emphasis areas must be selected from at least two colleges. Only one grade of "D" will be accepted in each area of emphasis, and a minimum GPA of 2.0 is required in each area of emphasis. A total of 120 semester hours is required for graduation, along with an MSU and cumulative GPA of 2.0.

To ensure coherence in the program, the student must construct and explain in writing the rationale for the interdisciplinary studies program's direct relationship to the student's personal and career goals. Each student will be required to meet with advisors in the academic disciplines who will agree to sponsor the student in drawing up the proposed curriculum, formulating the rationale, and presenting the case in writing to the Interdisciplinary Studies Committee. This should be done prior to the senior year.

**BSIS Limitations:** Students may only receive minors in the BSIS in subjects outside their emphasis areas. A student may only receive a BSIS degree as a second bachelor's degree with special permission by the Interdisciplinary Studies Committee.

The Interdisciplinary Studies Committee will review applications, and if approved, the student may proceed with the curriculum. The Committee will meet during the fall, spring and summer semesters, and students must make written application by September 1, February 1 or May 1. Application for a degree must be submitted to the Office of the Registrar. For further information, contact:

College of Arts & Sciences  
513 Allen Hall, Mail Stop 9706  
Mississippi State, MS 39762  
(662) 325-2646

## Entertainment Technology Concentration

Entertainment Technology trains students to use technology to advance artistic goals in jobs like stage robotics, scenic automation, entertainment production, sound engineering, technical direction, and lighting for live theatre, concerts, theme parks, sporting events, etc. Entertainment technologists can design, create, and operate the systems necessary to achieve a variety of artistic outcomes. A concentration in Entertainment Technology will prepare students to work with large scale production companies in spaces such as theme parks, arenas, performance venues, and museums.

## BS in Interdisciplinary Studies Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Humanities

General Education courses	6
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### Mathematics

General Education courses	6
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### Fine Arts

General Education courses <sup>1</sup>	3
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### Natural Sciences

General Education courses; two labs required.	6-8
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### Social Sciences

General Education courses <sup>2</sup>	6
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### Major Core

Pre-Emphasis Area	Consult advisor <sup>3</sup>	12-15
courses		

IDS 2111	Introduction to Interdisciplinary Studies	1
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IDS 4111	Professional Seminar	1
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Emphasis Area	Consult advisor <sup>3</sup>	36-37
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### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Jr/Sr Writing

Consult advisor		3
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**General Electives**

Consult advisor	28-34
<b>Total Hours</b>	<b>120</b>

<sup>1</sup> CO 1503 required for Entertainment Technology concentration

<sup>2</sup> EC 2113 required for Entertainment Technology concentration

<sup>3</sup> Concentrations require specific courses; see concentration and consult advisor

**Entertainment Technology Concentration****Pre-Emphasis Area Courses**

MU 1113	History and Appreciation of Music	3
CO 2512	Introduction to Theatrical Design	2
CO 2523	Introduction to Stagecraft	3
CO 2551	Sound for the Stage and Screen	1
INDT 2323	Welding Technology	3
Choose one of the following:		3
INDT 2113	Introduction to PLC Programming	
INDT 2123	Introduction to CNC Programming	
INDT 2343	Parametric Modeling for 3D Design	
INDT 2613	Industrial Fluid Power	

**Emphasis Area - Communication**

CO 3512	Scenic Design	2
CO 3522	Lighting for the Stage and Screen	2
CO 3552	Professional Practice for Theatre	2
CO 3573	Script Analysis	3
CO 3583	Theatre for Young Audiences	3
CO 3693	Drawing for the Theatre	3
CO 4563	Stage and Production Management	3
CO 4591	Theatre Capstone	1

**Emphasis Area - Industrial Technology**

INDT 3043	Industrial Safety	3
INDT 3373	Forecasting and Cost Modeling	3
INDT 3813	Technical Writing and Presentation for Industry	3
Choose three of the following:		9
INDT 3063	Industrial Human Relations	
INDT 3103	Advanced Industrial Electricity and Electronics	
INDT 3223	Industrial Materials	
INDT 4103	Industrial Control Systems	
INDT 4203	Automated Systems	
INDT 4233	Maintenance Management	
INDT 4303	Industrial Robotics	
INDT 4403	Automated Systems II	

**Music**

Department Head: Dr. Daniel B. Stevens

Department of Music, Office 1020

Telephone: (662) 325-3070

Fax: (662) 325-0250

<http://music.msstate.edu/>

Mailing Address:

Department of Music

PO Box 6240

Mississippi State, MS 39762

University Bands

Ms. Elva Kaye Lance, Director of Bands

Telephone: (662) 325-2713

<http://msuband.msstate.edu>

University Choirs

Dr. Phillip Stockton, Interim Director of Choral Activities

Telephone: (662) 325-7801

<http://www.statesings.com/>

University Philharmonia Orchestra

Dr. Courtney Grant, Coordinator

Telephone: (662) 325-3070

**Mission**

The mission of the Department of Music at Mississippi State University is to contribute to the development of broadly acculturated citizens in our state and region through enhanced musical understanding and enriching musical experiences, providing access and opportunity to our diverse population through programs of teaching, research, and service.

**About the Department**

In the Fall of 2022 the department moved into a \$21 million state-of-the-art facility. The 37,000 square foot facility at 124 Hardy Road includes classrooms, a choral rehearsal hall, faculty offices, sound-proof practice rooms, recording studio, lecture/recital hall, student lounge, and administrative suite to complement the Famous Maroon Band facilities. The Department of Music is part of the College of Education and is an accredited institutional member of the National Association of Schools of Music.

**Bachelor of Music Education**

The Bachelor of Music Education is a 124-126 hour professional degree program (depending on concentration) that leads to licensure to teach music in the State of Mississippi. The Department of Music offers four concentrations of the BME: Guitar, Instrumental, Keyboard and Vocal.

The Instrumental concentration qualifies the student for a Music Instrumental (K-12) teaching license. The Vocal, Keyboard, and Guitar concentrations qualifies the student for a Music Choral (K-12) teaching license.

The Vocal concentration qualifies the student for a K-12 Choral Music teaching license, allowing graduates to teach General, Instrumental, and Choral music in all grades in the state of Mississippi.

**Bachelor of Music Performance**

The Bachelor of Music Performance is a 120-hour professional degree program that prepares students to work independently towards performance at the highest possible level; possess knowledge of applicable solo and ensemble literature; and to gain experience with the fundamentals of music pedagogy. The Department of Music offers four concentrations of the Bachelor of Music Performance; Guitar, Instrumental, Keyboard, and Vocal.

**Bachelor of Arts in Music**

The Department of Music offers a Bachelor of Arts in Music degree in a liberal arts tradition of music study. This degree is designed to provide foundation coursework to apply to a variety of interdisciplinary careers including music, in preparation for graduate study, or for self-improvement.

For suggested course sequence for all degrees and concentrations, visit the Department of Music website: <http://www.music.msstate.edu/academics/>

Students are required to earn a "C" or better in all required (non-elective) Applied Music (MUA), Music (MU), and Music Education (MUE) courses.

### Auditions

All potential music majors and minors are required to audition for appropriate faculty in order to determine their preparedness to enter the program, participate in ensembles, and determine eligibility for a scholarship or service award.

Although alternate dates are available, the preferred audition date for music majors and minors in all areas is the third Saturday in February. Other audition dates are available by contacting the applied faculty of your area of concentration, the department office (662) 325-3070, or the major ensemble offices. (Choir (662) 325-3490; Band (662) 325-2713; Orchestra (662) 325-3070)

### Transfer Information

After successful admission to the University, and in addition to the music major audition, transfer students are required to complete a music theory and aural skills entrance exam to determine preparedness for upper division study. For more information see the Department of Music website at <http://www.music.msstate.edu/students/transfers/> or call 662-325-3070.

### Music Minor

The Department of Music offers MSU students the opportunity to complete a Minor in Music. The Music Minor is a comprehensive set of courses designed to increase student musicianship and knowledge. Students must audition/ interview and be accepted as a music minor before the minor may be declared. Acceptance in any given studio area is on a space available basis. The requirements for the music minor cannot be completed after graduating from MSU.

There are two tracks in the Minor of Music:

1. A general Minor in Music that offers the first two semesters of the Major in Music: Music Theory, Ear Training, Piano, Applied Study, Ensembles and a Fine Arts Music Topics course.
2. A Minor in Music and Culture which is intended for students with an interest in non-Western music, especially the music of Africa and the African Diaspora. This minor features an interdisciplinary approach to exploring music and supports MSU's vision of diversity and global involvement

For information and required courses, visit the Department of Music website: <http://www.music.msstate.edu/academics/minorinmusic/>

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Languages

3 semesters - Foreign Language - see advisor	9
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### Humanities

Literature Elective - see A&S requirements	3
History Elective - see A&S requirements	3
Philosophy Elective - see A&S requirements	3
Must be from 2 areas - EN, HI, PHI or REL	6
Met in Major Core	3

### Mathematics

If ACT Math score is less than 24:

MA 1313	College Algebra
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If ACT Math score is 24 or higher:

MA 1323	Trigonometry
or MA 2113	Introduction to Statistics

### Math/Science Elective

If ACT Math score is less than 24:

MA 1323	Trigonometry
or MA 2113	Introduction to Statistics

If ACT Math score is 24 or higher then any General Education Math or Science course is acceptable

### Natural Sciences

Physical Sciences w/lab (CH, GG, PH) <sup>1</sup>	3-4
Biological Sciences w/lab (BIO) <sup>1</sup>	3-4
Natural Science Elective <sup>2</sup>	3-4

### Fine Arts

MU 3013	Survey of Western Music History I	3
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### Social Science

See A&S requirements	6
Must be from 3 areas - AN, CO, EC, GR, PS, PSY or SO	9
Met in Major Core	3

### Major Core

MU 1213	Music Theory I	3
MU 1321	Ear Training I	1
MU 1413	Music Theory II	3
MU 1521	Ear Training II	1
MU 2012	World Music	2
MU 2613	Music Theory III	3
MU 2721	Ear Training III	1
MU 2813	Music Theory IV	3
MU 2921	Ear Training IV	1
MU 3023	Survey of Western Music History II	3
MU 3412	Conducting	2
MU 2111	Piano Class	4
& MU 2121	and Piano Class	
& MU 3111	and Piano Class	
& MU 3121	and Piano Class	
or MU 3112	Functional Skills of Piano I	
& MU 3122	and Functional Skills of Piano II	

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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### Writing Requirement

EDF 3413	Writing for Thinking (See advisor for other approved courses.) <sup>3</sup>	3
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**Applied Study**

6 semesters of study at 2 hours per semester:

2 semesters of 1000-level courses

2 semesters of 2000-level courses

2 semesters of 3000-level courses must be completed on the same instrument

At least 1 semester of 2000-level and 2 semesters of 3000-level work must be completed at MSU.

**Ensembles**

4 semesters of ensembles must be completed at MSU, two of which must be the designated major ensembles.

**Other Requirements**

Piano Proficiency Exam

Upper Division Proficiency Exam

MU 1010	Recital Hour (must be enrolled 8 semesters)	0
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Recital or Project

**Music Electives**

Music Electives	7-10
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Met in College Core	6
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<b>Total Hours</b> <sup>4</sup>	<b>122</b>
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<sup>1</sup> See A&S Core.

<sup>2</sup> Any Natural Science from the Arts and Sciences core can apply. Consult advisor.

<sup>3</sup> Any Arts and Sciences approved writing course can apply. Consult advisor.

<sup>4</sup> At least 31 hours of upper division (3000 level or higher) hours are required.

**Minor in Music and Culture**

The minor in Music and Culture is intended for students with an interest in non-Western music, especially the music of Africa and the African Diaspora. The program offers students from any major, the opportunity to study the ways in which human cultural diversity is represented through music. The minor features an interdisciplinary approach to exploring music and supports MSU's vision of diversity and global involvement. The minor is distinct from other existing degrees in that it offers an anthropological approach that does not rely heavily on music performance skills.

**Required Courses** 6

AN 1143	Introduction to Cultural Anthropology
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MU 2012	World Music
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PE 1091	Contemporary Dance
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**Electives** 12

Choose at least two Non-Western Music and Culture electives

MU 1103	African American Music
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MU 1153	Music of Africa
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MU 2023	Music of Latin America
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MU 3103	Native American Music
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Choose up to two Western Music and Culture electives

MU 1123	History and Appreciation of American Music
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MU 1133	The History of Rock and Roll
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MU 1143	The History of Jazz
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MU 1163	Introduction to Music in Film
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<b>Total Hours</b>	<b>18</b>
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**General Minor in Music**

The General Minor in Music is a comprehensive set of courses designed to increase student musicianship and knowledge. Students must audition and be accepted as a music minor before it can be declared. Acceptance in any given studio area is on a space available basis. The requirements for the music minor can not be completed after graduating from MSU.

**Music History** 2-3

Choose from the following:

MU 1103	African American Music
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MU 1113	History and Appreciation of Music
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MU 1123	History and Appreciation of American Music
---------	--

MU 1133	The History of Rock and Roll
---------	------------------------------

MU 1143	The History of Jazz
---------	---------------------

MU 1153	Music of Africa
---------	-----------------

MU 1163	Introduction to Music in Film
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MU 1173	Music of the Beatles
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MU 2012	World Music
---------	-------------

MU 2023	Music of Latin America
---------	------------------------

MU 2173	Women in Music
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MU 3013	Survey of Western Music History I
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**Music Theory and Aural Skills**

MU 1213	Music Theory I	3
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MU 1321	Ear Training I	1
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MU 1413	Music Theory II	3
---------	-----------------	---

MU 1521	Ear Training II	1
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**Class Piano**

MU 2111 & MU 2121	Piano Class and Piano Class	2
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or MU 3112	Functional Skills of Piano I
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**Applied Study** 4

Two semesters of study (2 credit hours each semester); must be completed on the same instrument

**Ensembles** 2

Two semesters of major or minor ensembles

**Recital Hour**

MU 1010	Recital Hour (must be taken for 2 semesters)	1
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<b>Total Hours</b>	<b>18-19</b>
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To earn a Minor in Music from Mississippi State University, all of the coursework listed above must be completed at Mississippi State University, Starkville Campus, with a grade of C or better. The requirements for any music minor cannot be completed after graduating from MSU.



## Pre-Professional Programs

### Pre-Law Minor (LAW)

Whit Waide, J.D., Advisor  
199 Bowen Hall  
wwaide@pspa.msstate.edu

The interdisciplinary minor in Pre-Law consists of 19 credit hours offered through several departments and programs throughout the university. The minor will consist of a two-semester prerequisite class called "Introduction to Law I and II" (PS 1182/1192), as well as the requirement that a student take PHI 1113 Introduction to Logic, and a Constitutional Law class (PS 3063, 3073, or AAS 3043/PS 3043) or Principles of Legal Writing (EN 4223). At least 9 of the 19 hours must be at the 3000 or 4000 level.

The Pre-Law minor is designed to be a curriculum that is consistent with the best practice in preparing undergraduates for the study of law. It has an interdisciplinary focus, creates a practicum like common experience, and focuses on analytic skill development. It will assist students in determining whether they desire to attend law school and will provide exposure to what they will encounter should they decide to attend law school.

Students interested in careers in law are encouraged to speak with Whit Waide, Pre-Law advisor. The Pre-Law advisor will provide guidance on the law school admissions test (LSAT), law school application process, and on selecting the best law school for you. For additional information contact Mr. Waide at [wwaide@pspa.msstate.edu](mailto:wwaide@pspa.msstate.edu).

### Dr. A. Randle and Marilyn W. White Health Professions Resource Center

Mary Celeste Reese, PhD; Director  
Office: Rice Hall, Basement  
Email: [prehealth@msstate.edu](mailto:prehealth@msstate.edu)  
Phone: (662) 325-5966  
Mailing address: 180 Magruder St, Mississippi State, MS 39762  
Website: [Prehealth.msstate.edu](http://Prehealth.msstate.edu) (<http://Prehealth.msstate.edu>)

The Health Professions Resource Center (HPRC) offers a centralized advising service to all current and former MSU students, regardless of major, interested in a health career path. Operating under the College of Arts and Sciences, the HPRC offers academic planning, assistance with the application process, reviewing personal statements, partnering with our Career Center to offer mock interviews, a summer MCAT prep course, informative workshops, along with many other helpful resources to support students to be competitive applicants. The HPRC helps support the following health careers, but are not limited to these concentrations:

- Pre-Any Allied Health
- Pre-Chiropractic Medicine
- Pre-Dentistry
- Pre-Medicine
- Pre-Nursing
- Pre-Occupational Therapy
- Pre-Optometry
- Pre-Pharmacy
- Pre-Physical Therapy

- Pre-Physician Assistant
- Pre-Veterinary Medicine

Many professional schools require a bachelor's degree before matriculation. Even if a degree is not required, some students may wish to earn a degree from MSU before moving on to professional school. If a professional school requires a degree, a student must declare a major. None of the concentration areas listed above are majors. No specific major is preferred over another by professional schools, so students are encouraged to choose a major based on their academic interests. A major may be chosen from any of the colleges at MSU. Pre-health students who declare a major will have both a pre-health advisor and an academic advisor. Students seeking advice from a pre-health advisor will need to check in with the HPRC. Appointments are typically preferred.

# College of Business

## SCOTT GRAWE, Dean

### Kevin E. Rogers, Associate Dean

Offices: Suite 114 McCool Hall

Telephone: (662) 325-2580

Mailing Address: Box 5288, Mississippi State, MS 39762

<http://www.business.msstate.edu>

### Nicole Ponder, Associate Dean for Graduate Programs and Assessment

Office: 200 McCool Hall

Telephone: (662) 325-1891

### Vincent Young, Assistant Dean

Office: 106 McCool Hall

Telephone: (662) 325-1890

## Historical Information

The College of Business, organized in 1915, is the oldest college of business in the state and one of the oldest in the South. In 1979, the Department of Accounting was designated as the School of Accountancy in answer to a need for attention to the unique requirements of the growing profession of accountancy. In 2007, the School of Accountancy was renamed the Richard C. Adkerson School of Accountancy.

This college permits students to major in any of the following programs: Accounting, Finance, Finance - Risk Management and Insurance, Information Systems, Economics, Business Administration, BA-International Business/Foreign Languages (double degree), Management, Marketing, Marketing-Professional Golf Management, and Supply Chain Logistics. The College offers degree programs that lead to bachelor's, master's and doctoral degrees. Distance learning through interactive classrooms and online courses is another avenue available to pursue course work for College of Business students. Minors are available in most program areas.

## Mission

The Mississippi State University College of Business promotes societal impact benefitting the people and businesses of Mississippi and beyond through an enriched learning community. Students are prepared to think, communicate, and collaborate ethically in today's diverse, technology-driven, global business environment. Our college provides a collegial academic atmosphere that nurtures students and encourages faculty to be innovative and to integrate teaching, research, and service.

## Accreditation

The undergraduate, masters, and doctoral business programs are accredited by AACSB International (The Association to Advance Collegiate Schools of Business). The Adkerson School of Accountancy is separately accredited at the undergraduate and masters levels by AACSB International.

## Organization

The administrative units of the College of Business consist of the Adkerson School of Accountancy and the Departments of Finance and Economics; Management and Information Systems; and Marketing, Quantitative Analysis, and Business Law. In addition to these units, the

college includes the Office of the Graduate School in Business, the Office of Business Outreach and the College of Business Academic Advising Center. The administrators of these units are as follows:

Unit	Name
Adkerson School of Accountancy 300 McCool Hall	Shawn Mauldin, Director 325-3710
Finance and Economics 312 McCool Hall	Kathleen Thomas, Head 325-2342
Mgt & Info Systems Dept 302 McCool Hall	Laura Marler, Head 325-3928
Mkt, Quan Analysis & BL 324 McCool Hall	Melissa Moore, Head 325-3163
Graduate Studies 200 McCool Hall	Angelia Knight, Director 325-1891
COB Acad Advising Ctr 106 McCool Hall	Vickie Mann, Acad. Coor.  Kim McLeod, Acad. Coor. NaToya Sanders, Acad. Coor. Trovanda Johnson, Acad. Coor. RJ Matthews, Acad. Coor. Taylor Watson, Acad. Coor. 325-1890

Directors and managers of other academic and professional support units in the College of Business are:

Unit	Name
Small Business Develop Ctr Research & Tech	Chip Templeton, Director 325-8684
Center for Entrepreneurship and Outreach 101 McCool Hall	Eric Hill, Entrepreneurship Director 325-3521 Jeffrey Rupp, Outreach Director 325-8122
Computing Services 222 McCool Hall	Eric Hester, Manager 325-1545
P. Koch Lutken Chair of Ins 312 McCool Hall	325-2341
International Business 210 McCool Hall	Travis Wiseman, Director 325-2580
PGA Golf Management 309 McCool Hall	Adam Scott, Director 325-3161

## Support Services

COB Academic Advising Center  
Assistant Dean: Vincent Young  
106 McCool Hall: 325-1890

The College of Business (COB) Academic Advising Center provides centralized advising resources to students (current, prospective, and alumni), parents, faculty, and support staff. The Academic Advising Center maintains the official records of COB students (Accounting majors should see the Director of Accountancy). The Center represents the Dean on all academic paperwork such as transfer evaluations, off-campus requests, withdrawals, overload requests, degree audits, change of majors, and correspondence course approvals.

Unless otherwise noted, all undergraduate business majors are advised through the COB Academic Advising Center.

## Employment Service

The College of Business endeavors, in cooperation with the Career Center (located at 300 Montgomery Hall), to arrange employment interviews for graduating seniors. Former graduates seeking employment or change of position are urged to keep the Career Center informed as to availability.

## Rules for Scheduling Classes

The normal load for an undergraduate student in a regular semester is 15-18 credit hours. Mississippi State University has established undergraduate student course limits based on cumulative and MSU grade point averages.

## Admission

All new freshmen desiring to major in business will be admitted to into their chosen major in the College of Business at Mississippi State University. Transfer students wishing to major in business must meet a minimum grade point average requirement. Freshmen must have a minimum 2.0 overall, sophomores must have a minimum 2.25 overall, and juniors must have a minimum 2.5 overall grade point average. Current MSU students wishing to change majors to business must also meet minimum grade point averages on courses taken at MSU. Freshmen must have a minimum 2.0 overall, sophomores must have a minimum 2.25 overall, and juniors must have a minimum 2.5 grade point average at MSU.

**Junior Screen** – Students with between 50 and 75 applied hours of college credit towards the BBA degree must meet the following to continue in the College of Business: (i) a student must have a minimum 2.5 overall grade point average and a minimum 2.5 MSU grade point average; and (ii) a student must have earned a grade of “C” or better in the following seven courses (or equivalent): BIS 1012, ACC 2013, ACC 2023, EC 2113, EC 2123, BQA 2113, and BL 2413. Students not meeting these criteria will not be permitted to enroll in selected 3000 level or any 4000 level business classes. Questions about this policy can be referred to the Academic Advising Center.

## Bachelor of Business Administration Degree Programs

### Graduation Requirements

The admission/readmission requirements for the Bachelor of Business Administration degree are described in Part I, Section II of this catalog.

In addition to the University's minimum requirements, the following requirements must be met for students applying for graduation:

- Pass 123-154 applicable hours
- Take a minimum of 62 semester hours from a senior college
- Take a minimum of 32 upper level business hours at MSU
- Complete the last 32 hours in residence at MSU
- Have at least a:
  - 2.50 GPA on all upper level business courses attempted,
  - 2.50 GPA on all major courses attempted,
  - 2.00 GPA on all MSU course work attempted, and
  - 2.00 GPA on all course work attempted.
- Have no more than two D's in upper level business courses. In excess of two D's will have to be repeated with a grade of C or better.

It is the student's responsibility to be sure that they have fulfilled the requirements of the particular curriculum before applying for a degree. Students must complete a graduation audit in the COB Academic Advising Center prior to graduation.

## College-Wide Degree Course Requirements

The College of Business requires each student to take a planned and coordinated Arts & Sciences foundation designed to increase cultural appreciation and to give a broad knowledge of world affairs. Each program also permits the election of additional courses, according to the interests of the individual student. The total number of credits earned in the Arts & Sciences foundation program and other non-business courses shall not be less than 52 semester hours.

## The B.B.A. as a Double Degree and as a Second Baccalaureate Degree

A double degree is available in the College of Business for students pursuing a primary degree in a non-business area or accounting field at MSU. These programs require that a student satisfy the normal graduation requirements in the non-COB area first, as well as the required courses for the second degree. The required graduation grade point average in upper business course work is 2.50. Students are not allowed more than two D's in upper level business courses. Students must apply for and confirm both degrees at the same time. Students must establish a double degree record in the COB Academic Advising Center in 106 McCool.

The second degree curriculum is available to students who hold a baccalaureate degree in any non-business or accounting field of study from a regionally accredited institution. The combination of the first degree and the following second degree program must include the current general education courses and the courses listed below. A minimum of 32 semester hours upper business work must be earned in residence at Mississippi State University after the first degree has been conferred. Students must establish a second degree record with the COB Academic Advising Center.

### Required Courses

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BIS 1012	Introduction to Business Information Systems	2
BIS 3233	Management Information Systems	3
BL 2413	The Legal Environment of Business	3
BQA 2113	Business Statistical Methods I	3
BQA 3123	Business Statistical Methods II	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
FIN 3123	Financial Management	3
MGT 3113	Principles of Management	3
MGT 3213	Organizational Communications	3
MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3
BUS 4853	Strategic Management (Graduating semester only)	3
	International Elective	3

Major Courses	21+ hours
<b>Total Hours</b>	<b>69+</b>

## Engineering Leadership Excellence Program B.B.A in Business Administration & B.S. in Industrial Engineering

In partnership with the Department of Industrial and Systems Engineering, the College of Business offers students the opportunity to earn degrees in both Business Administration and Industrial Engineering as part of the Engineering Leadership Excellence Program. More information can be found here: Engineering Leadership Excellence program (p. 200)

## Preparation for the Study of Law

Office: 324 McCool Hall

Each year a number of graduates of the College of Business enter law school. Although there is no formal pre-law curriculum, most law schools advise pre-law students to seek a wide background of studies. The curriculum in the College is good preparation for the study of law because it offers the opportunity to study the arts, the humanities, science, and mathematics, in addition to business and economic disciplines which constitute the background for understanding the study of most legal problems. Because many areas of law practice deal with business, a background in business is very useful to the practicing attorney. Moreover, several business law course offerings are available to expose the student to introductory-level law courses. In addition, if a person should decide not to pursue a legal career, there are many opportunities available in business. A professor of business law—pre-law advisor—is available for providing information about the legal professional, assistance in choosing courses, and guidance concerning law school admissions.

## Graduate Programs in Business Administration

Office: 200 McCool Hall

The College of Business offers five graduate programs in business administration, namely, the Master of Business Administration (MBA), The Master of Science in Information System (MSIS), Master of Professional Accountancy (MPA), Master of Taxation (MTX), and the Doctor of Philosophy in Business Administration (Ph.D.).

Admission requirements for graduate programs in business include a competitive GPA from an accredited undergraduate program, letters of recommendation from professors and/or supervisors who can attest to the applicant's potential to succeed in a graduate program, and a statement of purpose that explains the applicant's academic background and motivation for obtaining the desired graduate degree. A competitive score on the Graduate Management Admission Test (GMAT) or Graduate Record Examination (GRE) may be required to secure an assistantship. Required background for admission to graduate coursework includes a general knowledge of the functions of business, statistics, and proficiency in computer usage.

Details concerning these graduate programs can be found in the Graduate Bulletin. Students who are interested in pursuing any of these programs should communicate with the Director of Graduate Studies

in Business, P. O. Box 5288, Mississippi State, MS 39762. For further information, call (662) 325-1891.

## Business Administration Major

The curriculum in Business Administration is designed for students who desire a general rather than a specialized program in business. BUAD advisors are located in the COB Academic Advising Center. Students are encouraged to make appointments with advisors, as they are not always available on a walk-in basis.

Business Administration majors must complete 12 hours from one major area and 6 hours from two additional major areas selected from the list below, for a total of 24 hours.

- Accounting
- Insurance
- Marketing
- Real Estate
- Management
- Economics
- Information Systems
- Finance
- International Business
- Legal Environ of Business
- Supply Chain Logistics

## General Education Requirements

### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
BQA 2113	Business Statistical Methods I	3

### Science

2 Lab Sciences from General Education courses	6
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### Humanities

See General Education courses	6
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### Fine Arts

See General Education courses	3
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### Social/Behavioral Sciences

PS 1113	American Government	3
Choose from General Education courses excluding: AEC and EC	3	

### College Core

BQA 3123	Business Statistical Methods II	3
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3123	Financial Management	3

MGT 3113	Principles of Management	3
MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3
BUS 4853	Strategic Management	3

**Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

**Computer Literacy Requirement**

BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	

**Writing Requirement**

MGT 3213	Organizational Communications	3
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**Major Core**

International Elective (see advisor for options)	3
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Select three areas of concentration from the following prefixes: <sup>1</sup>

ACC, BIS, BL, EC, FIN, IB, INS, MGT, MKT, REF

1st Major Area (12 hours)

2nd Major Area (6 hours)

3rd Major Area (6 hours)

Free electives	16
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<b>Total Hours</b>	<b>123</b>
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<sup>1</sup> Courses must be 3000-level or higher

## Business Administration Minor

A minor in Business Administration will help non-business students prepare for entrance into the world of business. Students will become familiar with basic concepts and techniques necessary for analyzing business environments, making sound business decisions and planning one's career. Academic advising is available in the Academic Advising Center, 106 McCool Hall.

A minimum of 21 hours must be taken to obtain a BUAD minor. A minimum of 12 hours must be taken at MSU to receive the BUAD minor. Note that some choices require others as prerequisites.

Choose seven of the following: 21

BL 2413	The Legal Environment of Business
ACC 2013	Principles of Financial Accounting
ACC 2023	Principles of Managerial Accounting
EC 2113	Principles of Macroeconomics
EC 2123	Principles of Microeconomics
FIN 3123	Financial Management
MKT 3013	Principles of Marketing
MGT 3113	Principles of Management
BIS 3233	Management Information Systems
BQA 2113	Business Statistical Methods I
BQA 3123	Business Statistical Methods II
MGT 3413	Production Management

<b>Total Hours</b>	<b>21</b>
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## Entrepreneurship Minor

In partnership with the MSU Entrepreneurship Center, the College of Business offers a minor in Entrepreneurship to help students prepare for launching and growing new business ventures. This minor offers interdisciplinary coursework in management, marketing/branding, entrepreneurial finance, and the legal aspects of entrepreneurship. Each course in the minor goes beyond traditional business courses by focusing on entrepreneurial applications. The entrepreneurship minor is available to any MSU student, regardless of major. The minor in entrepreneurship is designed to complement the Engineering Entrepreneurship Certificate program by allowing engineering majors to benefit from more advanced coursework in entrepreneurship. Upon completion of the Engineering Entrepreneurship Certificate, a student will have the prerequisites for the Entrepreneurship minor.

The minor is comprised of 16 hours listed below:

MGT 3323	Entrepreneurship	3
MGT 3333	Field Studies in Entrepreneurship	3
BL 4243	Legal Aspects of Entrepreneurship	3
FIN 4323	Entrepreneurial Finance	3
MKT 4423	Strategic Brand Management	3
GE 3011	Engineering Entrepreneurship Seminar	1

Students interested in the Entrepreneurship Minor should contact the MSU E-center in 101 McCool Hall.

## Department of Finance and Economics

Office: 312 McCool Hall

### Business Economics Major (ECO)

Economics is the scientific study of how people and institutions make choices concerning the use of society's scarce resources. Applied to business, economics is primarily concerned with the decision-making of households and firms within a market context. The importance of economic analysis is recognized by it being the only social science in which a Nobel Prize is awarded. The B.B.A. in economics provides the analytical skills and empirical background needed to understand the dynamic problems facing businesses in the ever-changing economic environment. Career opportunities available to an economics graduate include management, research, and instructional positions with corporations, banks, economic development agencies, trade organizations, governments, and educational institutions.

An economics major or minor also helps prepare the student for graduate professional training in business, public administration, and law. The flexibility of the economics major is reflected in relatively high starting salaries and lifetime earnings of economists. Undergraduates at Mississippi State University may pursue an economics major through either the College of Business (B.B.A degree) as described here or through the College of Arts and Sciences (B.A. degree) as described previously in this bulletin.

Students seeking the B.B.A. with a major in economics are required to complete all College of Business and university common core requirements. Majors are required to take MA 1613 Calculus for Business and Life Sciences I. Elective courses should be chosen with the advisor's approval and used to enhance the student's overall program. Only grades

of C or higher will be accepted for EC courses that are counted toward the major.

The economics faculty offers a minor in economics through the College of Arts and Sciences. This minor is open to any student regardless of major or college of enrollment. A minor in economics is attained by selecting, in consultation with the economics minor advisor, at least 15 hours of economics course work. Three hours of courses from finance (FIN) or agricultural economics (AEC) may be applied to the economics minor with approval from the advisor. All economics minors must register with the economics minor advisor in the Department of Finance and Economics, 312 McCool Hall. Students with majors in business, engineering, agriculture, the social sciences, mathematics, and pre-law are especially encouraged to consider the economics minor.

Academic advising and career counseling are available from the economics faculty for both majors and minors. Students interested in the study of economics should contact the Department of Finance and Economics, 312 McCool Hall. Any student who completes 12 credit hours of economics with at least a 3.0 GPA and has an overall GPA of 3.0 or higher is eligible for membership in Omicron Delta Epsilon, the international honor society in economics.

## Finance Major (FINA)

Finance plays a central role in the operation of the economy and is crucial to an organized society's resource allocation system. Individuals often come in contact with financial instruments (money, stocks, bonds, etc.) and financial institutions (banks, thrifts, insurance companies, etc.); thus, they need to understand the role of the financial system in managing their lifetime financial portfolio. Finance majors acquire the knowledge and skills to help individuals and companies make decisions regarding allocation of scarce resources through analyzing accounting data, utilizing economic concepts, and applying statistical tools in the valuation of financial and real assets.

The Finance major requires 124 credit hours and leads to a Bachelor of Business Administration (B.B.A.) degree. For specialization, students may choose from a list of electives based on their interests and career preparation needs. In order to maximize the benefits of their degree, students are strongly encouraged to work closely with a faculty advisor in securing an internship and developing their personal program of study.

The career opportunities for Finance majors are varied and challenging. Graduates pursue careers in corporate financial management, commercial banking, real estate investment, mortgage lending, investment banking, financial planning, and wealth management. In addition, an optional concentration in Risk Management and Insurance is also available.

Finance minors and double majors are available for both business and non-business majors. For specifics, see the Programs of Study tab and the Minors tab.

## Risk Management and Insurance Concentration

The concentration in Risk Management and Insurance option leads to a Bachelor of Business Administration (B.B.A.) degree with a major in Finance (FINA) and a Concentration in Risk Management and Insurance (RMI). The program offers a broad study of subjects related to the fields of Risk Management and Insurance with an emphasis on the professional educational requirements in the Insurance industry.

Students enrolled in the concentration must complete an Introductory course in Insurance as well as advanced courses in Life and Health Insurance, Property and Casualty Insurance, and Enterprise Risk Management.

## Business Economics Major (ECO)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

#### Science

2 Lab Sciences from General Education courses	6
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#### Humanities

See General Education courses	6
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#### Fine Arts

See General Education courses	3
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#### Social/Behavioral Sciences

PS 1113	American Government	3
See General Educ courses excluding: AEC and EC	3	

#### College Core

BQA 3123	Business Statistical Methods II	3
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3123	Financial Management	3
MKT 3013	Principles of Marketing	3
MGT 3113	Principles of Management	3
BUS 4853	Strategic Management	3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	

#### Writing Requirement

MGT 3213	Organizational Communications	3
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#### Major Core

#### International Elective

Choose one of the following:	3
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EC 3513	Comparative Economic Policy	
EC 4303	International Economic Development	
EC 4323	International Economics	
<b>Required Courses</b>		
EC 3113	Intermediate Macroeconomics	3
EC 3123	Intermediate Microeconomics	3
EC 4643	Economic Forecasting and Analysis	3
<b>Upper Division EC electives</b>		
See advisor for options		9
<b>Free electives</b>		
See advisor for options		22
<b>Total Hours</b>		<b>123</b>

## Finance Major (FINA)

Finance minors and double majors are available for both business and non-business majors. For specifics, see below.

## General Education Requirements

### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

### Science

2 Lab Sciences from General Education courses		6
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### Humanities

See General Education courses		6
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### Fine Arts

See General Education courses		3
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### Social/Behavioral Sciences

PS 1113	American Government	3
Choose from General Education courses excluding: AEC and EC		3

### College Core

BQA 3123	Business Statistical Methods II	3
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3123	Financial Management	3
MKT 3013	Principles of Marketing	3
MGT 3113	Principles of Management	3
BUS 4853	Strategic Management	3

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	

### Writing Requirement

MGT 3213	Organizational Communications	3
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### Major Core

FIN 3723	Financial Markets and Institutions	3
FIN 4223	Intermediate Financial Management	3
FIN 4423	Investments	3

Accounting Elective	Choose one of the following:	3
ACC 3013	Cost Accounting	
ACC 3023	Intermediate Accounting I	
ACC 3203	Financial Statement Analysis	

### Senior Capstone Requirement (select at least one): 3

FIN 4243	Senior Seminar in Financial Management	
FIN 4433	Senior Seminar in Portfolio Management	

Finance (FIN) or Real Estate Finance (REF) electives at the 3000-level or above		12
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Free electives		16
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### Risk Management and Insurance concentration (replace 27-hour FIN Major Core above with the following)

FIN 3723	Financial Markets and Institutions	3
FIN 4223	Intermediate Financial Management	3
FIN 4423	Investments	3

Accounting Elective	Choose one of the following:	3
ACC 3013	Cost Accounting	
ACC 3023	Intermediate Accounting I	
ACC 3203	Financial Statement Analysis	

INS 3103	Principles of Insurance	3
INS 3203	Property and Casualty Insurance	3
INS 3303	Life and Health Insurance	3

Finance (FIN) or Real Estate Finance (REF) electives at the 3000-level or above		3
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Free electives		16
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<b>Total Hours</b>		<b>123</b>
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<sup>1</sup> These courses are to be selected in consultation with your finance advisor. They may be taken along with Junior-Senior core courses. Of the three courses required, at least two should be Finance (FIN) or Real Estate Finance (REF) electives at the 3000 level or above.

**Double Major.** Students with another B.B.A Major<sup>2</sup> who desire a Double Major in Finance must take the following 18 hours beyond the 124 hours required for the first major. For additional depth, they may choose from the listed optional courses.

### Required Courses for Double Major

FIN 3723	Financial Markets and Institutions	3
FIN 4423	Investments	3
FIN 4223	Intermediate Financial Management	3
FIN 4923	International Financial Management	3

FIN 4723	Bank Management	3
FIN 4243	Senior Seminar in Financial Management	3
<b>Optional Finance Courses</b>		
FIN 3203	Financial Statement Analysis	3
FIN 4233	Working Capital Management	3
FIN 4433	Senior Seminar in Portfolio Management	3

<sup>2</sup> Non-Business School Majors wishing to pursue a second degree in a Business Administration field, please consult the MSU Bulletin or the COB Advisement Center.

## Finance Minor

**Students with a Business School Major** who desire to Minor in Finance are required to take:

FIN 3723	Financial Markets and Institutions	3
FIN 4223	Intermediate Financial Management	3
FIN 4423	Investments	3

**Students with a Non-business School Major** who desire to Minor in Finance are required to take:

FIN 3123	Financial Management	3
FIN 3723	Financial Markets and Institutions	3
FIN 4423	Investments	3
FIN 4223	Intermediate Financial Management	3
FIN 4923	International Financial Management	3
Finance (FIN) or Real Estate Finance (REF) elective at the 3000-level or above		3

## Insurance Minor

The College of Business offers a minor in Insurance to help students prepare for careers in the insurance industry. This minor provides students with the expertise to pursue insurance related careers such as insurance underwriter, sales/agency management, claims adjuster, financial planner and actuary. The insurance minor enhances many existing business majors including business administration, business information systems, management, and marketing. The minor also complements many non-business majors such as mathematics, statistics, communication, and psychology.

The minor is comprised of 15 hours listed below:

INS 3103	Principles of Insurance	3
INS 3203	Property and Casualty Insurance	3
INS 3303	Life and Health Insurance	3
INS 4503	Enterprise Risk Management	3
INS 3403	Financial Planning	3
or INS 3503	Employee Benefits	

Students interested in the Insurance Minor should contact the Department of Finance & Economics, 312 McCool Hall.

## Economics Minor

The economics faculty offers a minor in economics through the College of Arts and Sciences. This minor is open to any student regardless of major or college of enrollment. A minor in economics is attained by

selecting, in consultation with the economics minor advisor, at least 15 hours of economics course work. Three hours of courses from finance (FIN) or agricultural economics (AEC) may be applied to the economics minor with approval from the advisor. All economics minors must register with the economics minor advisor in the Department of Finance and Economics, 312 McCool Hall. Students with majors in business, engineering, agriculture, the social sciences, mathematics, and pre-law are especially encouraged to consider the economics minor.

## Department of Management and Information Systems

Office: 302 McCool Hall

Students in the Department of Management and Information Systems may elect to major in either Management or Business Information Systems. Both majors offer excellent job opportunities and can help graduates to achieve their potential in business firms or other organizations.

### Management Major (MGT)

Regardless of one's chosen career, future responsibilities will very likely require a knowledge of management concepts. While an organization can acquire more capital, and technology becomes more common and cost-effective, the only true sustainable source of competitive advantage for an organization is people, and how these resources are managed. Management adds value by encouraging employee involvement, creativity, motivation and loyalty. A student may choose to take electives emphasizing human resource management, general management, and entrepreneurship.

### Business Information Systems Major (BIS)

Business, industrial, governmental, and military establishments are constantly seeking persons with the necessary aptitude, professional education, and experience for careers in the fast-growing field of computer information systems. Through the facilities of the academic departments and the computing center, students at Mississippi State University have a unique opportunity to acquire both professional education and experience in business and management information systems.

The purpose of the Business Information Systems major is to prepare students to solve business problems where the solution normally involves the use of a computer. Thus, the student must have a strong foundation in computer concepts, systems analysis and design, programming and quantitative skills. Since the student will be expected to solve business related problems, he/she must have a broad background and understanding of the business environment including such topics as accounting, economics, law, management, production, marketing, finance, and communications.

A student chapter of the BIS club is active and provides students with the opportunity to keep abreast of current developments in the field of management information systems through professional speakers, social activities, and field trips.



## Management Major (MGT)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

#### Science

2 Lab Sciences from General Education courses		6
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#### Humanities

See General Education courses		6
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#### Fine Arts

See General Education courses		3
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#### Social/Behavioral Sciences

PS 1113	American Government	3
Choose from General Education excluding: AEC and EC		3

#### College Core

BQA 3123	Business Statistical Methods II	3
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3113	Financial Systems	3
FIN 3123	Financial Management	3
MKT 3013	Principles of Marketing	3
MGT 3113	Principles of Management	3
BUS 4853	Strategic Management	3
International Elective (see advisor for options)		3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	

#### Writing Requirement

MGT 3213	Organizational Communications	3
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#### Major Core

MGT 3323	Entrepreneurship	3
MGT 3513	Introduction to Human Resource Management	3
MGT 3813	Organizational Behavior	3

MGT 4153	Management Seminar	3
Choose any three MGT electives 3000-level or above:		9
MGT 3333	Field Studies in Entrepreneurship	
MGT 3823	Socially Responsible Leadership	
MGT 4533	Advanced Human Resource Management	
MGT 4543	Compensation Management	
MGT 4563	Staffing in Organizations	
MGT 4613	Cross-Cultural Management	
Free electives		19
<b>Total Hours</b>		<b>124</b>

## Business Information Systems Major (BIS)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
BQA 2113	Business Statistical Methods I	3

#### Science

2 Lab Sciences from General Education courses		6
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#### Humanities

See General Education courses		6
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#### Fine Arts

See General Education courses		3
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#### Social/Behavioral Sciences

PS 1113	American Government	3
Choose from General Education excluding: AEC and EC		3

#### College Core

BQA 3123	Business Statistical Methods II	3
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3113	Financial Systems	3
FIN 3123	Financial Management	3
MKT 3013	Principles of Marketing	3
MGT 3113	Principles of Management	3
BUS 4853	Strategic Management	3
International Elective (see advisor for options)		3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2
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**Writing Requirement**

MGT 3213	Organizational Communications	3
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**Major Core**

BIS 1523	Web Development I	3
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BIS 2523	Web Development II	3
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BIS 3523	Advanced Languages I	3
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BIS 3753	Business Database Systems	3
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BIS 4753	Structured Systems Analysis and Design	3
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BIS 4763	BIS Senior Seminar	3
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Choose two of the following:		6
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BIS 4113	Business Information Systems Security Management	
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BIS 4513	Microcomputers and Networks	
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BIS 4523	Business Programming with COBOL	
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BIS 4533	Decision Support Systems	
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**Non-business electives (see advisor for options)**

Computer Science Engineering (CSE) electives	3
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Computer-related electives	9
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Free electives	4
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<b>Total Hours</b>	<b>123</b>
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## Department of Marketing, Quantitative Analysis and Business Law

Office: 324 McCool Hall

This department offers two majors (Marketing and Supply Chain Logistics), two minors (Marketing and Business Analytics), and two concentrations (PGA Golf Management and Integrated Digital Marketing). In addition, the department offers marketing, quantitative analysis and business law courses to support other programs in the college and across campus.

### Marketing Major (MKT)

Marketing consists of three significant interlocking activities:

- understanding consumers along with their wants and unfilled needs;
- developing improved products and services that meet the identified needs of consumers; and
- communicating the benefits of the improved products and services through advertising, public relations, promotion and effective salesmanship.

Courses offered within this unit prepare students to provide marketing leadership and assume a variety of career paths, including field sales, brand management, marketing communications, store management, procurement, logistics, and small business.

### PGA Golf Management Concentration (PGM)

**Director: Adam Scott, PGA**

Office: 309 McCool Hall; Phone: (662) 325-3161

The PGA Golf Management Program is the second oldest PGA Golf Management Program program accredited by the Professional Golfers' Association of America (PGA). The Program prepares graduates

for careers as Class A PGA Professionals at golf courses and other industry businesses. A PGA Professional must have a broad assortment of marketing, management and other business-related skills to be effective in the golf profession. The PGA Golf Management Program is a demanding four and one half year curriculum.

The 4 ½ year program leads to a bachelor's degree in business administration with a major in marketing. In addition to the requirements for a degree in marketing, students must complete the PGA Golf Management requirements as well as complete the PGA/PGM education curriculum (provided by the PGA) that includes subject matter in facility management and teaching & coaching the game of golf. Students must also complete a minimum of 16 months of co-op under the guidance of the MSU Cooperative Education Program. These work experiences are under the tutelage of Class A PGA Professionals throughout the country. Students are required to be continuously enrolled at MSU as full-time students or in the MSU Cooperative Education Program according to their co-op schedule. Those who complete the program thus earn a prestigious degree, and upon eligible employment, membership in the PGA of America.

**PGA Membership.** Please see PGA Golf Management staff to discuss PGA Membership Requirements.

**PGA Golf Management Graduation Requirements.** Students must complete the last semester in school (not on co-op). They must also pass the PGA Playing Ability Test, complete 16 months of co-op, and complete all levels of the PGA Golf Management Program.

**PGA Golf Management Admission Procedures.** The PGA Golf Management Program has a limited enrollment. The current enrollment limit is 200; however, this number is subject to change based on the placement outlook and PGA Golf Management and Co-op budget constraints. The number of students admitted each year is determined by graduation and attrition of the previous year. Students are admitted once per year for entrance in the fall semester. The deadline for completed applications is May 1 each year.

### Entrance Requirements

Freshmen:

- Meet MSU regular admission requirements
- Have a USGA Handicap of 8 or less

Transfer Students:

- Meet MSU admission requirements
- 2.5 GPA with maximum of 62 applied semester hours
- Have a USGA Handicap of 8 or less

### Integrated Digital Marketing Concentration (IDM)

The internet and digital marketing have grown to become an important resource for organizations and consumers. As firms and individuals focus on utilizing digital tools and applications for all aspects of marketing from product development, consumer behavior and customer touch points, job opportunities for graduates in the integrated digital marketing concentration increase. The curriculum in the integrated digital marketing concentration will provide the student with the strategic application skills needed in the digital world. Students will be exposed to industry standard tools and techniques through the analyses and assessment of leading firm practices and the development of comprehensive applied projects.

## Supply Chain Logistics Major (SCL)

The Supply Chain Logistics major will equip students with the knowledge and skills required for careers in logistics and other supply chain related areas such as procurement, operations, manufacturing, transportation, and distribution. Supply Chain Logistics is an integrated program of study focused on the efficient and effective flow of information, materials, and products within and among organizations. The curriculum provides students the analytical, critical thinking, and logistical reasoning skills to make sound operational and strategic business decisions related to logistics and supply chain operations.

Students in the Supply Chain Logistics major have the option to complete the International Business concentration, in conjunction with a bachelor's degree in a foreign language as part of the International Business (IB) dual-degree program. Students must be separately admitted to the International Business concentration.

## Marketing Major (MKT)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

#### Science

2 Lab Sciences from General Education courses	6
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#### Humanities

See General Education courses	6
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#### Fine Arts

See General Education courses	3
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#### Social Sciences

PS 1113	American Government	3
Introductory course in AN, PSY, or SO		3

#### College Core

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BIS 3233	Management Information Systems	3
BL 2413	The Legal Environment of Business	3
BQA 3123	Business Statistical Methods II	3
BUS 4853	Strategic Management	3
FIN 3123	Financial Management	3
MGT 3113	Principles of Management	3
MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	

#### Writing Requirement

MGT 3213	Organizational Communications	3
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#### Major Core

International Elective (see advisor for options)	3	
MKT 4413	Consumer Behavior	3
MKT 4533	Marketing Research	3
MKT 4813	Marketing Management	3
Choose four of the following:	12	

MKT 3213	Retailing
MKT 3513	Marketing Internship
MKT 4113	Personal Selling
MKT 4123	Advertising
MKT 4213	Internet Marketing
MKT 4223	Social Media Marketing
MKT 4423	Strategic Brand Management
MKT 4613	Services Marketing
MKT 4143	Sales Management
MKT 3933	International Marketing
MKT 4033	International Transportation
MKT 4313	Physical Distribution Management
MKT 4333	International Supply Chain Management

Free electives (see advisor for options) <sup>1</sup>	19
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<b>Total Hours</b>	<b>123</b>
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<sup>1</sup> To be selected with the advice and approval of advisor

## PGA Golf Management Concentration (PGM)

### Concentration Course Requirements

PGA Golf Management students are required to take all courses listed under the General Education and College requirements for Marketing in addition to the following courses:

MKT 2211	PGM Level I Seminar	1
MKT 2213	PGA Golf Facility Management I	3
MKT 2223	Introduction to Golf Swing Instruction	3
MKT 2233	Intermediate Golf Instruction	3
MKT 2243	PGA Golf Facility Management II	3
MKT 2252	Advanced Golf Instruction	2
MKT 3213	Retailing	3
MKT 4234	Golf Operations Management	4
MKT 4413	Consumer Behavior	3
MKT 4533	Marketing Research	3
MGT 3513	Introduction to Human Resource Management	3

International Elective (see advisor for options)	3
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Choose three of the following:	9
MKT 3933	International Marketing

MKT 4113	Personal Selling	
MKT 4123	Advertising	
MKT 4143	Sales Management	
MKT 4213	Internet Marketing	
MKT 4223	Social Media Marketing	
MKT 4423	Strategic Brand Management	
MKT 4613	Services Marketing	
<b>Total Hours</b>		<b>123</b>

**Co-op Work**

PGA Golf Management students must complete a minimum of 16 months of co-op work with Class A PGA professionals at country clubs, public golf courses, golf resorts, or other golf facilities. A 2.25 cumulative GPA on all work at MSU is required to earn credit for a specific work experience.

**PGA Golf Management**

PGA Golf Management students will complete all PGA Golf Management requirements including testing, which will be conducted on the Mississippi State University campus by officials of the PGA. An initial lab fee and a semester lab fee is charged to students each semester on campus to cover the PGA Golf Management seminars, tests, workshops and playing privileges at the MSU Golf Course. A typical schedule of classes and co-ops are as follows:

**Freshman Year**

Fall School	15
Spring School	16
Summer Co-op	

**Sophomore Year**

Fall School	16
Spring School	16
Summer Co-op	

**Junior Year**

Fall Co-op	
Spring School	16
Summer School	12

**Senior Year**

Fall School	16
Spring Co-op	
Summer Co-op	
Fall School (Graduation)	16

**Integrated Digital Marketing Concentration (IDM)**

**Concentration Course Requirements**

IDM students are required to take all courses listed under the General Education and College requirements for Marketing in addition to the following courses:

MKT 4213	Internet Marketing	3
MKT 4223	Social Media Marketing	3
Choose two of the following:		6
MKT 4123	Advertising	

MKT 4423	Strategic Brand Management	
MKT 3513	Marketing Internship (with prior approval)	
MKT 3213	Retailing	
<b>Total Hours</b>		<b>12</b>

**Supply Chain Logistics Major (SCL)**

**Degree Requirements**

**English Composition**

EN 1103	English Composition I	3
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

**Mathematics**

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
BQA 2113	Business Statistical Methods I	3

**Science**

2 Lab Sciences from General Education courses	6
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**Humanities**

See General Education courses	6
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**Fine Arts**

See General Education courses	3
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**Social Sciences**

PS 1113	American Government	3
See General Education courses (except AEC, EC)	3	

**College Core**

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BIS 3233	Management Information Systems	3
BL 2413	The Legal Environment of Business	3
BQA 3123	Business Statistical Methods II	3
BUS 4853	Strategic Management	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
FIN 3123	Financial Management	3
MGT 3113	Principles of Management	3
MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3

**Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

**Computer Literacy Requirement**

BIS 1012	Introduction to Business Information Systems	2
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**Writing Requirement**

MGT 3213	Organizational Communications	3
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**Major Core**

International Elective (see advisor for options)	3	
MKT 4013	Procurement	3
MKT 4033	International Transportation	3
MKT 4333	International Supply Chain Management	3

**Supply Chain Electives**

9

Choose three of the following:

MKT 3213	Retailing	
MKT 4113	Personal Selling	
MKT 4143	Sales Management	
MKT 4313	Physical Distribution Management	
MKT 4413	Consumer Behavior	
MKT 4533	Marketing Research	
BQA 4413	Business Forecasting and Predictive Analytics	
BQA 4423	Business Decision Analysis	
BL 3223	The Law of Commercial Transactions	
BL 4243	Legal Aspects of Entrepreneurship	
BL 4273	International Business Law	

Free electives (see advisor for approved options) 19

**Total Hours 120**

## Supply Chain Logistics Major - International Business Concentration

### Degree Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

#### Science 7

Life Science and Lab (BIO prefix)  
Physical Science and Lab (CH, GG, or PH prefix)

#### Humanities

EN 2273	World Literature Before 1600	3
or EN 2283	World Literature After 1600	
HI 1173	World History Since 1500	3
or HI 1223	Modern Western World	

#### Fine Arts

See General Education courses 3

#### Social Sciences

GR 1123	Introduction to World Geography	3
AN 1143	Introduction to Cultural Anthropology	3

#### College Core

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
BUS 4853	Strategic Management	3
or MGT 4863	International Strategic Management	
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3

FIN 3123	Financial Management	3
MGT 3113	Principles of Management	3
MKT 3013	Principles of Marketing	3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

#### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2
or TECH 1273	Computer Applications	

#### Writing Requirement

MGT 3213	Organizational Communications	3
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#### Major Core

MKT 3323	International Logistics	3
MKT 4013	Procurement	3
MKT 4033	International Transportation	3
MKT 4333	International Supply Chain Management	3

#### Supply Chain Electives 9

Choose three of the following:

MKT 3213	Retailing	
MKT 4113	Personal Selling	
MKT 4143	Sales Management	
MKT 4313	Physical Distribution Management	
MKT 4413	Consumer Behavior	
MKT 4533	Marketing Research	
BQA 4413	Business Forecasting and Predictive Analytics	
BQA 4423	Business Decision Analysis	
BL 3223	The Law of Commercial Transactions	
BL 4243	Legal Aspects of Entrepreneurship	
BL 4273	International Business Law	

#### International Business Core 8

IB 1001	Introduction to International Business	
IB 3900	Internship Work	
IB 4903	Internship Academic Report	
	International Business Elective (see advisor)	

College of Arts & Sciences Core 12

Foreign Language Major Courses 35

Free Electives 6

**Total Hours 154**

### Marketing Minor

A Marketing minor is offered to both Business and Non-Business students. A minor in Marketing is attained by taking the following courses:

MKT 3013	Principles of Marketing	3
MKT 4413	Consumer Behavior	3

Choose four of the following: 12

MKT 3213	Retailing	
MKT 3323	International Logistics	
MKT 3513	Marketing Internship	
MKT 3933	International Marketing	
MKT 4033	International Transportation	

MKT 4113	Personal Selling
MKT 4123	Advertising
MKT 4143	Sales Management
MKT 4213	Internet Marketing
MKT 4223	Social Media Marketing
MKT 4313	Physical Distribution Management
MKT 4333	International Supply Chain Management
MKT 4423	Strategic Brand Management
MKT 4533	Marketing Research
MKT 4613	Services Marketing
<b>Total Hours</b>	<b>18</b>

Students interested in this minor should contact a Marketing advisor.

## Business Analytics Minor

The minor will provide students with both an appreciation of the use of analytic techniques in business and the practical skills to implement and understand these techniques. Students completing the minor will obtain a range of real-world technical skills, such as using R, SAS, Tableau, and Excel. They will also gain insight into a wide range of business problems and scenarios. A specific niche/competitive advantage of this program is that students will be introduced to a range of software, such as widely used free analytics software (e.g., R). The minor will give commercially useful skills to many existing business students, such as those in accounting, business administration, business information systems, business economics, finance, and marketing. It also will provide business analytic skills for many non-business majors in areas such as computer science, engineering, mathematics, and psychology.

<b>Analytics Skills</b>	<b>9</b>
Choose 3	
BQA 4413/6413	Business Forecasting and Predictive Analytics
BQA 4423/6423	Business Decision Analysis
EC 4643/6643	Economic Forecasting and Analysis
BIS 3753	Business Database Systems <sup>1</sup>
<b>Analytics Applications</b>	<b>6</b>
Choose 2	
ACC 3003	Accounting Information Systems I
ACC 3053	Accounting Information Systems II
BIS 3753	Business Database Systems
BIS 4533	Decision Support Systems
CSE 4503	Database Management Systems
CSE 4633	Artificial Intelligence
FIN 4243	Senior Seminar in Financial Management
FIN 4423	Investments
MKT 4033	International Transportation
MKT 4333	International Supply Chain Management
MKT 4533	Marketing Research
<b>Total Hours</b>	<b>15</b>

<sup>1</sup> BIS 3753 can only count once, for either the skills or the applications section.

## Supply Chain Logistics Minor

Since every organization is dependent on logistics and supply chain systems, students in areas as diverse as engineering, agribusiness, human sciences, or business may benefit from this minor. Students improve understanding of core supply chain management functions such as operations, transportation, and distribution.

### Major/Minor Required Courses

MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3
MKT 4333	International Supply Chain Management	3

### Optional Courses

MKT 3213	Retailing	3
MKT 4113	Personal Selling	3
MKT 4143	Sales Management	3
MKT 4313	Physical Distribution Management	3
BQA 4413	Business Forecasting and Predictive Analytics	3
BQA 4423	Business Decision Analysis	3
Other Electives approved by department		
<b>Total Hours</b>		<b>15</b>

## International Business Program

A Five-Year Double Degree Program:

B.B.A. in Business Administration & B.A. in Foreign Languages

Office: 102 McCool Hall

**Major Advisor - Business Administration: Travis Wiseman, Ph.D.,**  
210 McCool Hall

**Major Advisor - Foreign Languages: Amie Russell,** 1500 Lee Hall

The International Business Program at Mississippi State University is designed to help bright, ambitious students prepare for an increasingly global future. The program is distinct in discharging this mission through (1) education in the principles of international business, (2) a concentrated study in foreign language and, (3) a coordinated program of practical skills acquisition.

Graduates from the International Business program typically complete their studies in five years, receiving two degrees, each designed to cover a separate aspect of living and working internationally:

- a Bachelor of Business Administration (or a Bachelor of Accountancy) with a major in a specific business discipline such as marketing, finance, management or accounting, and a concentration in international business.
- a Bachelor of Arts with a major in foreign languages, and a concentration in Spanish, German, French, or Asian Studies.

The hallmark of the International Business program at MSU is its emphasis on real cross-cultural immersion, both academically and in a real-world business context. All IB students must study abroad for at least six continuous weeks in one location. This experience can be either for a summer or a regular semester term.

IB students must also complete an internationally-oriented internship in which they work for a company conducting significant international

business. The minimum duration of the internship is ten weeks on the job. Ideally, the internship will be reflective of the student's specific business discipline and language proficiency area, but will ultimately be dependent on the student's own initiative, qualifications and interest.

Students may elect to combine the practical and abroad experiences by pursuing an internship outside the country. Such an internship must be 10 weeks in length.

In addition to the business and cultural immersion aspects, the program has four main academic components:

- a core of basic skills, including courses in writing, mathematics, sciences, and communication (30 SCH);
- a core of humanities and social science courses selected to fit the special needs of international business students, emphasizing both the history and culture of other societies and the ways these societies relate to our own (27 SCH);
- intensive training to develop proficiency in one foreign language and its associated cultures and literatures (35);
- a thorough grounding in business techniques and practices, including 33 SCH of general business courses and 21-24 SCH training in one of six disciplines in business (accounting, finance, information systems, economics, management, or marketing).

As a specialized, five-year program a minimum of 154 total credit hours are required.

Admissions to the International Business Program are limited and competitive. In addition to being accepted at Mississippi State University, applicants are evaluated on their academic qualifications by the International Business Academic Program Committee. Existing foreign language fluency is not required.

Students must meet all graduation requirements for the College of Business and the College of Arts & Sciences. International Business students must have an overall and previous semester GPA of 2.67 to be eligible for internship and study abroad.

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
ST 2113	Introduction to Statistics	3
or BQA 2113	Business Statistical Methods I	

### Science

Life Science and Lab (BIO prefix)		3
Physical Science and Lab (CH, GG, OR PH prefix)		4

### Humanities

EN 2273	World Literature Before 1600	3
or EN 2283	World Literature After 1600	
HI 1173	World History Since 1500	3
or HI 1223	Modern Western World	

### Fine Arts

Choose one the following: 3

ARC 1013	Architectural Appreciation
ARC 2313	History of Architecture I
ART 1013	Art History I
ART 1023	Art History II
ART 1113	Art Appreciation
ART 3143	Italian Renaissance Art History
MU 1113	History and Appreciation of Music
CO 1503	Introduction to the Theatre
PE 1323	History and Appreciation of Dance

### Social/Behavioral Sciences

GR 1123	Introduction to World Geography	3
AN 1143	Introduction to Cultural Anthropology	3

### College of Arts and Sciences Core

PHI 3013	Business Ethics	3
PS 1313	Introduction to International Relations	3
or PS 1513	Comparative Government	
HI 3000+	Upper-level History Elective (see advisor)	
SO 3000+	Upper-level Social Science Elective (see advisor)	

Choose one of the following: 3

FLF 1113	French I
FLG 1113	German I
FLS 1113	Spanish I
FLC 1113	Chinese I
FLJ 1113	Japanese I

Choose one of the following: 3

FLF 1123	French II
FLG 1123	German II
FLS 1123	Spanish II
FLC 1123	Chinese II
FLJ 1123	Japanese II

Choose one of the following: 3

FLF 2133	French III
FLG 2133	German III
FLS 2133	Spanish III
FLC 2133	Chinese III
FLJ 2133	Japanese III

Choose one of the following: 3

FLF 2143	French IV
FLG 2143	German IV
FLS 2143	Spanish IV
FLC 2143	Chinese IV
FLJ 2143	Japanese IV

Choose one of the following: 4

FLF 3114	Advanced French Composition
FLG 3114	Advanced German Composition
FLS 3113 & FLS 3111	Advanced Spanish Composition and Advanced Spanish Laboratory
FLC 3153	Chinese V
FLJ 3153	Japanese V

Choose one of the following: 4

FLF 3124	Advanced French Conversation	
FLG 3124	Advanced German Conversation	
FLS 3233 & FLS 3121	Advanced Spanish Conversation and Advanced Spanish Conversation Practicum	
FLC 3163	Chinese VI	
FLJ 3163	Japanese VI	
Choose one of the following:		3
FLF 3143	French Civilization	
FLG 3143	German Civilization	
FLS 3143	Hispanic Civilization	
FLC 3303	Survey of Chinese Culture	
FLJ 3303	Survey of Japanese Culture	
Choose one of the following:		3
FLF 3313	Business French I	
FLG 3313	Business German I	
FLS 3313	Economics of the Spanish-Speaking World	
Any 3000+ level FL, FLC, or FLJ Asian Studies course		
Business-related Language course		3
See FL advisor for available courses		
Literature course in target language		3
See FL advisor for available courses		
<b>Foreign Language Elective</b>		
See FL advisor for options		
<b>College of Business Core</b>		
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3123	Financial Management	3
MKT 3013	Principles of Marketing	3
MGT 3114		4
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Computer Literacy Requirement</b>		
BIS 1012	Introduction to Business Information Systems	2
<b>Writing Requirement</b>		
MGT 3213	Organizational Communications	3
<b>International Business Core</b>		
IB 1001	Introduction to International Business	1
IB 3900	Internship Work	1-6
IB 4903	Internship Academic Report	3
International Business Elective (see advisor)		3
MGT 4863	International Strategic Management	3
Free Electives		7
<b>Major Courses</b>		<b>21-24</b>

Students must select 21 hours of upper level course work within a specific business discipline to complete the major. Accounting majors must complete 24 hours of upper level (3000+) course work for the Bachelor of Accountancy degree. Courses counting toward the required hours are provided below.

**Total Hours** **154**

## Accounting

ACC 3003	Accounting Information Systems I	3
ACC 3013	Cost Accounting	3
ACC 3023	Intermediate Accounting I	3
ACC 3033	Intermediate Accounting II	3
ACC 3053	Accounting Information Systems II	3
ACC 4013	Income Tax I	3
ACC 4033	Auditing	3
Accounting Elective (see advisor)		3
3000-4000 level course		

## Business Information Systems

BIS 1733	Visual Basic Programming	3
BIS 1753	Introduction to Business COBOL	3
BIS 3523	Advanced Languages I	3
BIS 3753	Business Database Systems	3
BIS 4753	Structured Systems Analysis and Design	3
BIS Electives	3000-4000 level courses	6

## Economics

EC 3113	Intermediate Macroeconomics	3
EC 3123	Intermediate Microeconomics	3
EC 4323	International Economics	3
EC 4643	Economic Forecasting and Analysis	3
Economics Electives	3000-4000 level courses	9

## Finance

FIN 3723	Financial Markets and Institutions	3
FIN 4223	Intermediate Financial Management	3
FIN 4243	Senior Seminar in Financial Management	3
FIN 4423	Investments	3
FIN 4923	International Financial Management	3
Finance Electives	4000-level courses	6

## Management

MGT 3323	Entrepreneurship	3
MGT 3513	Introduction to Human Resource Management	3
MGT 3813	Organizational Behavior	3
MGT 4153	Management Seminar	3
MGT 4613	Cross-Cultural Management	3
Management Electives	3000-4000 level courses	6

## Marketing

MKT 3933	International Marketing	3
MKT 4413	Consumer Behavior	3



MKT 4533	Marketing Research	3
MKT 4813	Marketing Management	3
Marketing Electives	3000-4000-level courses <sup>1</sup>	9

#### Footnotes

<sup>1</sup> See IB advisor for elective options, including a concentration in Supply Chain Management.

### Business Administration

MKT 3933	International Marketing	3
FIN 4923	International Financial Management	3
EC 4323	International Economics	3
MGT 4613	Cross-Cultural Management	3
BL 4273	International Business Law	3
International Business Electives	See advisor	6

## Richard C. Adkerson School of Accountancy

**Director: Shawn Mauldin**

Office: 300 McCool Hall, 325-3710

**Academic Coordinator: Trina Pollan**

Office: 300A McCool Hall, 325-1631

The Richard C. Adkerson School of Accountancy is a professional school whose mission is to prepare students for successful careers in accountancy and business by fostering an environment that promotes innovative teaching and curricula, high quality research, and professional engagement. Such career preparation includes a wide range of professional accounting activities, general education, and broad training in business administration. This program of study gives students the basic preparation for positions in all areas of accounting including, but not limited to, public, private, and governmental accounting. It also (1) requires students to take a planned and coordinated non-business program designed to increase their cultural appreciation and give them a broad knowledge of world affairs and (2) permits the election of additional non-business courses according to the interests of the individual student.

The accountancy program is accredited by the AACSB (The International Association for Management Education) as part of the overall accreditation of the College of Business as well as the separate and additional accreditation of accounting programs.

### Certification

The Bachelor of Accountancy Degree (BACC) from the Adkerson School of Accountancy, Mississippi State University, is recognized by those states requiring the baccalaureate degree as a minimum, as fulfilling all the educational requirements for eligibility to sit for the Certified Public Accountant (CPA) examination. Students planning to sit for the exam should review the specific educational requirements of the state for which they intend to sit. There are state specific requirements, such as Mississippi's requirement to complete governmental accounting prior to being allowed to sit. The Bachelor of Accountancy degree is also recognized as meeting educational requirements to sit for the Certificate in Management Accountant (CMA) and the Certified Internal Auditor

(CIA) examinations. Graduates are encouraged to seek professional certification in one or more areas by passing these examinations.

The American Institute of Certified Public Accountants (AICPA) which prepares and grades the CPA examination, has urged the requirement of five years of academic preparation and has reflected this in the CPA examination. Students who aspire to become certified public accountants should consider the Master of Professional Accountancy or Master of Taxation programs herein described, in addition to the BACC.

### Admission

**Bachelor of Accountancy (BACC)** - Admission to the University is equivalent to admission to the Adkerson School of Accountancy. International students need a 575 TOEFL score to be admitted.

In addition to the College of Business criteria, students must meet the following criteria before taking selected 3000- or 4000-level accounting courses:

- a grade of "B" or better in Principles of Financial Accounting (ACC 2013) and Principles of Managerial Accounting (ACC 2023).
- a grade of "C" or better in the following five courses (or equivalent): BIS 1012, EC 2113, EC 2123, BQA 2113, BL 2413.

### Change of Major

MSU students wishing to change their major to accounting must meet a minimum grade point average requirement. Freshmen must have a minimum 2.0 overall, sophomores must have a minimum 2.25 overall, and juniors must have a minimum 2.6 overall GPA.

### Graduation

**Bachelor of Accountancy (BACC)** - Requirements for a BACC Degree from the Adkerson School of Accountancy are listed below. It is the student's responsibility to complete the requirements of the BACC curriculum before applying for a degree.

- A student must be a BACC candidate and complete the required curriculum and a minimum of 123 semester hours.
- A student must achieve at least a 2.5/4.00 GPA in upper-division business, economics, and statistics courses.
- A student must achieve at least a 2.5/4.00 GPA in upper-division accounting courses with at least a C in each upper-division accounting course. A student who makes less than a C in an upper-division accounting course must repeat that course the next regular semester that the student is enrolled and the course is offered. Students will be permitted to repeat an upper-division accounting course only once in an effort to make a C in the course. If they make less than a C in two attempts in a specific course, they will no longer be able to continue in the accounting program.
- Take a minimum of 32 upper level business hours at MSU.
- Complete the last 32 hours in resident at MSU.

## BACC Program of Study

### General Education Requirements

#### English Composition

EN 1103

English Composition I

3

or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	
<b>Mathematics &amp; Statistics</b>		
MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
See Major Requirements		
<b>Natural Science</b>		
2 courses with labs from General Education courses		6
<b>Humanities</b>		
See General Education		6
<b>Fine Arts</b>		
See General Education		3
<b>Social/Behavioral Sciences</b>		
PS 1113	American Government	3
See General Education (excluding: AEC and EC)		3
<b>Accounting Major Requirements</b>		
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Computer Literacy (grade of C or higher)</b>		
Requirement met through BIS 1012 or TECH 1273		
<b>International Elective</b>		<b>3</b>
BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	
ACC 2013	Principles of Financial Accounting <sup>1</sup>	3
ACC 2023	Principles of Managerial Accounting <sup>1</sup>	3
BQA 2113	Business Statistical Methods I	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
<b>Business Ethics</b>		
PHI 3013	Business Ethics	3
<b>Writing/Communication Course</b>		
Choose one of the following:		3
EN 3303	Creative Writing	
EN 4223	Principles of Legal Writing	
CO 2253	Fundamentals of Interpersonal Communication	
CO 3213	Small Group Communication	
EN 3313	Writing for the Workplace	
EDF 3413	Writing for Thinking	
<b>Upper-level Business Courses</b>		
MGT 3113	Principles of Management	3
MGT 3213	Organizational Communications	3
BQA 3123	Business Statistical Methods II	3
BL 3223	The Law of Commercial Transactions	3
MKT 3013	Principles of Marketing	3

BIS 3233	Management Information Systems	3
FIN 3123	Financial Management	3
BUS 4853	Strategic Management	3
<b>Upper-level Accounting Courses <sup>2</sup></b>		
ACC 3003	Accounting Information Systems I	3
ACC 3013	Cost Accounting	3
ACC 3023	Intermediate Accounting I	3
ACC 3033	Intermediate Accounting II	3
ACC 3053	Accounting Information Systems II	3
ACC 4013	Income Tax I	3
ACC 4033	Auditing	3
ACC 4023	Advanced Accounting	3
ACC 4043	Municipal and Governmental Accounting	3
Free Electives (Consult Advisor)		7
<b>Total Hours</b>		<b>123</b>

<sup>1</sup> A grade of B or better is required in these courses.

<sup>2</sup> A grade of C or better is required in ALL upper-level Accounting courses.

## Accounting Minor

Students may obtain a minor in accounting by completing 15 hours of upper-level accounting courses with a C or better as follows:

ACC 3023	Intermediate Accounting I	3
ACC 3033	Intermediate Accounting II	3
ACC Electives		9

## Double Degree in Accounting and Another Field

Combined curricula leading to a BACC degree and a degree in another field are available in the Adkerson School of Accountancy and the other colleges of Mississippi State University. Such curricula may be designed with a major in accounting combined with a major in any non-accounting field. This program requires that a student satisfy the normal graduation requirements in the other major as well as meet the GPA and course requirements of the BACC Degree.

## The BACC as a Second Baccalaureate Degree

The curriculum is available to students who hold a baccalaureate degree in any recognized field of study from a regionally accredited institution. The candidate's combined undergraduate program must include the same course and GPA requirements as required of anyone who receives the BACC degree. A minimum of 30 semester hours of upper division work must be earned in residence at Mississippi State University after the first degree has been conferred. Consult Krystle Dixon, Academic Coordinator, Richard C. Adkerson School of Accountancy, P.O. Drawer EF, Mississippi State, MS 39762 or email:kdixon@business.msstate.edu for specific details.

## Masters Programs in Accounting

Trina Pollan, Graduate Coordinator, Master of Professional Accountancy (MPA) and Master of Taxation (MTX)  
Departmental Office : McCool 300

662-325-3710

The Adkerson School of Accountancy offers two graduate programs in Accounting - Master of Professional Accountancy (MPA) and Master of Taxation (MTX). Additional information can be found in the Graduate Bulletin.

# College of Education

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## General Information

The faculty of the College of Education are committed to fulfilling the following four major functions:

- a. to provide undergraduate and graduate professional preparation for teachers, administrators, school professionals, and others who assume positions in a variety of settings including P-12 schools, higher education, and an array of industry and business environments;
- b. to collaborate with school personnel, educational agencies, professional groups, and others interested in the evaluation and improvement of educational opportunities, programs, and services at both the P-12 and higher education levels;
- c. to provide meaningful service and promote and conduct scholarly activity, including experimental and other research studies designed to improve educational practice, to advance educational theory, and to advance science in the kinesiology and technology fields; and
- d. to foster student development so that students emerge from our programs enriched in theory and practice and become agents of change in the education, sports, technology, music, counseling, and leadership fields.

In addition to being accredited by the National Council for Accreditation of Teacher Education/Council for the Accreditation of Educator Preparation and the Southern Association of Colleges and Schools, the College of Education is a member of the American Association of Colleges for Teacher Education. It is the objective of this College to provide excellence in education while at the same time exhibiting a friendly attitude toward students. The teacher education programs are approved by the Mississippi State Department of Education, thereby enabling graduates to satisfy the certification requirements for the State of Mississippi.

## Vision:

Changing Tomorrow Through Education Today

## Mission:

The mission of the College of Education is to prepare highly qualified professionals to serve as teachers, administrators, supervisors, counselors, and other professionals in educational settings, industry, and human service agencies.

## Values:

- The College of Education values outstanding teaching and is dedicated to offering nationally accredited programs that are based on essential knowledge, sound practice, relevant research, and realistic clinical training in the preparation of its students.
- The College is committed to providing diverse professional development opportunities at the baccalaureate, master's, educational specialist and doctoral degrees.
- Through its leadership in teaching, service, research, recruitment, and international activities, the College of Education prepares professionals who contribute substantially to the improvement of the lives of an increasing diverse group of individuals in our changing, technologically complex, and diverse society.

## Administrative Organization

The College of Education consists of six departments: Counseling, Educational Psychology, and Foundations; Curriculum, Instruction, and Special Education; Educational Leadership; Instructional Systems and Workforce Development; Kinesiology; and Music.

**Counseling, Educational Psychology, and Foundations.** This department prepares individuals at the undergraduate and graduate levels to function in a variety of professional settings that include K-12 schools, community counseling centers, human service agencies, rehabilitation agencies, hospital settings, community colleges, four-year colleges, and universities. The department offers the Bachelor's, Master of Science, Educational Specialist, and Doctor of Philosophy degrees. Special areas of interest in the department are educational psychology, school psychology, applied behavior analysis, school counseling, clinical mental health counseling, and vocational rehabilitation counseling. The department houses professional licensure pathway opportunities, including licensed professional counselor, certified rehabilitation counselor, licensed school counselor, national certified school psychologist, board certified behavior analyst, board certified assistant behavior analyst, and licensed psychologist.

**Curriculum, Instruction, and Special Education.** This department is responsible for instruction in professional pedagogy courses of a general nature and in professional courses that focus specifically on teaching in special education, elementary education, and in the secondary fields of English, social studies, mathematics, and science. In addition to organizing and administering the curricula for educating teachers in the fields of elementary education, special education, and secondary education, the department is responsible for the direction and immediate supervision of teacher candidates in these fields.

Through this department, the Bachelor of Science, Master of Science, Master of Arts in Teaching, Educational Specialist, and Doctor of Philosophy degrees are offered. The department also offers areas of emphasis in elementary, secondary, and special education for the Educational Specialist and the Doctor of Philosophy degrees.

**Educational Leadership.** This department provides programs in educational leadership, teacher leadership, community college leadership, workforce education leadership, higher education leadership,

and student affairs. Programs are designed to prepare administrators, supervisors, teachers, and other educational personnel for positions of leadership in school district offices; P-12 schools; business and industry settings; community colleges; and universities. The department offers the Master of Science, Master of Arts in Community College Teaching, Educational Specialist, and Doctor of Philosophy and Doctor of Education degrees.

**Instructional Systems and Workforce Development.** This department offers the Bachelor of Science degree in industrial technology and information technology services, as well as the Master of Science in Instructional Technology, Educational Specialist, and Doctor of Philosophy degrees. It also offers a non-degree veterans certificate program, as well as minors in industrial technology and information technology services. Information technology services students receive training in the use of computer-based information systems, particularly software applications and hardware, and the creation and execution of technology user support. Industrial technology is involved with the education of supervisors or managers in advanced manufacturing and maintenance. Graduates are prepared with marketable technology skills to pursue careers in a variety of professional settings, including K-12 schools, higher education, and an array of industry and business environments.

**Kinesiology.** This department offers the Bachelor of Science degree with concentration areas in performance fitness, neuromechanics, clinical exercise physiology, sport administration, and physical education and coaching. Physical education and coaching majors may also pursue an add-on teaching endorsement in health education and driver's education by taking additional coursework. The department also offers Master of Science and Doctor of Philosophy degrees.

**Music.** This department offers the Bachelor of Music Education degree, with concentrations in vocal, instrumental, keyboard, and guitar. The department also offers a Bachelor of Arts degree in music for non-teaching majors (see the Arts & Sciences section for details on the B.A. in Music degree). The Famous Maroon Band, the University Chorus, and the Philharmonia Orchestra are university-wide organizations, and are integral parts of the Department of Music. The department also offers the Master of Music Education degree (M.M.E.). The M.M.E. is a 32-hour practitioner's degree focused, on advancing the knowledge and skills of the music educator in one of three specific tracks: Choral Music, Elementary Music, or Instrumental Music

## Services

**Mississippi Migrant Education Service Center.** The Mississippi Migrant Education Service Center sets out to ensure that migrant students and youth are receiving appropriate educational services to enable them to achieve high academic standards by overcoming the obstacles created by cultural and language differences and the educational disruption stemming from frequent moves. A variety of services are available to migrant students in addition to the educational services provided by the school district. All services provided are free of charge. Some of the services that can be provided are: distribution of school supplies; inclusion in summer and after-school programs; academic assistance, such as tutoring; adult education (GED and ESL classes); referrals to medical or dental services; summer programs; assistance with applications for Medicaid/Food Stamps; and assistance with interpretation at doctors' offices.

**Mississippi World Class Teaching Program.** The MSU World Class Teaching Program is a university-based initiative designed to recruit and

mentor teachers seeking advanced certification through the National Board for Professional Teaching Standards (NBPTS) process.

**Writing/Thinking Institute.** The mission of the Mississippi Writing/Thinking Institute is to improve writing and learning in Mississippi schools. The Mississippi Writing/Thinking Institute is an affiliate of the National Writing Project (NWP). Since its inception in 1985, the mission of the Institute has been to transform education for students and teachers in Mississippi by implementing the mission and goals of the NWP. The Mississippi Writing/Thinking Institute offers what Mississippi teachers need most to help their students: high quality professional development that blends best practices and theory; research-based, sustained programs aligned with state and national standards; and outstanding teacher consultants who serve as teachers of their colleagues.

**Office of Clinical/Field-Based Instruction, Licensure, and Outreach.** This office collaborates with partner school districts to provide practicum and teaching clinical laboratory experiences for those enrolled in teacher education programs at MSU. Such experiences are supervised jointly by the faculty of the P-12 schools and the faculty of the College of Education.

**The National Research and Training Center on Blindness and Low Vision.** This is the only federally-funded center that focuses on employment-related research for people who are blind or visually impaired. The center serves as a national resource center on employment for people who are blind or visually impaired, and provides training and technical assistance to people across the country on this topic.

**The T.K. Martin Center for Technology and Disability.** This center provides comprehensive, multi-disciplinary evaluations to assist with limitations through the application of assistive technology, allowing individuals to participate in educational, vocational, and leisure activities to the fullest degree they choose. The center provides transdisciplinary play based assessments for infants and toddlers ages birth to three. The center provides intervention for children ages two to five. The center provides assessment and intervention for individuals experiencing difficulty with reading, writing, and spelling.

## Requirements for Teacher Education Students

A four-phase admission procedure is designed to assure a logical progression through the entire professional education process.

**Enrollment in the College of Education** (Phase I – pertains only to Teacher Education majors in the College of Education): Phase I identifies students who have enrolled in Teacher Education programs prior to official admission into Teacher Education. This early identification ensures that the necessary counseling, screening, and advisement is provided for students aspiring to become teachers. To enroll in the College of Education, students must be admitted to Mississippi State University; select a major within a department that has a basic teacher preparation program; meet with an assigned advisor in the College of Education; and become familiar with the current online College of Education Undergraduate Handbook, program of study curriculum sheet, current university catalog, and complete the *Enrollment in College of Education (Phase I)* Form for Teacher Education Majors with a designated faculty advisor.

**Admission to Teacher Education** (Phase II): To be admitted to Teacher Education and enroll in upper level professional education courses,

students must complete Phase II by achieving a minimum of 44 semester credit hours (which includes the 36 hour general education requirements but excludes remedial and intermediate courses) with a 2.75 GPA and a 2.5 minimum overall GPA. Students must also complete 6 semester credit hours of English composition and 3 semester credit hours of mathematics (Algebra or higher) with a grade of “C” or higher in each course, and present either an ACT score of 21 (or SAT equivalent) or obtain the minimum passing scores on the Praxis Core Academic Skills for Educators Tests as defined by the Mississippi Department of Education (prior to 9-1-19 Reading 5712: 156, Math 5732: 150, Writing 5722: 162; 9-1-19 and after - Reading 5713: 156, Writing 5723: 162, Math 5733: 130) or have an overall GPA of at least 3.0 in at least 60 hours at the time of admission to Phase II.

*Students are advised to keep the original copies of their Praxis Core test scores in a safe place since these scores are necessary for admission to Teacher Education.* Students should request that ETS send a copy of their scores to Mississippi State University (Code RA1480). Students attending the Meridian campus should have their scores sent to both Mississippi State University (Code RA1480) and the Meridian campus (Code RA3336). Students are encouraged to take the Praxis Core exam by the end of the second semester of their freshman year if they do not meet the ACT/SAT or GPA requirements in the previous paragraph.

The student must also submit two recommendation forms from educators and verification of 40 hours of work experience with children or youth; complete a criminal background check and an orientation module; sign the Teacher Education Professional Dispositions form; have proof of liability insurance; and sign up for a 7 year subscription to Taskstream by Watermark. The student should also apply for a preservice teacher license through OCFBI. See advisor for more information.

Students should begin the application to Teacher Education during preregistration or orientation. Confidential recommendation forms must be sent to the Dean of the College of Education, Mailstop 9710, Mississippi State, MS 39762. *All students must satisfy Phase II requirements before registering for upper level professional education courses. Students who have not been admitted to Teacher Education cannot register for restricted professional education courses. The student must meet with the advisor to complete the Phase II form. The faculty advisor is responsible for submitting the Phase II form to the Dean’s Office, 309 Allen Hall.*

**Admission to Teaching Internship (Phase III):** A student must complete Phase III by submitting an Application for Admission to Teaching Internship form, which can be found online at [ocfbi.msstate.edu/teaching/index.php](http://ocfbi.msstate.edu/teaching/index.php), to the Director of the Office of Clinical/Field-Based Instruction, Licensure, and Outreach one semester prior to the teaching internship. To be eligible for teaching internship, the student must have been admitted to Teacher Education and meet current requirements, must have taken both the Principles of Learning and Teaching and the Subject assessment exams (Praxis II), maintained an overall GPA of 2.5 or higher at the time of beginning internship, and have no grade below a C in major, concentration, and professional education courses. Final eligibility (2.5 GPA overall) is determined through screening at the end of the semester prior to the teaching internship. The student must also have completed all professional education and content major and concentration courses with a minimum grade of “C” prior to teaching internship. No coursework other than the 15 hours of teaching internship/classroom management/seminar can be taken during the teaching internship semester, without prior approval. Elementary Education and

Special Education majors must also have taken Pearson’s Foundations of Reading Test prior to beginning internship.

Students seeking a degree in Teacher Education and an educator license are expected to schedule the teaching internship during the last semester of the senior year. Graduate students seeking admission to Teacher Education and teaching internship are expected to meet the same requirements as undergraduate students prior to their teaching internship experience. All teacher internship placements and other communications with schools are directed through the Office of Clinical/Field-Based Instruction, Licensure, and Outreach.

**Exit Requirements (Phase IV):** To be eligible for graduation, students in Teacher Education programs must have a “C” or better in all professional education courses, all courses in their majors and concentration areas, completed no more than half of their hours at a community college, satisfied residence requirements, and have a 2.0 overall GPA at Mississippi State University.

For more detailed information about Teacher Education admission procedures, see the current online College of Education Undergraduate Handbook ([educ.msstate.edu/academics/forms/](http://educ.msstate.edu/academics/forms/)). Forms are available in the student’s academic department, in the Office of the Dean of the College of Education (309 Allen Hall), and online.

## Teacher Education Policies

**“D” Policy.** Students in Teacher Education must make grades of “C” or better in all professional education courses, in all courses in their academic major and concentration areas, in English Composition I and II, and College Algebra (or higher math). All other majors should check with their advisors for the policy for non-teaching majors.

**Probation/Dismissal for Teacher Education Students.** After the completion of 60 hours, Teacher Education students (enrolled or admitted) whose GPAs fall below 2.50 will be placed on academic probation. This policy applies to transfer students as well. Teacher Education students whose GPAs are below 2.50 after a year of probation will be dismissed from Teacher Education. If their GPAs later improve to 2.5 or higher, they may re-enroll or reapply for admission.

## Teacher Licensure

In accordance with statutory provisions, the Mississippi Department of Education has adopted the rules and regulations on issuing and renewing teaching licenses which are set forth in Guidelines for Mississippi Educator Licensure. The licensure program is applicable to all teacher licenses. Satisfactory completion of any teaching curriculum offered by the College of Education will enable the graduate to apply for a teaching license in Mississippi, but this institution can neither waive any licensure requirements nor authorize substitutions for mandatory courses. Mississippi State University has submitted and received approval for its programs. Consequently, students who plan to transfer from other universities or another college to the College of Education should consult with the director of the Office of Clinical/Field-Based Instruction, Licensure, and Outreach or an advisor in the College of Education to ascertain the general education, professional education, and specialized education courses which must be completed to obtain a teaching license in the field or fields of their choice. Since teacher licenses are issued by the Mississippi Department of Education only and not by the Teacher Education institutions, applications for licensure and original test scores must be filed with the Mississippi Department of Education by the

applicant. Information concerning teacher licensure can be obtained from the Office of Clinical/Field-Based Instruction, Licensure, and Outreach.

As part of securing a Mississippi teacher's license, students must pass the Principles of Learning and teaching (PLT) test, the Specialty Area test, and attain the required minimum scores. Students must request that ETS send a copy of their scores to Mississippi State University (Code RA1480). Students attending the Meridian campus should have their scores sent to both Mississippi State University (Code RA1480) and the Meridian campus (Code RA3336). *It is very important that students keep the originals of all their test scores in a safe place since they will need the originals of these scores when they apply for a Mississippi educator's license.*

## Student Code of Conduct Violations

Any violations of the Mississippi State University Student Code of Conduct as delineated in the student handbook, The Bulldog, and at [students.msstate.edu/studentconduct/code.php](http://students.msstate.edu/studentconduct/code.php), including academic misconduct, may place completion of the student's degree/licensure program in jeopardy.

## Curricula

**Organization.** All curricula in the College of Education are organized on the lower- and upper-division basis. The lower division consists of the first two years and corresponds to the community college level. The upper division consists of the last two years, normally the junior and senior years.

**Selection of Teaching Fields.** Students who enroll in the Teacher Education program in the College of Education are expected to pursue a program of study which will enable them to qualify for a teaching license in the field of their choice.

**Degree Program Modifications.** Changes to the licensure requirements by the Mississippi Department of Education may mandate curricular modification. Appropriate programmatic changes for graduation, licensure, and accreditation will be made as this process evolves. These Teacher Education program changes will become applicable as students are officially admitted to programs and/or as new graduation requirements are adopted. For updated degree program modifications, please check with your departmental office.

**Sequence of Courses.** Students should schedule their courses in consultation with their faculty advisor.

**Directed Individual Study Courses.** A directed individual study course is an experience designed to further the educational and/or career development of an individual that is equal or greater than the equivalent hours for a regularly scheduled course. This experience should be used only in special circumstances as deemed appropriate by the faculty of record, student's advisor, and department head. Unless otherwise designated by the student's advisor and department head, the experience shall be limited to 3 credit hours of undergraduate work. Every student should make an agreement with the faculty of record to fulfill the course objectives and outcomes specified in the course syllabus. This policy applies to students entering MSU Fall 2001 and thereafter.

**Transfer from Community College.** Lower-division curricula (1000-2000 level) in the College of Education closely parallel the corresponding curricula offered in the community colleges of the state. Therefore, students majoring in a given area at a community college should be able

to transfer to a like area in the College of Education and complete their last two years of college work without loss of time or credit.

**Fields of Training.** Baccalaureate programs are offered for the education of teachers in the following fields: elementary education, biology education, chemistry education, English education, mathematics education, music education, physics education, social studies education, special education, and physical education/coaching through the College of Education.

Non-teaching bachelor's programs are offered in the following areas: educational psychology; industrial technology; information technology services; kinesiology with concentrations in clinical exercise physiology, neuromechanics, performance fitness, and sport administration; and music.

**Requirements for Graduation.** The requirements for graduation with a Bachelor of Science degree in the College of Education are a minimum of 124 semester hours and 256 quality points (or higher for some curricula).

## Graduate Programs in Education

**Master's Degrees.** The following departments within the College of Education offer curricula leading to the degree of Master of Science: Counseling, Educational Psychology, and Foundations; Curriculum, Instruction, and Special Education; Educational Leadership; Instructional Systems and Workforce development; and Kinesiology. Students should check with specific departments for information on the concentrations offered by these departments. The Master of Arts in Teaching is offered for secondary education and special education teachers by the department of Curriculum, Instruction, and Special Education and for community college education by the department of Educational Leadership. The Master of Music Education is offered by the Department of Music.

**Educational Specialist Degree.** The Educational Specialist degree is a planned program of a minimum of 30 semester hours above the Master's degree under the direction of a major advisor. It is designed to broaden leadership training by providing courses in other fields and disciplines supplementary to the basic core in the major field. It is offered with program emphases in counselor education, elementary education, school administration, teacher leadership, school psychology, secondary education, special education, and technology.

**Doctoral Degrees.** The Doctor of Philosophy degrees are offered with program emphases in counselor education, community college leadership, P-12 leadership, higher education leadership, educational psychology, elementary education, exercise science, instructional systems and workforce development, school counseling, school psychology, secondary education, special education, and sport studies. Minors may be taken in various related disciplines. The Doctor of Education degree is offered with a program emphasis in P-12 leadership.

For more information on graduate programs in the College of Education, see the Graduate catalog. A copy may be secured by writing to the Office of the Graduate School, P.O. Box G, Mississippi State, MS 39762.

## College of Education Conceptual Framework

All Teacher Education programs in the College of Education at Mississippi State University adhere to a conceptual framework.

The overarching theme for the unit's conceptual framework is "Educators/ Professionals – Dedicated to Continual Improvement of All Students' Educational Experiences." The framework is aligned with the mission and goals of both the College of Education and the university. It is depicted graphically by a shield that contains a burning torch which signifies the necessary knowledge, skills, and dispositions of educators and other education professionals. It includes a globe, symbolizing the dedication of teachers and other education professionals to the improvement of all students' educational experiences. Encircling the globe are the concepts of technology and diversity, a depiction of the integration of technology and the incorporation of diversity throughout the curricula. Along the border of the shield appear the four areas of study that constitute the separate components of the educative process. These areas include the institution's general education curriculum, specialty professional and pedagogical studies, content or specialty area studies, and field-based and clinical experiences. Implicit in the four areas of study are four essential tenets: knowledge, collaboration, reflection, and practice.

## Department of Counseling, Higher Education Leadership, Educational Psychology, and Foundations

**Department Head: Dan Gadke**  
Office: 508 Allen Hall

The Department of Counseling, Higher Education Leadership, Educational Psychology, and Foundations prepares individuals at the undergraduate and graduate levels to function in a variety of professional settings that include K-12 schools, community counseling centers, human services agencies, hospitals, business settings, rehabilitation agencies, community colleges, four-year colleges, and universities. The department offers the Bachelor's degree, Master of Science degree, the Educational Specialist degree, and the Doctor of Philosophy degree. Special areas of interest in the department are psychometry, educational psychology, school psychology, clinical mental health counseling, school counseling, rehabilitation counseling, and applied behavioral analysis.

- Undergraduate Degree.** The B.S. degree in Educational Psychology is a non-teaching option. This program provides students with a general background of psychological topics and principles as they relate to education. Additionally, students complete an emphasis or a minor. Students who enroll in this program pursue a diversity of careers. Some of the vocational areas for which this program can prepare students are as follows: child care centers, seminary, the armed services (ROTC students), business settings, mental health agencies, and graduate work in counselor education, educational psychology, and school psychology. Students majoring in Educational Psychology have to earn a grade of "C" or better on all EPY major core courses (43 hours of the curriculum). Students must have a GPA of 2.25 for acceptance into the program (except Freshmen) and a GPA of 2.25 to graduate from the program.
- Minor (for non-majors).** For the 18 hour minor in EPY, students may choose to complete any 18 hours from the following: EPY 2513, EPY 3063, EPY 3143, EPY 3253, EPY 3503, EPY 3543, EPY 4033, EPY 4073, EPY 4313, EPY 4513, EPY 4553, EPY 4683.
- Minor in Applied Behavioral Analysis.** The minor in ABA leads to certification as a Board Certified assistant Behavior Analyst (BCaBA). The sequence consists of 5 courses for a total of 15 credit hours. Undergraduate students enrolled at Mississippi State University may

be admitted into the minor program during any semester (fall, spring, or summer). All hours earned in the ABA minor program must be taken at MSU. A minimum GPA of a 2.25 is required in all courses in the minor program. The ABA Verified Course Sequence Coordinator will oversee all admission decisions. Students must complete the following 15 hours: EPY 4113, EPY 4603, EPY 4493, EPY 4443, and EPY 4223.

- Undergraduate Educational Foundations courses** required in teacher education programs in the College of Education are offered in the Department of Counseling, Educational Psychology, and Foundations. Courses include the following: EDF 3333, EDF 3413, EDF 3423, and EDF 4243.
- Graduate Degrees.** The Department offers M.S., Ed.S., and Ph.D. degrees in Counselor Education with areas of emphasis in five concentrations: Clinical Mental Health Counseling, Rehabilitation Counseling, and School Counseling. The department also offers M.S. and Ph.D. degrees in Educational Psychology and a Specialist degree in School Psychology. Preparation in Educational Psychology can be obtained in the concentration areas of School Psychometry, general Educational Psychology, and applied behavior analysis at the Master's (M.S.) level; School Psychology at the specialist (Ed.S.) level; and in the areas of general Educational Psychology (college teaching) and School Psychology at the doctoral (Ph.D.) level.
- Student Retention Procedures:** Professions engaged in protection of the public health and welfare charge their members with the responsibility of monitoring potential new members. Therefore, the Counselor Education, Educational Psychology, and Foundations faculty believe a component of their responsibility to their students, their professions, and the eventual consumers of services provided by graduates, is the necessity to monitor not only students' academic progress but also the personal characteristics of students that will affect their performance in therapy. These characteristics should be of a quality so as to NOT interfere with the students' professionalism or helping capacity. Accordingly, the department has adopted a policy outlining student retention procedures. This policy is printed in the Department of Counselor Education, Educational Psychology, and Foundations Graduate Program Handbook.
- Financial Assistance for Graduate Students.** Many students hold assistantships in the Department, the Division of Student Affairs, the Office of Housing and Residence Life, Social Science Research Center, College of Education, and the Rehabilitation Research and Training Center on Blindness and Low Vision.

## Educational Psychology Major (EPY) (Non-teaching Option)

Major Advisors: Ty Abernathy, Donna Gainer, Kasia Gallo, Mehdi Ghahremani, Sareh Karami, Elaine Wei, Jianling Xie  
Office: 508 Allen Hall

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
Math above College Algebra excluding:		3



MA 1413	Structure of the Real Number System	
MA 1423	Problem Solving with Real Numbers	
MA 1433	Informal Geometry and Measurement	
<b>Science</b>		
BIO 1123	Animal Biology	3
Lab science from General Education courses		3
<b>Math/Science Elective</b>		
Choose one of the following:		3
Math above College Algebra excluding		
MA 1413	Structure of the Real Number System	
MA 1423	Problem Solving with Real Numbers	
MA 1433	Informal Geometry and Measurement	
OR		
Science from General Education courses		
<b>Humanities</b>		
History course		3
Literature course		3
<b>Fine Arts</b>		
See General Education courses		3
<b>Social Sciences</b>		
SO 1003	Introduction to Sociology	3
General Education course excluding EPY prefixes		3
<b>Major Core</b>		
PSY 1013	General Psychology	3
EPY 2513	Human Growth and Development	3
EPY 3063	Psychology of Individual Differences and Exceptional Ability	3
EPY 3503	Principles of Educational Psychology	3
EPY 3543	Psychology of Adolescence	3
EPY 4033	Application of Learning Theories	3
EPY 4073	Personal and Motivational Factors in Education	3
EPY 4214	Educational and Psychological Statistics	4
EPY 4313	Measurement and Evaluation	3
EPY 4553	Creativity/Innovation	3
EPY 4513	Introduction to Research in Educational Psychology	3
EPY 4683	Advanced Issues in Educational Psychology	3
PSY 3623	Social Psychology	3
PSY or SO elective above 3000		3
<b>Human/Cultural Diversity Elective</b>		
Choose one of the following:		3
SO 2203	Introduction to Race and Ethnicity	
SO 3013	Society and the Individual	
SO 1103	Contemporary Social Problems	
SO 3323	Contemporary Woman	
SO 3333	Society and Religion	
AN 2203	Introduction to Race and Ethnicity	
AN 3113	Societies of the World	
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
<b>Writing Requirement</b>		

EPY 3513	Writing in the Behavioral Sciences	3
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**Additional Requirements**

<b>Humanities</b>	<b>6</b>
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<b>General Electives</b> <sup>1</sup>	<b>12</b>
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<sup>1</sup> In addition to the University and Major core courses above, a choice of one special interest area of 18 hours(see below) and 12 hours of electives are required for the degree total to reach 124 hours.

**Selected Interest Areas**

Available in counseling/clinical applications, applied behavior analysis, the developing child, kinesiology, human resources and industrial applications, law and order, youth and teen studies, and speech/language pathology. See advisor for details.

**Department of Teacher Education and Leadership**

**Department Head: Dr. Janice Nicholson**

Office: 310 Allen Hall

The Department of Teacher Education and Leadership at Mississippi State University is a collaborative community of scholars and educators. We are committed to the belief that education is the primary vehicle for equity and justice in the state of Mississippi and beyond. In keeping with the land grant and research-extensive mission of Mississippi State University, and in support of the mission of the College of Education, the Department of Teacher Education and Leadership is committed to academic excellence, intellectual rigor, and lifelong learning. It is our mission to contribute to teaching and learning P-12 and beyond through teaching and learning, research and inquiry, and service and outreach. Faculty and staff in the department of Teacher Education and Leadership believe that accomplished educators possess in-depth knowledge of content and teaching practices, including discipline-specific practices, that allow them to create engaging, relevant experiences for all students. The goal of the department is to meet the needs of all students through the preparation of effective, responsive scholars and practitioners who use theory, research, and a wide variety of tools, including technology, to enhance their work in a global, diverse, and changing society. The measure of our success is improved outcomes for diverse students, P-12 and beyond.

Undergraduate degree programs in the department of Teacher Education and Leadership prepare teacher candidates for positions as teachers in classrooms from pre-K through twelfth grade. These programs include coursework and experiences that focus on subject matter knowledge, foundations of education, instruction and assessment, practice and reflection, and field experiences in diverse classrooms. Persons interested in degrees offered by the department are advised to obtain a copy of advising worksheets, available at our website, [www.cise.msstate.edu](http://www.cise.msstate.edu).

**Elementary Education Major (ELED)**

All elementary education majors receive certification to teach at the elementary preK-3 or K-6 grade levels with the selection of endorsement in either early childhood or middle school content areas. The first two years of the degree program focus on developing subject matter knowledge in mathematics, English language arts, science, and social sciences. The junior year includes two mini-blocks of courses: one that

emphasizes teaching at the early childhood levels (pre-K–3rd grade), and one that emphasizes teaching at the middle school levels (4th-8th grades). The senior year includes the senior methods block – four co-requisite courses with extensive field experiences that prepare graduates for the teaching of subject matter. The Elementary Education curriculum culminates in the teaching internship, a semester-long field experience in public schools. All coursework must be completed with a "C" or higher. Students must choose either a middle school concentration or an early childhood concentration. The middle school concentration leads to K-6 general certification with 4th-8th grade subject area certification. The early childhood concentration leads to pre-K-3 general certification with N-1 (nursery-1st grade) early childhood certification. Some students may wish to enroll in additional coursework to obtain licensure in elementary, special education, reading, or other areas. See an advisor for more information.

The B.S. in Elementary Education with either a concentration in Early Childhood or Middle School requires a "C" or higher in all coursework.

## Secondary Education Major (SEED)

The purpose of the Secondary Education major is to prepare students to teach the academic subjects in grades 7-12 by providing professional courses and experiences for those desiring to teach at the middle and high school levels. The Secondary Education program is designed to lead teacher candidates to 7-12 licensure in English, Mathematics, Biology, Chemistry, Physics, or Social Studies. Degree programs include pedagogy courses that require field experiences in middle and high schools, as well as opportunities to master content area pedagogy. The secondary education degree culminates in a semester-long student teaching internship in a middle or high school classroom.

## Special Education Major (EXED)

The program in Special Education is designed to prepare teachers to teach children and youth with learning disabilities, intellectual disabilities, and other areas of exceptionality. The curriculum in special education is designed to meet the requirements for the endorsements in the areas of specialization. The degree program includes extensive field experiences working in schools and classrooms. Courses in the degree program provide students with methods for teaching early childhood, elementary, and secondary students with special needs. The degree program culminates in a semester-long teaching internship in a K-12 setting.

## Master of Arts in Teaching (MAT-S and MAT-X)

Individuals who have already earned a bachelor's degree in another discipline and are eligible for graduate studies can obtain initial teaching licensure and the Master's degree by completing the Master of Arts in Teaching program. The MAT-Secondary degree prepares teachers of content areas for secondary classrooms in a variety of content areas. The MAT-Special Education prepares teachers for self-contained and inclusion K-12 classrooms. Both MAT programs are offered online and include courses in pedagogy, assessment, classroom management, and internship courses completed after the student is hired as a classroom teacher.

## Graduate Programs in Teacher Education and Leadership

The department offers Master's and Educational Specialist degree programs in Elementary, Secondary, and Special Education. These programs provide coursework and field experiences for classroom teachers and other educators wishing to improve their practice. The department also offers the PhD in Curriculum and Instruction with concentrations in elementary education, secondary education, and special education.

## Elementary Education Major (ELED)

Major Advisors: Kenneth Anthony  
Office: 310 Allen Hall

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
or MA 1103	College Algebra Linked Lab- Corequisite Model	
MA 1413	Structure of the Real Number System	3
MA 1423	Problem Solving with Real Numbers	3
MA 1433	Informal Geometry and Measurement	3

#### Science

See General Education courses (must be lab-based courses)	6-8
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#### Humanities

Choose one of the following:	3
HI 1063	Early U.S. History
HI 1163	World History Before 1500
HI 1213	Early Western World
Choose one of the following:	3
HI 1073	Modern U.S. History
HI 1173	World History Since 1500
HI 1223	Modern Western World

#### Fine Arts

See General Education courses	3
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#### Social Sciences

GR 1123	Introduction to World Geography	3
PS 1113	American Government	3
or SO 1003	Introduction to Sociology	
or SO 1203	Sociology of Families	

#### Additional Core

Natural Science courses (see General Education courses)	4-6
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\*Students must have at least 2 lab-based sciences and need 12 hours total of science.

English Literature Elective (see General Education courses)	3	
EN 2503	Teaching Grammar (or English Literature Elective - see General Education courses)	3
EDE 2443	Creative Arts for Elementary and Middle Levels	3

**Major Core**

EDE 2523	Introduction to Elementary Education	3
RDG 3113	Early Literacy Instruction I <sup>1</sup>	3
RDG 3123	Early Literacy Instruction II <sup>1</sup>	3
EDE 3123	Early Childhood Education <sup>1</sup>	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
RDG 3413	Middle Level Literacy <sup>1</sup>	3
RDG 3223	Diagnosing and Assessing Reading Difficulties in Children	3
EDE 3523	Foundations of Elementary & Middle Level Mathematics Education <sup>1</sup>	3
EDE 4113	Teaching Elementary and Middle Level Science <sup>1</sup>	3
EDE 4123	Teaching Elementary and Middle Level Mathematics <sup>1</sup>	3
RDG 4133	Integrating Literacy Instruction in the Content Areas <sup>1</sup>	3
EDE 4143	Teaching Elementary and Middle Level Social Studies <sup>1</sup>	3
EDE 4153	Assessment & Evaluation in Elementary Education	3
EDE 4883	Managing the Elementary and Middle Level Classroom <sup>1</sup>	3
EDE 4886	Elementary and Middle Level Teaching Internship <sup>1</sup>	6
EDE 4896	Elementary and Middle Level Teaching Internship	6

**Early Childhood Concentration (ECHD)**

Leads to K-3 general certification with N-1 (nursery - 1<sup>st</sup> grade) early childhood certification.

HDFS 2803	Prenatal and Infant Development	3
HDFS 2813	Child Development	3
HDFS 3803	Creativity & Play in Young Children	3
EDX 4113	Methods and Materials for Early Childhood Students with Disabilities <sup>1</sup>	3
EDX 4413	Working with Families of Students with Disabilities	3
or HDFS 4803	Parenting	
<b>Total Hours</b>		<b>123</b>

Students choosing the Early Childhood Education concentration may obtain K-6 certification by taking, in addition to the K-3 requirements, EDE 3223 and 3 hours of additional expanded core courses in two content areas: 3 hours of any English, 3 hours of any natural science, 3 hours of any HI, PSY, SO, AN, EC, or PS course, and/or MA 2113.

**Middle School Concentration (MDSC)**

Leads to K-6 general certification with 4<sup>th</sup>-8<sup>th</sup> grade subject area certification.

EDE 3223	Middle Level Education <sup>1</sup>	3
TECH 4763	Digital Tools for 21st Century Teaching and Learning	3
EPY 4103	Behavior Analysis for Behavior Technicians	3

3 hours of additional expanded core courses in two content areas: 3 hours of any English, 3 hours of any natural science, 3 hours of any HI, PSY, SO, AN, EC, or PS course, and/or MA 2113.

**Total Hours** **123**

Many courses have co-requisites. See catalog or advisor.

<sup>1</sup> Requires admission to Teacher Education.

## Secondary Education Major (SEED) English Education Concentration (ENED)

Major Advisor: Missy Hopper; Office: 310 Allen Hall

The curriculum in English Language Arts is offered to prepare students to teach English Language Arts in high schools and middle schools and has been designed based on the Standards of the National Council of Teachers of English. A minimum of 42 hours in English beyond freshman composition is required.

**General Education Requirements****English Composition**

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

**Mathematics**

MA 1313	College Algebra	3
MA higher than Algebra		3

**Science**

Biological Science with lab (see General Education courses)	3-4
Physical Science with lab (see General Education courses)	3-4

**Math/Science Elective**

See General Education courses 3

**Humanities**

HI 1063	Early U.S. History	3
HI 1073	Modern U.S. History	3

**Fine Arts**

CO 1503	Introduction to the Theatre	3
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**Social/Behavioral Sciences**

See General Education courses 6

**Major Core**

EDF 3333	Social Foundations of Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
RDG 3513	Developing Reading Strategies in the Secondary School Content Areas <sup>1</sup>	3
EDE 3343	Teaching Adolescent Literature	3
EPY 3143	Human Development and Learning Strategies in Education	3
EDS 3413	Principles of Secondary Education	3
EDS 3673	Secondary Language Arts Education <sup>1</sup>	3
EDS 4403	Evaluation of Learning in Secondary Schools <sup>1</sup>	3

EDS 4673	Methods of Teaching Language Arts <sup>1</sup>	3
EDS 4873	Seminar in Managing the Secondary Classroom <sup>1</sup>	3
EDS 4886	Teaching Internship in Secondary Education <sup>1</sup>	6
EDS 4896	Teaching Internship in Secondary Education <sup>1</sup>	6

**Content Area**

EN 2213	English Literature Before 1800	3
EN 2223	English Literature After 1800	3
EN 2243	American Literature Before 1865	3
EN 2253	American Literature After 1865	3
EN 2273	World Literature Before 1600	3
or EN 2283	World Literature After 1600	
EN 2434	Literature and Film	3-4
or EN 3523	Shakespeare and Film	
EN 3414	Critical Writing and Research in Literary Studies	4
EN 3423	Descriptive English Grammar	3
EN 4503	Shakespeare	3
or EN 4513	Shakespeare	
EN 4413	History of the English Language	3
or EN 4403	Introduction to Linguistics	
or EN 4633	Language and Society	
or EN 4623	Language and Culture	
EN 4323	Literary Criticism from Plato-Present	3
or EN 4353	Critical Theory Since 1900	
EN Electives - 3000/4000 level		9

**Oral Communication Requirement**

Satisfied by other requirements

**Computer Literacy Requirement**

Satisfied by successful completion of EDS 4673

**Writing Requirement**

Satisfied by other requirements

**Total Hours** 121-124<sup>1</sup> Requires admission to Teacher Education.**Mathematics Education Concentration (MAED)**

Major Advisor: Lindon Ratliff; Office: 310 Allen Hall

This curriculum is offered for the education of prospective teachers of mathematics in grades 7-12. The degree program has been designed based on standards developed by the National Council of Teachers of Mathematics. A minimum of 36 semester hours of mathematics is required.

**General Education Requirements****English Composition**

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

**Mathematics**

MA 1713	Calculus I	3
MA 1723	Calculus II	3

**Science (two with a lab)**

Biological Science w/lab (see General Education)	3
Physical Science w/ Lab (Calculus based)	6

Choose from the following:

CH 1213	Chemistry I	
& CH 1211	and Investigations in Chemistry I	
CH 1223	Chemistry II	
& CH 1221	and Investigations in Chemistry II	
PH 2213	Physics I	
PH 2223	Physics II	

**Humanities**

HI 1063	Early U.S. History	3
HI 1073	Modern U.S. History	3

**Fine Arts**

See General Education courses 3

**Social/Behavioral Sciences**

PSY 1013	General Psychology	3
SO 1003	Introduction to Sociology	3

**Additional Core**

PS 1113	American Government	3
EN Literature Electives (see General Education)		6

**Oral Communication Requirement**

CO 1003	Fundamentals of Public Speaking	3
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**Computer Literacy Requirement**

Choose one of the following: 3

CSE 1233	Computer Programming with C	
CSE 1273	Computer Programming with Java	

**Writing Requirement**

Requirement met by taking EDS 3633

**Major Core**

EDF 3333	Social Foundations of Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EPY 3143	Human Development and Learning Strategies in Education	3
RDG 3513	Developing Reading Strategies in the Secondary School Content Areas <sup>1</sup>	3
EDS 3413	Principles of Secondary Education	3
EDS 3633	Secondary Mathematics Education <sup>1</sup>	3
EDS 4403	Evaluation of Learning in Secondary Schools <sup>1</sup>	3
EDS 4633	Methods of Teaching Mathematics <sup>1</sup>	3
EDS 4873	Seminar in Managing the Secondary Classroom <sup>1</sup>	3
EDS 4886	Teaching Internship in Secondary Education <sup>1</sup>	6
EDS 4896	Teaching Internship in Secondary Education <sup>1</sup>	6

**Content Area**

MA 2733	Calculus III	3
MA 2743	Calculus IV	3

MA 3053	Foundations of Mathematics	3
MA /ST 3123	Introduction to Statistical Inference	3
MA 3113	Introduction to Linear Algebra	3
MA 3163	Introduction to Modern Algebra	3
MA 3253	Differential Equations I	3
MA 3463	Foundations of Geometry	3
MA 3513	History of Mathematics	3
MA 4523	Introduction to Probability	3
<b>Total Hours</b>		<b>120-122</b>

<sup>1</sup> Requires admission to Teacher Education.

## Biology Education Concentration (BIED)

Major Advisor: Ryan Walker; Office: 310 Allen Hall

The Biology Education Curriculum is designed in accordance with the recommendations of the National Science Teachers Association and the National Science Education Standards for prospective teachers at the secondary level (grades 7-12).

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
ST 3123	Introduction to Statistical Inference	3

#### Science

See Science Content Area		6
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#### Math/Science Elective

See Sciences Content Area		3
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#### Humanities

See General Education courses		6
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#### Fine Arts

See General Education courses		3
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#### Social/Behavioral Sciences

See General Education courses		6
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#### Major Core

EDF 3333	Social Foundations of Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EPY 3143	Human Development and Learning Strategies in Education	3
EDS 3413	Principles of Secondary Education	3
EDS 3653	Secondary Science Education <sup>1</sup>	3
EDS 4403	Evaluation of Learning in Secondary Schools <sup>1</sup>	3
EDS 4653	Methods of Teaching Science <sup>1</sup>	3
EDS 4873	Seminar in Managing the Secondary Classroom <sup>1</sup>	3
EDS 4886	Teaching Internship in Secondary Education <sup>1</sup>	6

EDS 4896	Teaching Internship in Secondary Education <sup>1</sup>	6
RDG 3513	Developing Reading Strategies in the Secondary School Content Areas <sup>1</sup>	3

#### Concentration Courses

Choose 57 hours of approved coursework within concentration area. Must include the required subject area core. <sup>2</sup>

#### Required Subject area core (32 hrs)

BIO 1134	Biology I
BIO 1144	Biology II
BIO 2103	Cell Biology
BIO 3103	Genetics I
BIO 3104	Ecology
BIO 3304	General Microbiology
BIO 4113	Evolution
BCH 4013	Principles of Biochemistry
CH 1213	Chemistry I
CH 1211	Investigations in Chemistry I

**Science and/or Math Electives approved by advisor that result in a double major or an additional are of licensure (25 hrs)**

#### Oral Communication Requirement

Satisfied by the successful completion of EDS 3413

#### Writing Requirement

Satisfied by the successful completion of EDS 3653

**Total Hours** **123**

<sup>1</sup> Requires Admission to Teacher Education.

<sup>2</sup> At least 21 hours of BIO courses must be 3000-4000 level.

## Chemistry Education Concentration (CHED)

Major Advisor: Ryan Walker; Office: 310 Allen Hall

The Chemistry Education Curriculum is designed in accordance with the recommendations of the National Science Teachers Association and the Next Generation Science Standards for prospective teachers at the secondary level (grades 7-12).

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1713	Calculus I	3
ST 3123	Introduction to Statistical Inference	3

#### Natural Sciences

See Content Area		9
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#### Extra Science or Math (Gen Ed)

Approved Science or Math		3
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#### Humanities Electives

See General Education courses		6
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#### Fine Arts

See General Education courses 3

### Social/Behavioral Sciences

See General Education courses 6

### Major Core

EDF 3333	Social Foundations of Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EPY 3143	Human Development and Learning Strategies in Education	3
EDS 3413	Principles of Secondary Education	3
EDS 3653	Secondary Science Education <sup>1</sup>	3
EDS 4403	Evaluation of Learning in Secondary Schools <sup>1</sup>	3
EDS 4653	Methods of Teaching Science <sup>1</sup>	3
EDS 4873	Seminar in Managing the Secondary Classroom <sup>1</sup>	3
EDS 4886	Teaching Internship in Secondary Education <sup>1</sup>	6
EDS 4896	Teaching Internship in Secondary Education <sup>1</sup>	6
RDG 3513	Developing Reading Strategies in the Secondary School Content Areas <sup>1</sup>	3

### Concentration Courses

Choose 57 hours of approved coursework within concentration area. Must include the required subject area core. 57

#### Required subject area core (26 hours)

CH 1213	Chemistry I
CH 1211	Investigations in Chemistry I
CH 1223	Chemistry II
CH 1221	Investigations in Chemistry II
CH 2311	
CH 2313	
CH 3213	Inorganic Chemistry
or CH 4213	Advanced Inorganic Chemistry I
CH 4511	Organic Chemistry Laboratory I
CH 4513	Organic Chemistry I
CH 4523	Organic Chemistry II
CH 4521	Organic Chemistry Laboratory II
BCH 4013	Principles of Biochemistry

#### Science and/or Math Electives approved by advisor that result in a double major or an additional area of licensure (28 hours)

#### Oral Communication Requirement

Satisfied by the successful completion of EDS 3413

#### Writing Requirement

Satisfied by the successful completion of EDS 3653

**Total Hours** 123

<sup>1</sup> Requires admission to teacher education.

## Physics Education Concentration (PHED)

Major Advisor: Ryan Walker; Office: 310 Allen Hall

The Physics Education Curriculum is designed in accordance with the recommendations of the National Science Teachers Association and the National Science Education Standards for prospective teachers at the secondary level (grades 7-12).

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1713	Calculus I	3
ST 3123	Introduction to Statistical Inference	3

### Science

See Content Area 9

### Humanities Electives

See General Education courses 6

### Fine Arts

See General Education courses 3

### Social/Behavioral Sciences

See General Education courses 6

### Major Core

EDF 3333	Social Foundations of Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EPY 3143	Human Development and Learning Strategies in Education	3
EDS 3413	Principles of Secondary Education	3
EDS 3653	Secondary Science Education <sup>1</sup>	3
EDS 4403	Evaluation of Learning in Secondary Schools <sup>1</sup>	3
EDS 4653	Methods of Teaching Science <sup>1</sup>	3
EDS 4873	Seminar in Managing the Secondary Classroom <sup>1</sup>	3
EDS 4886	Teaching Internship in Secondary Education <sup>1</sup>	6
EDS 4896	Teaching Internship in Secondary Education <sup>1</sup>	6
RDG 3513	Developing Reading Strategies in the Secondary School Content Areas <sup>1</sup>	3

### Concentration Courses

Choose 57 hours of approved coursework within concentration area. Must include the required subject area core 57

#### Required Subject area core (28 hours)

PH 1063	Descriptive Astronomy	3
PH 2213	Physics I	3
PH 2223	Physics II	3
PH 2233	Physics III	3
PH 4213	Intermediate Mechanics I	3
PH 4143	Intermediate Laboratory	3
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
MA 1723	Calculus II	3

MA 2733	Calculus III	3
or MA 3113	Introduction to Linear Algebra	

**Science and/or Math Electives approved by advisor that result in a double major or an additional area of licensure (29 hours)**

#### Oral Communication Requirement

Satisfied by the successful completion of EDS 3413

#### Writing Requirement

Satisfied by the successful completion of EDS 3653

**Total Hours** **123**

<sup>1</sup> Requires admission to teacher education.

## Social Studies Education Concentration (SSED)

Major Advisor: Paul Binford; Office: 310 Allen Hall

The Social Studies Education curriculum is designed based on standards developed by the National Council for the Social Studies. With a minimum of 54 hours required in history and the social sciences, the program of study provides a broad-based preparation for prospective social studies teachers of grades 7-12.

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1313	College Algebra	3
Any Math above MA 1313		3

### Natural Sciences

Biological Science w/lab (see General Education courses)		3
Physical Science w/lab (see General Education courses)		3

### Math/Science Elective

Approved Science (no lab) or Math		3
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### Humanities

See General Education courses		6
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### Fine Arts

See General Education courses		3
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### Social/Behavioral Sciences

PSY 1013	General Psychology	3
SO 1003	Introduction to Sociology	3

### Courses Required for Teacher Education Curriculum

EDF 3333	Social Foundations of Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EPY 3143	Human Development and Learning Strategies in Education	3
RDG 3513	Developing Reading Strategies in the Secondary School Content Areas <sup>1</sup>	3
EDS 3413	Principles of Secondary Education	3
EDS 3643	Secondary Social Studies Education <sup>1</sup>	3

EDS 4403	Evaluation of Learning in Secondary Schools <sup>1</sup>	3
EDS 4643	Methods of Teaching Social Studies <sup>1</sup>	3
EDS 4873	Seminar in Managing the Secondary Classroom <sup>1</sup>	3
EDS 4886	Teaching Internship in Secondary Education <sup>1</sup>	6
EDS 4896	Teaching Internship in Secondary Education <sup>1</sup>	6

### Content Area with Courses Required

EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
GR 1114	(or approved 3000 or 4000 level GR elective)	4
GR 1123	Introduction to World Geography	3
HI 1063	Early U.S. History	3
HI 1073	Modern U.S. History	3
HI 1163	World History Before 1500	3
HI 1173	World History Since 1500	3
HI 3333	Mississippi History	3
HI 4403	The Ancient Near East	3
or HI 4903	The Far East	
PS 1113	American Government	3
PS 1513	Comparative Government	3
or PS 1313	Introduction to International Relations	
or PS 2703	Introduction to Public Policy	
3000 or 4000 level history elective		3
3000 or 4000 level HI/PS/EC/GR elective		3
3000 or 4000 level HI/PS/EC/GR elective		3
3000 or 4000 level HI/PS/EC/GR/PSY/SO elective		3

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2-3
or TECH 1273	Computer Applications	

### Writing Requirement

Satisfied by successful completion of EDS 4643		3
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**Total Hours** **122-124**

<sup>1</sup> Admission to Teacher Education required

## Special Education Major (EXED)

Major Advisors: Kent Coffey  
Office: 310 Allen Hall

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics & Natural Sciences

MA 1313	College Algebra (or higher; C or better)	3
Math above MA 1313		3
Natural Science w/lab (see General Education courses)		3-4
Natural Science w/lab (see General Education courses)		3-4
Math or Science elective		3
<b>Humanities</b>		
Any core humanities		6
<b>Fine Arts</b>		
Any core fine arts		3
<b>Social &amp; Behavioral Sciences</b>		
Any core social science		6
<b>Professional Core</b>		
EPY 2513	Human Growth and Development	3
EDX 3203	Introduction to Learning Disabilities	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EDX 3223	Introduction to Emotional/Behavioral Disorders	3
EDX 3233	Contingency Management	3
EDX 3253	Evaluating Learning in Special Education	3
EDX 4103	Introduction to Teaching Students with Intellectual and Developmental Disabilities	3
EDX 4113	Methods and Materials for Early Childhood Students with Disabilities <sup>1</sup>	3
EDX 4123	Methods and Materials for Elementary Students with Disabilities <sup>1</sup>	3
EDX 4133	Methods and Materials for Secondary Students with Disabilities <sup>1</sup>	3
EDX 4243	Planning for Diversity of Learners in Special Education	3
EDX 4353	Assistive Technology in Special Education	3
EDX 4413	Working with Families of Students with Disabilities	3
EDX 4873	Professional Seminar in Special Education	3
EDX 4886	Teaching Internship in Special Education <sup>1</sup>	6
EDX 4896	Teaching Internship in Special Education <sup>1</sup>	6
RDG 3113	Early Literacy Instruction I <sup>1</sup>	3
RDG 3123	Early Literacy Instruction II <sup>1</sup>	3
TECH 4763	Digital Tools for 21st Century Teaching and Learning	3
Collateral Core Electives		21-24
Literacy Electives <sup>1</sup>		6
<b>Oral Communication Requirement</b>		
EDX 4353	Assistive Technology in Special Education	3
EDX 4413	Working with Families of Students with Disabilities	3
EDX 4133	Methods and Materials for Secondary Students with Disabilities	3
<b>Computer Literacy Requirement</b>		
EDX 4353	Assistive Technology in Special Education	3
EDX 4413	Working with Families of Students with Disabilities	3
EDX 4133	Methods and Materials for Secondary Students with Disabilities	3

**Writing Requirement**

EDX 4353	Assistive Technology in Special Education	3
EDX 4413	Working with Families of Students with Disabilities	3
EDX 4133	Methods and Materials for Secondary Students with Disabilities	3

<b>Total Hours</b>		<b>123</b>
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<sup>1</sup> Requires admission to Teacher Education.

<sup>2</sup> A math course higher than MA 1313 must be completed.

## Department of Industrial Technology, Instructional Design, and Community College Leadership

**Department Head: Dr. Marty Bray**

Office: 103-A Industrial Education Building

Website: [iswd.msstate.edu](http://iswd.msstate.edu) (<http://iswd.msstate.edu>)

The Department of Industrial Technology, Instructional Design, and Community College Leadership prepares students with marketable technology skills to pursue careers in a variety of professional settings, including K-12 schools, higher education, and an array of industry and business environments. The department offers two undergraduate bachelor's, three master's, Educational Specialist, and Doctor of Philosophy degrees.

Students may also complete the Veterans' Certificate Program (<http://iswd.msstate.edu/current-students/programs/veterans/>) that consists of 15 semester hours of coursework designed for anyone at any level who would like to serve veterans. Two minors consisting of 18 hours are also offered to students interested in either industrial technology or information technology services.

### Information Technology Services Major (ITS) non-teaching

This curriculum is designed to prepare students for the use of computer-based information systems, particularly software applications and hardware, development and implementation of information technology end-user support, information technology project management, and technology training.

By completing the business requirements for the ITS degree, students may be eligible to receive a minor in Business Administration from the College of Business. ITS majors interested in a minor in business administration should contact an academic coordinator in room 106 McCool Hall.

The MSU Bulletin is not the final source of information; department advisement is critically important for course sequence and selection. Students should always get advisement and approval from their MSU advisor for course scheduling.



## Industrial Technology Major (INDT) non-teaching

Major Advisors: Jody Buchanan, Jenn Dupre, Mickey Giordano, Kay Morgan, Swapnil Patole, Lara Threet, John Wyatt  
Office: 110 IED Building

As industry evolves, so should education to meet new demands. The Industrial Technology program works with industry to meet their needs and close skills gaps seen in various industries. The Industrial Technology curriculum encourages hands on learning in the classroom utilizing technologies found in industry. The curriculum is designed to provide a well-rounded study of various areas of industry including maintenance, programming, design, safety, systems analysis, and communication and troubleshooting skills. The Industrial Technology program is a great fit for students who like working with their hands and learning by doing. Industrial Technology students are leaders in their chosen fields with employment opportunities on the rise. The department provides one-on-one advising for all Industrial Technology students on all campuses.

To this extent the curriculum is divided into three concentrations:

- Manufacturing & Maintenance Management
- Industrial Automation
- Industrial Packaging
- Industrial Coatings
- Process Technology

These concentrations are designed to give students a specialization that they can take into the workforce and build upon throughout their industrial career. Graduates should quickly become proficient in both the supervisory and administrative roles of dealing with personnel, and depending upon the concentration selected, the graduate should become adept in the various aspects of the manufacture, automation, coatings, design, safety of industrial products and systems analysis. Employment opportunities are excellent for this degree.

The MSU Bulletin is not the final source of information. Departmental advisement is critically important for the course sequence and selection. Students should always get advisement and approval from their MSU advisor for course scheduling.

Upper division courses (3000 level and up) must be taken at a senior college or university. See a faculty advisor for prerequisites and proper course sequence.

NOTE: This curriculum lends itself well to a minor in Business Administration or Marketing.

## Information Technology Services Major (ITS) non-teaching

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

ST 2113	Introduction to Statistics	3
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or BQA 2113 Business Statistical Methods I

#### Science

Natural Science w/lab - see General Education courses	3
Natural Science w/lab - see General Education courses	3

#### Math/Science Elective

See General Education courses	3
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#### Humanities

see General Education requirement	6
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#### Fine Arts

See General Education requirement	3
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#### Social/Behavioral Science

See General Education requirement	6
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#### College Core

##### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

##### Computer Literacy Requirement

TECH 1273	Computer Applications	3
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##### Writing Requirement

MGT 3213	Organizational Communications	3
or INDT 3813	Technical Writing and Presentation for Industry	

#### Major Core

##### Business Courses

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BL 2413	The Legal Environment of Business	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
MGT 3113	Principles of Management	3
MGT 3513	Introduction to Human Resource Management	3
BIS 1523	Web Development I	3
BIS 3233	Management Information Systems	3

##### Technology Courses

TECH 2123	Database Management	3
TECH 2133	Spreadsheet Design and Analysis	3
TECH 3133	Administrative Management and Procedures	3
TECH 4543	Information Processing	3
TECH 4563	Introduction to Data Networks	3
TECH 4573	Data Networks II	3
TECH 4583	Graphics and Web Design	3
TECH 3213	Call Center Management	3
TECH 3463	Computer Repair and Maintenance	3
TECH 3623	Designing Technology Training	3
TECH 4203	Emerging Technologies	3
TECH 4343	Information Technology Project Management	3
TECH 4623	Delivery and Evaluation of Technology Training	3
TECH 4683	Senior Seminar in Information Technology Services	3
TECH 4743	Elements of Electronic Desktop Publishing	3

TECH 4753	Media for Presentations, Instruction and Gaming	3
Approved Elective		3
<b>Total Hours</b>		<b>120</b>

### Minor in Information Technology Services

The Information Technology Services minor is for students who wish to learn technology, yet are not majoring in ITS. A minor in ITS will aid students in becoming familiar with the general concepts of information technology services and sub-components such as instructional technology, computer repair, and multimedia development and design.

To obtain this minor, a minimum of 18 hours must be taken from the following courses:

TKB 3133		3
TKB 4283		3
TKB 4543		3
TKB 4563		3
TKB 4583		3
TKT 3463		3
TKT 4343		3
TKT 4743		3
TKT 4753		3
TKT 4813	Introduction to Instructional Systems	3

### Industrial Technology Major (INDT) non-teaching

Major Advisors: Dr. John Wyatt and Mickey Giordano  
Office: 110 IED Building

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1323	Trigonometry	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
BQA 2113	Business Statistical Methods I <sup>1</sup>	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

#### Natural Sciences

CH 1043	Survey of Chemistry I	4
& CH 1051	and Experimental Chemistry (or higher)	
PH 1013	Physical Science Survey I	4
& PH 1011	and Physical Science Laboratory I (or higher)	

#### Extra Science (choose one)

PH 1023	Physical Science Survey 2 (or higher)	3
CH 1213	Chemistry I (or higher)	

#### Humanities

See General Education courses 6

#### Fine Arts

See General Education courses 3

#### Social/Behavioral Science

See General Education courses <sup>2</sup> 6

#### Major Core

##### Introductory Skills

INDT 1003	Technical Drafting and Print Reading	3
INDT 1813	Basic Industrial Electricity and Electronics	3
INDT 2113	Introduction to PLC Programming	3
INDT 2123	Introduction to CNC Programming	3
INDT 3813	Technical Writing and Presentation for Industry	3

##### Management Skills

INDT 3063	Industrial Human Relations	3
INDT 3373	Forecasting and Cost Modeling	3
ACC 2013	Principles of Financial Accounting	3
or BL 2413	The Legal Environment of Business	
or MGT 3823	Socially Responsible Leadership	
or any MGT 3000+ level course approved by advisor and instructor		

##### General Knowledge

INDT 3043	Industrial Safety	3
INDT 3223	Industrial Materials	3
INDT 3243	Industrial Metrology	3
INDT 3363	Motion and Time Study	3
INDT 4224	Quality Assurance	4

##### Seminars

INDT 1001	Introduction to Industrial Technology	1
INDT 3101	Junior Seminar	1
INDT 4801	Senior Seminar	1

#### Oral Communication Requirement

Satisfied by successful completion of INDT 3044, INDT 3063, INDT 3363, and INDT 3813

#### Writing Requirement

Satisfied by successful completion of INDT 3063 and INDT 3813

#### Computer Literacy

Satisfied by successful completion of INDT 1203, INDT 3343, INDT 3373, INDT 3813, and INDT 4801

**Core Hour Total 84**

#### Footnotes

- <sup>1</sup> Required for General Business Administration minor
- <sup>2</sup> EC 2113 and EC 2123 recommended for business minors

#### Choose one of the following concentrations:

### Industrial Automation Concentration (IAUT)

The industrial automation concentration is designed for students who wish to enter a career in the automation of manufacturing processes. This concentration is concerned with fixed automation, robotics, and the trouble shooting of automated systems and their role in the

manufacturing environment. This concentration lends itself to a general business administration minor.

INDT 2533	Processing of Oil and Gas	3
INDT 2613	Industrial Fluid Power	3
INDT 3103	Advanced Industrial Electricity and Electronics	3
INDT 4103	Industrial Control Systems	3
INDT 4203	Automated Systems	3
INDT 4233	Maintenance Management	3
INDT 4303	Industrial Robotics	3
INDT 4403	Automated Systems II	3
Concentration Electives (choose 3)		9
INDT 2323	Welding Technology	
INDT 2343	Parametric Modeling for 3D Design	
INDT 3133	Process Equipment and Instrumentation	
INDT 3683	CNC Machining Processes	
INDT 4213	Survey of Energy Sources and Power Technology	
INDT 4263	Manufacturing Technology and Processing	
INDT 4463	Manufacturing Technology & Processes II	
Additional INDT Electives - See advisor		6
<b>Total Hours</b>		<b>123</b>

## Industrial Coatings Concentration

The industrial coatings concentration provides classroom instruction and hands-on, practical experience to prepare students for employment in the industrial coating field. The materials prepare individuals to prepare and treat surfaces, apply various coating materials, and analyze quality at all stages of the process. The concentration emphasizes safe work practices, quality surface creation and preparation, and effective coatings while learning about coating equipment, application, and properties.

INDT 2613	Industrial Fluid Power	3
INDT 3103	Advanced Industrial Electricity and Electronics	3
INDT 3753	Introduction to Industrial Coatings	3
INDT 3853	Introduction to Powder Coatings	3
INDT 3863	Introduction to Liquid Coatings	3
INDT 4103	Industrial Control Systems	3
INDT 4303	Industrial Robotics	3
INDT 4373	Lean Six Sigma	3
Concentration Electives (choose 3)		9
INDT 2323	Welding Technology	
INDT 2343	Parametric Modeling for 3D Design	
INDT 2353	Industrial Computer Aided Drafting and Design	
INDT 3873	Introduction to E-Coatings	
INDT 4243	System Design for Industrial Finishing Applications	
INDT 4263	Manufacturing Technology and Processing	
INDT 4463	Manufacturing Technology & Processes II	
Additional Electives		6

Additional electives requirement is satisfied by successful completion of any INDT 3000+ level course

**Total Hours** **123**

## Industrial Packaging Concentration

The industrial packaging concentration provides classroom instruction and hands-on, practical experience to prepare students for employment in the packaging development field. The materials prepare individuals to identify the needs and design sustainable, effective packaging products. The concentration emphasizes design principles, material characteristics, and sustainable products.

INDT 2343	Parametric Modeling for 3D Design	3
INDT 3703	Principles of Packaging	3
INDT 3713	Packaging Materials	3
INDT 4103	Industrial Control Systems	3
INDT 4203	Automated Systems	3
INDT 4373	Lean Six Sigma	3
INDT 4703	Sustainable Packaging	3
MKT 3323	International Logistics	3
Concentration Electives (choose 3)		9

INDT 2353	Industrial Computer Aided Drafting and Design	
INDT 2613	Industrial Fluid Power	
INDT 4233	Maintenance Management	
INDT 4263	Manufacturing Technology and Processing	
INDT 4303	Industrial Robotics	
INDT 4403	Automated Systems II	
INDT 4443	Additive Manufacturing and Rapid Prototyping	
INDT 4463	Manufacturing Technology & Processes II	
INDT 4713	Healthcare and Food Packaging	

Additional Electives 6

Additional electives requirement is satisfied by successful completion of any INDT 3000+ level course

**Total Hours** **123**

## Process Technology Concentration

The process technology concentration provides classroom instruction and hands-on, practical experience to prepare students for employment with chemical/petrochemical products. The concentration emphasizes safe and efficient work practices while learning about the equipment, instrumentation, systems, and operations related to chemical processing.

INDT 1133	Introduction to PTEC	3
INDT 2323	Welding Technology	3
INDT 2353	Industrial Computer Aided Drafting and Design	3
INDT 2613	Industrial Fluid Power	3
INDT 3133	Process Equipment and Instrumentation	3
INDT 3233	Process Systems and Operations	3
INDT 3333	Process Quality and Troubleshooting	3
INDT 4233	Maintenance Management	3
Concentration Electives (choose 3)		9
INDT 2343	Parametric Modeling for 3D Design	

INDT 2533	Processing of Oil and Gas	
INDT 3103	Advanced Industrial Electricity and Electronics	
INDT 3323	Welding Technology II	
INDT 4103	Industrial Control Systems	
INDT 4303	Industrial Robotics	
Additional Electives		6
Additional electives requirement is satisfied by successful completion of any INDT 3000+ level course		
<b>Total Hours</b>		<b>123</b>

## Manufacturing & Maintenance Management Concentration (MFMA)

The manufacturing and maintenance management concentration is designed for students who want to enter a career in the manufacturing sector. This concentration is concerned with the management, maintenance, and day-to-day operation and improvement of manufacturing processes. This concentration lends itself to a general business administration minor.

INDT 2343	Parametric Modeling for 3D Design	3
INDT 3103	Advanced Industrial Electricity and Electronics	3
INDT 3683	CNC Machining Processes	3
INDT 4233	Maintenance Management	3
INDT 4263	Manufacturing Technology and Processing	3
INDT 4373	Lean Six Sigma	3
INDT 4443	Additive Manufacturing and Rapid Prototyping	3
INDT 4463	Manufacturing Technology & Processes II	3
Concentration Electives (choose 3)		9
INDT 2323	Welding Technology	
INDT 2353	Industrial Computer Aided Drafting and Design	
INDT 3133	Process Equipment and Instrumentation	
INDT 3323	Welding Technology II	
INDT 3333	Process Quality and Troubleshooting	
INDT 4103	Industrial Control Systems	
INDT 4203	Automated Systems	
INDT 4303	Industrial Robotics	
Additional Electives		6
Additional electives requirement is satisfied by successful completion of any INDT 3000+ level course		
<b>Total Hours</b>		<b>123</b>

## Minor in Industrial Technology

A minor in Industrial Technology will help non-industrial technology students who wish to enter the field of manufacturing. Students will become familiar with the basic concepts of industrial practices and the machines and components that make up many manufacturing companies. This is combined with laboratory work to enhance these concepts and to give an understanding of how the many manufacturing systems are integrated. Academic advising is available from the Industrial Technology program in the Industrial Education Building.

A minimum of 21 hours must be taken to obtain the INDT minor. A minimum of 12 hours must be taken at MSU to receive the minor. Note that some choices requires others as prerequisites.

### Required Courses

INDT 1203		3
INDT 2113	Introduction to PLC Programming	3
INDT 2123	Introduction to CNC Programming	3
INDT 2613	Industrial Fluid Power	3
Electives - Select any three:		
INDT 3044		
INDT 3223	Industrial Materials	
INDT 4224	Quality Assurance	
INDT 4233	Maintenance Management	
INDT 4263	Manufacturing Technology and Processing	
INDT 4303	Industrial Robotics	

## Department of Kinesiology

### Department Head: Stanley P. Brown

Office: 216 McCarthy Gym

### Division of Exercise Science Coordinator: John Eric Smith

Office: 235 McCarthy Gym

### Division of Sport Studies Coordinator: Brad Vickers

Office: 123 McCarthy Gym

The Department of Kinesiology offers five undergraduate concentrations: Physical Education and Coaching (PEC), Neuromechanics (NM), Strength and Conditioning (SC), Clinical Exercise Physiology (CLEP), and Sport Administration (SA).

Community college transfer hours not to exceed 62 semester hours may be applied to the Kinesiology degree program.

All concentrations require the specified course requirements cited within the General Education and major core listings below. Specified area content courses vary among the five concentrations and are listed following the core section. Pre-Occupational Therapy and Pre-Physical Therapy curricula have different core and program requirements. Students electing to pursue Pre-OT or Pre-PT should consult their advisor.

## Physical Education and Coaching Concentration (PECO)

Major Advisors: J.J. Chen, Rachel Foreman, Kristy Gourley, Matthew Rye, and Brad Vickers

The physical education and coaching concentration requires 124 semester hours of prescribed courses to complete the Bachelor of Science in Kinesiology. The curriculum is designed to meet the need of students interested in becoming physical education teachers in public and private schools. The teaching block of courses must be included in the on-campus requirement of 32 semester hours of junior and senior courses. Students who complete the program will be eligible for teacher licensure by the Mississippi Department of Education.

## Neuromechanics Concentration (NRMC)

Major Advisors: Harish Chander, J.J. Chen, Rachel Foreman, Kristy Gourley, Adam Knight, John Lamberth, and Zhujun Pan

The Neuromechanics concentration requires 124 semester hours of prescribed courses to complete a Bachelor of Science in Kinesiology. The Neuromechanics concentration combines the disciplines of "neuroscience" and "biomechanics" and deals with the study of human movement accomplished by the interaction of the nervous, muscular, and skeletal systems of the human body. Students learn concepts of the neuromechanical basis of kinesiology in the development, learning, control, and production of human movement. This enhances their knowledge and understanding of neural, biomechanical, cognitive, and behavioral mechanisms underlying human movements to help improve performance and prevent injuries in a variety of populations ranging from recreational, athletic, occupational, geriatric, and special populations such as Downs' syndrome, autism, and Parkinson's disease. The curriculum provides students a foundation in the mechanisms underlying human movement to prepare them for careers in physical therapy, occupational therapy, medicine/physician assistance, neuromechanics, human factors ergonomics, sport science, and disability and rehabilitation science.

Students in and desiring admission into the Department of Kinesiology's Neuromechanics concentration will be required to have and maintain a minimum MSU GPA of 2.50. In addition, an overall MSU GPA of 2.50 is required for graduation from the Neuromechanics concentration.

## Strength and Conditioning Concentration (SC)

Major Advisors: Rachel Foreman, Zachary Gillen, Kristy Gourley, Megan Holmes, JohnEric Smith, and Benjamin Wax

The Strength and Conditioning concentration provides students with the necessary knowledge to incorporate exercise physiology concepts into activities that enhance fitness and performance. This concentration covers everything from the development of plans to enhance fitness in apparently healthy populations to improving performance in elite athletes. Strength and Conditioning takes into consideration a combination of the physiological, biomechanical, and psychological aspects of training in the development of individual and team needs for customized programming. The concentration serves as the foundation for students to become sport scientists, strength and conditioning coaches, personal trainers, and specialists within corporate fitness/wellness programs.

Students in and desiring admission into the Department of Kinesiology's Strength and Conditioning concentration will be required to have and maintain a minimum MSU GPA of 2.50. In addition, an overall MSU GPA of 2.50 is required for graduation from the Strength and Conditioning concentration.

## Clinical Exercise Physiology Concentration (CLEP)

Major Advisors: Stamatis Agiovlasis, Erin Grant-Butler, Rachel Foreman, Kristy Gourley, Megan Holmes, Lee Ann Joe, Zhujun Pan, and Holly Wiley

The clinical exercise physiology concentration is designed as a professional preparation program of study that enables students to work in clinical settings as exercise physiologists in cardiac and pulmonary rehabilitation, or other clinical rehabilitation settings, such as those

for individuals with diabetes, orthopedic limitations, arthritis, cancer, osteoporosis, renal failure, obesity, and in programs dealing with issues of aging. The clinical exercise physiology concentration also provides students with the necessary background to pursue graduate health professions, such as physical or occupational therapy, physician assistant studies, medicine, or other graduate level educational programs.

Students in and desiring admission into the Department of Kinesiology's Clinical Exercise Physiology concentration will be required to have and maintain a minimum MSU GPA of 2.50. In addition, an overall MSU GPA of 2.50 is required for graduation from the Clinical Exercise Physiology concentration.

## Sport Administration Concentration (SPAD)

Major Advisors: Dae Eun Kim, Younghan Lee, Soyoun Lim, Matthew Rye, Matthew Zimmerman, and Gregory Twietmeyer

The Sport Administration concentration provides students with knowledge and skills necessary for careers in the sport industry. A concentration in Sport Administration helps prepare students to work in such fields as sport marketing & promotions, sporting event and/or facility management & operations, sport communication & media relations, and other administrative areas at the professional, collegiate, and recreational levels of the industry. The program seeks to combine classroom education with hands-on experience, as all students will complete an internship in the sport industry prior to graduation. Students choosing a concentration in Sport Administration choose either the Business, Communication, or Foreign Language cognate field.

## Physical Activity and Coaching Concentration (PACO)

The Physical Activity and Coaching concentration provides students with the knowledge, skills, and opportunities to fulfill their educational needs and interests in recreation and sports coaching through quality academic coursework, student centered focus, and experiential-based learning and faculty expertise. This program integrates coaching and recreation courses to prepare students with necessary tools after graduation. The Physical Activity and Coaching major also provides students with the opportunity to engage in a professional internship related to their chosen field of study and/or sport area. Upon graduation, students will have many opportunities to select their careers in Physical Activity and Coaching. These include but not limited to park and tourism, recreation camp organizations, YMCA and YWCA facilities, parks at the local, state, and national levels, youth sports coaching (AAU, club teams, etc), and intercollegiate sports coaching.

## Choose one of the following concentrations:

### Physical Education and Coaching Concentration (PECO)

<b>English</b>	<b>6</b>
EN 1103	English Composition I
or EN 1104	Expanded English Composition I
EN 1113	English Composition II
or EN 1173	Accelerated Composition II
<b>Fine Arts</b>	<b>3</b>
PE 1323	History and Appreciation of Dance (or other Gen. Ed. Fine Arts )

**Sciences 11-12**

BIO 1134	Biology I (or other Gen. Ed. 4 hr BIO Natural Sci)
CH 1213 & CH 1211	Chemistry I and Investigations in Chemistry I (or other Gen. Ed. 4 hr CH natural sci)
Natural Science	BIO 1004 suggested or other Gen. Ed. Natural Sci <sup>3-4</sup>

**Math 6**

MA 1313	College Algebra (or higher )
ST 2113	Introduction to Statistics (or math above MA 1313)

**Humanities 6**

Choose 1 Gen. Ed. Humanities	
Choose 1 Gen. Ed. Humanities	

**Social Sciences 6**

PSY 1013	General Psychology (or other Gen. Ed. Social/Behavioral Sci)
SO 1003	Introduction to Sociology (or other Gen. Ed. Social/Behavioral Sci)

**Major Core Courses 31**

EP 3304	Exercise Physiology
PE 1243	Methods of Teaching Games and Sports
PE 1253	Methods of Teaching Lifetime Activities
PE 1263	Methods of Teaching Rhythms
PE 3133	Adapted Physical Education
PE 3153	Methods of Elementary Physical Education
PE 3223	Motor Development and Movement
PE 3533	Coaching Sports
PE 4533	Developing Coaching Expertise
PE 4283	Sport Biomechanics

**Kinesiology Core Courses 11**

PE 1000	Play, Fitness & Physical Activity (or any 2 PE activity courses)
PE 3163	Sport Psychology
EP 2013	Fundamentals of Kinesiology
EP 3233	Anatomical Kinesiology

**Select one of the following: 3**

KI 3273	Athletic Training
KI 2213	Emergency Health Care

**Professional Education Courses 6**

EDF 3333	Social Foundations of Education
EDX 3213	Individualizing Instruction for Exceptional Children

**Courses Required for Admission into Teacher Ed 21**

PE 4163	Principles and Methods of Secondary School Health and Physical Education
PE 4173	Tests and Measurements in Health and Physical Education
PE 4853	Motor Learning and Skill Analysis
PE 4883	School Health Education
EPY 3143	Human Development and Learning Strategies in Education
EPY 3253	Evaluating Learning

EDF 4243	Planning for the Diversity of Learners
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**Final Semester: Teaching Internship 15**

PE 4873	Professional Classroom Management Seminar in Physical Education and Athletics
PE 4886	Teaching Internship in Physical Education
PE 4896	Teaching Internship in Physical Education

**Total Hours 124**

**Neuromechanics (NRMC)**

**English 6**

EN 1103	English Composition I
or EN 1104	Expanded English Composition I
EN 1113	English Composition II
or EN 1173	Accelerated Composition II

**Fine Arts 3**

PE 1323	History and Appreciation of Dance (or other Gen. Ed. Fine Arts)
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**Math 6**

MA 1313	College Algebra
ST 2113	Introduction to Statistics

**Sciences 11-12**

BIO 1134	Biology I (or other Gen. Ed. 4-hr BIO Natural Sci)
CH 1213 & CH 1211	Chemistry I and Investigations in Chemistry I (or other Gen. Ed. 4-hr CH Natural Sci)
Natural Science	Suggest BIO 1004 or other Gen. Ed. Natural Sci

**Humanities 6**

Choose 1 Gen. Ed. Humanities	
Choose 1 Gen. Ed. Humanities	

**Social Sciences 6**

PSY 1013	General Psychology (or other Gen. Ed. Social/Beh. Sci.)
SO 1003	Introduction to Sociology (or other Gen. Ed. Social/Beh. Sci.)

**Exercise Science Core 27**

EP 3304	Exercise Physiology
EP 3643	Applied Anatomy and Pathophysiology
EP 4113	Fitness Programs and Testing Procedures
EP 4183	Exercise and Weight Control
EP 4504	Mechanical Analysis of Movement
EP 4603	Physical Activity Epidemiology
EP 4814	Exercise Science Internship
KI 2023	Foundations of Health Education

**Kinesiology Core Courses 12**

EP 2013	Fundamentals of Kinesiology
EP 3233	Anatomical Kinesiology
PE 1000	Play, Fitness & Physical Activity
Choose 1 Kinesiology Core Course below:	
SS 4003	Philosophy of Sport & Physical Activity
SS 4303	Globalization and Sport
PE 3163	Sport Psychology

EP 3183	Exercise Psychology	
<b>Concentration Courses</b>		<b>15</b>
PE 3223	Motor Development and Movement	
PE 4283	Sport Biomechanics	
PE 4853	Motor Learning and Skill Analysis	
EP 4143	Disability & Physical Activity	
EP 4703	Neural Control of Human Movement	
<b>Kinesiology Approved Electives</b>		<b>15</b>
Coursework must pertain to professional focus area and consent of advisor is required prior to enrollment; combination of courses taken must total 15 credit hours		
<b>Additional Requirements</b>		<b>11</b>
BIO 3004	Human Anatomy (or equivalent Gen Ed Bio/Lab Science course)	
BIO 3014	Human Physiology (or equivalent Gen Ed Bio/Lab Science course)	
KI 2603	Medical Terminology	
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
or CO 2253	Fundamentals of Interpersonal Communication	
<b>Writing Requirement</b>		
EDF 3413	Writing for Thinking	3
or MGT 3213	Organizational Communications	
or BIO 3013	Professional Writing for Biologists	
<b>Total Hours</b>		<b>124</b>

## Strength and Conditioning Concentration (SC)

<b>English</b>		<b>6</b>
EN 1103	English Composition I	
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	
or EN 1173	Accelerated Composition II	
<b>Fine Arts</b>		<b>3</b>
PE 1323	History and Appreciation of Dance (or other Gen. Ed. Fine Arts)	
<b>Sciences</b>		<b>11-12</b>
BIO 1134	Biology I (or other Gen. Ed. 4-hr BIO Natural Sci)	
CH 1213 & CH 1211	Chemistry I and Investigations in Chemistry I (or other Gen. Ed. 4-hr CH Natural Sci)	
Natural Science	Suggest BIO 1004 or other Gen. Ed. Natural Sci.	
<b>Math</b>		<b>6</b>
MA 1313	College Algebra (or higher )	
ST 2113	Introduction to Statistics	
<b>Humanities</b>		<b>6</b>
Choose 2 Gen. Ed. Humanities		
<b>Social/Behavioral Sciences</b> <sup>1</sup>		<b>6</b>
PSY 1013	General Psychology (or other Gen. Ed. Social/Behavioral Sci)	

SO 1003	Introduction to Sociology (or other Gen. Ed. Social/Behavioral Sci)	
<b>Exercise Science Core</b>		<b>27</b>
KI 2023	Foundations of Health Education	
EP 3304	Exercise Physiology	
EP 3643	Applied Anatomy and Pathophysiology	
EP 4113	Fitness Programs and Testing Procedures	
EP 4183	Exercise and Weight Control	
EP 4504	Mechanical Analysis of Movement	
EP 4603	Physical Activity Epidemiology	
EP 4814	Exercise Science Internship	
<b>Kinesiology Core Courses</b>		<b>12</b>
PE 1000	Play, Fitness & Physical Activity (or any 3 PE activity courses)	
EP 2013	Fundamentals of Kinesiology	
EP 3233	Anatomical Kinesiology	
Choose 1 Kinesiology Core Course Selection below:		
SS 4003	Philosophy of Sport & Physical Activity	
SS 4303	Globalization and Sport	
PE 3163	Sport Psychology	
EP 3183	Exercise Psychology	
<b>Concentration Courses</b>		<b>15</b>
FNH 4223	Sports Nutrition	
PE 3313	Sport Physiology	
EP 4153	Training Techniques for Exercise and Sport	
PE 4283	Sport Biomechanics	
PE 4533	Developing Coaching Expertise	
<b>Electives</b>		<b>15</b>
See advisor for approved list of courses		
<b>Additional Requirements</b>		<b>11</b>
BIO 3004	Human Anatomy (or equivalent Gen Ed Bio/Lab Science course)	
BIO 3014	Human Physiology (or equivalent Gen Ed Bio/Lab Science course)	
KI 2603	Medical Terminology	
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
or CO 2253	Fundamentals of Interpersonal Communication	
<b>Writing Requirement</b>		
EDF 3413	Writing for Thinking	3
or MGT 3213	Organizational Communications	
or BIO 3013	Professional Writing for Biologists	
<b>Total Hours</b>		<b>124</b>

## Clinical Exercise Physiology Concentration (CLEP)

<b>English</b>		<b>6</b>
EN 1103	English Composition I	
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	
or EN 1173	Accelerated Composition II	
<b>Fine Arts</b>		<b>3</b>

PE 1323	History and Appreciation of Dance (or other Gen. Ed. Fine Arts)	3
<b>Natural Sciences</b>		<b>8</b>
Biology	BIO 1134 or other four credit hour approved Gen Ed BIO Lab Science course above or equivalent <sup>1</sup>	
Chemistry	CH 1213/1211 or other four credit hour approved Gen Ed CH Lab Science course above or equivalent <sup>1</sup>	
<b>Natural Science (if appropriate)<sup>1</sup></b>		<b>3</b>
Any Gen Ed course		
<b>Math</b>		<b>6</b>
MA 1313	College Algebra (or higher )	
ST 2113	Introduction to Statistics	
<b>Humanities<sup>1</sup></b>		<b>6</b>
Any Gen Ed course(s)		
<b>Social/Behavioral Sciences<sup>1</sup></b>		<b>6</b>
PSY 1013	General Psychology (or other approved Gen Ed course)	
SO 1003	Introduction to Sociology (or other approved Gen Ed course)	
<b>Exercise Science Core</b>		<b>27</b>
KI 2023	Foundations of Health Education	
EP 3304	Exercise Physiology	
EP 3643	Applied Anatomy and Pathophysiology	
EP 4113	Fitness Programs and Testing Procedures	
EP 4183	Exercise and Weight Control	
EP 4504	Mechanical Analysis of Movement	
EP 4603	Physical Activity Epidemiology	
EP 4814	Exercise Science Internship	
<b>Kinesiology Core Courses</b>		<b>12</b>
PE 1000	Play, Fitness & Physical Activity (or any 3 PE activity courses)	
SS 4003	Philosophy of Sport & Physical Activity	
or SS 4303	Globalization and Sport	
or PE 3163	Sport Psychology	
or EP 3183	Exercise Psychology	
EP 2013	Fundamentals of Kinesiology	
EP 3233	Anatomical Kinesiology	
<b>Concentration Courses</b>		<b>15</b>
EP 3803	Advanced Exercise Physiology	
EP 3613	Exercise Electrocardiography	
EP 4123	Aging and Physical Activity	
EP 4133	Exercise Programs for Clinical Populations	
EP 4143	Disability & Physical Activity	
<b>Electives</b>		<b>15</b>
See advisor for approved list of courses		
<b>Additional Requirements</b>		<b>11</b>
BIO 3004	Human Anatomy (or equivalent Gen Ed Bio/Lab Science course)	
BIO 3014	Human Physiology (or equivalent Gen Ed Bio/Lab Science course)	
KI 2603	Medical Terminology	
<b>Oral Communication Requirement</b>		

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
or CO 2253	Fundamentals of Interpersonal Communication	

**Computer Literacy Requirement**

Satisfied by successful completion of EP 4803

**Writing Requirement**

EDF 3413	Writing for Thinking	3
or MGT 3213	Organizational Communications	
or BIO 3013	Professional Writing for Biologists	

**Total Hours** 124**Sport Administration Concentration (SPAD)**

<b>English</b>		<b>6</b>
EN 1103	English Composition I	
EN 1113	English Composition II	
or EN 1173	Accelerated Composition II	
<b>Fine Arts</b>		<b>3</b>
PE 1323	History and Appreciation of Dance (or any approved Fine Arts Gen Ed course)	
<b>Natural Sciences (2 labs required from Gen Ed)</b>		<b>8</b>
BIO 1004	Anatomy and Physiology	
Any 3-4 hour Gen Ed lab science course		
<b>Extra Science<sup>1</sup></b>		<b>3</b>
Any Gen Ed course		
<b>Math</b>		<b>6</b>
MA 1313	College Algebra (or higher )	
MA 1613	Calculus for Business and Life Sciences I	
<b>Humanities<sup>1</sup></b>		<b>6</b>
PHI 1123	Introduction to Ethics (or other approved Humanities Gen Ed course)	
See Gen Ed course list for an additional 3 hour course		
<b>Social/Behavioral Sciences<sup>1</sup></b>		<b>6</b>
SO 1003	Introduction to Sociology	
EC 2113	Principles of Macroeconomics	
<b>Kinesiology Core Courses</b>		<b>12</b>
EP 2013	Fundamentals of Kinesiology	
PE 1000	Play, Fitness & Physical Activity (or any 3 PE activity courses)	
SS 4003	Philosophy of Sport & Physical Activity	
or SS 4303	Globalization and Sport	
or PE 3163	Sport Psychology	
or EP 3183	Exercise Psychology	
EP 3233	Anatomical Kinesiology	
<b>Concentration Courses</b>		<b>30</b>
SS 2003	Foundations of Sport Industry	
SS 2103	Sport Careers and Practicum	
SS 3103	Sport Sponsorship	
SS 3203	Sport Law	
SS 3403	Facility and Event Management in Sport	
SS 4103	Ethics in Sport Management	
SS 4203	Funding of Sport	
SS 4396	Sports Studies Internship	
SS 4803	Seminar in Sports Studies	



**Concentration Electives** 15

SS 3303	Communication Management in Sport
SS 3503	Sport and Recreational Leadership
SS 3603	Program Planning in Sport and Recreation
SS 3703	Contemporary Issues in Intercollegiate Athletics
SS 3903	Ancient and Medieval Sport History
SS 4000	Directed Individual Study in Sport Studies
SS 4003	Philosophy of Sport & Physical Activity
SS 4403	Gender and Sport
SS 4503	Sport Promotion and Sales Management
PE 3163	Sport Psychology
PE 3313	Sport Physiology
PE 4283	Sport Biomechanics
KI 2213	Emergency Health Care
SO 4333	Sociology of Sport

**Cognate Courses** 24-26

Choose one of the following cognates to complete the concentration requirements:

**--Business (25 hrs)**

ACC 2013	Principles of Financial Accounting
ACC 2023	Principles of Managerial Accounting
MA 2113	Introduction to Statistics
EC 2123	Principles of Microeconomics
MKT 3013	Principles of Marketing
FIN 3113	Financial Systems
FIN 3123	Financial Management
MGT 3113	Principles of Management

7 hours of Free Electives

**--Communication (24 hrs)**

CO 1223	Introduction to Communication Theory
CO 1403	Introduction to the Mass Media
CO 2333	Television Production
CO 2413	Introduction to News Writing and Reporting
CO 3313	News Writing for the Electronic Media
CO 3423	Feature Writing
CO 3713	Digital Communication
CO 3803	Principles of Public Relations

8 hours of Free Electives

**--Foreign Language (26 hours)**

FLS 1113	Spanish I
or FLF 1113	French I
or FLG 1113	German I
FLS 1123	Spanish II
or FLF 1123	French II
or FLG 1123	German II
FLS 2133	Spanish III
or FLF 2133	French III
or FLG 2133	German III
FLS 2143	Spanish IV
or FLF 2143	French IV
or FLG 2143	German IV
FLS 3113	Advanced Spanish Composition

& FLS 3111	and Advanced Spanish Laboratory
or FLF 3114	Advanced French Composition
or FLG 3114	Advanced German Composition

FLS 3233 & FLS 3121	Advanced Spanish Conversation and Advanced Spanish Conversation Practicum
or FLF 3124	Advanced French Conversation
or FLG 3124	Advanced German Conversation
FLS 3143	Hispanic Civilization
or FLF 3143	French Civilization
or FLG 3143	German Civilization
FLS 3313	Economics of the Spanish-Speaking World
or FLF 3313	Business French I
or FLG 3313	Business German I

6 hours of Free Electives

**Total Hours** 124

**Physical Activity and Coaching Concentration (PACO)****English** 6

EN 1103	English Composition I
or EN 1104	Expanded English Composition I
EN 1113	English Composition II
or EN 1173	Accelerated Composition II

**Fine Arts** 3

PE 1323	History and Appreciation of Dance (or other approved Fine Art Elective)
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**Natural Sciences** 10

BIO 1023	Plants and Humans (or any core approved lab science)
BIO 1004	Anatomy and Physiology
CH 1043	Survey of Chemistry I

**Math** 6

MA 1313	College Algebra (or higher )
ST 2113	Introduction to Statistics

**Humanities** 6

EN 2203	Introduction to Literature (or other approved humanities course)
or EN 2243	American Literature Before 1865
or EN 2253	American Literature After 1865
HI 1063	Early U.S. History (or other approved Humanities course)
or HI 1073	Modern U.S. History

**Social/Behavioral Sciences** 6

PSY 1013	General Psychology
SO 1003	Introduction to Sociology (or approved General Education course)

**Kinesiology Core Courses** 12

PE 1000	Play, Fitness & Physical Activity (or any 3, 1-hour PE activity courses; PE 1191 is not an option)
SS 4003	Philosophy of Sport & Physical Activity
or SS 4303	Globalization and Sport
or PE 3163	Sport Psychology

or EP 3183	Exercise Psychology	
EP 2013	Fundamentals of Kinesiology	
EP 3233	Anatomical Kinesiology	
<b>Concentration Courses</b>		<b>30</b>
Choose any 10 courses		
PE 1243	Methods of Teaching Games and Sports	
PE 1253	Methods of Teaching Lifetime Activities	
PE 1263	Methods of Teaching Rhythms	
PE 3033	Basketball and Football Officials	
PE 3133	Adapted Physical Education	
PE 3163	Sport Psychology	
PE 3223	Motor Development and Movement	
PE 3533	Coaching Sports	
PE 4533	Developing Coaching Expertise	
SS 2003	Foundations of Sport Industry	
SS 3603	Program Planning in Sport and Recreation	
SS 3403	Facility and Event Management in Sport	
SS 3503	Sport and Recreational Leadership	
KI 2023	Foundations of Health Education	
<b>Additional Requirements</b>		<b>37</b>
KI 2213	Emergency Health Care	
PSS 2113	Introduction to Turfgrass Science	
PSS 4443	Athletic Field Management	
PE 4283	Sport Biomechanics	
EDX 3213	Individualizing Instruction for Exceptional Children	
SS 4003	Philosophy of Sport & Physical Activity	
or SS 4303	Globalization and Sport	
SS 4396	Sports Studies Internship	
EP 3304	Exercise Physiology	
EP 4183	Exercise and Weight Control	
EP 4113	Fitness Programs and Testing Procedures	
EP 4153	Training Techniques for Exercise and Sport	
<b>Free Electives</b>		<b>8</b>
<b>Total Hours</b>		<b>124</b>

## Department of Music

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University Bands  
 Ms. Elva Kaye Lance, Director of Bands  
 Telephone: (662) 325-2713  
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University Choirs  
 Dr. Phillip Stockton, Interim Director of Choral Activities  
 Telephone: (662) 325-7801  
<http://www.statesings.com/>

University Philharmonia Orchestra  
 Dr. Courtney Grant, Coordinator  
 Telephone: (662) 325-3070

### Mission

The mission of the Department of Music at Mississippi State University is to contribute to the development of broadly acculturated citizens in our state and region through enhanced musical understanding and enriching musical experiences, providing access and opportunity to our diverse population through programs of teaching, research, and service.

### About the Department

In the Fall of 2022 the department moved into a \$21 million state-of-the-art facility. The 37,000 square foot facility at 124 Hardy Road includes classrooms, a choral rehearsal hall, faculty offices, sound-proof practice rooms, recording studio, lecture/recital hall, student lounge, and administrative suite to complement the Famous Maroon Band facilities. The Department of Music is part of the College of Education and is an accredited institutional member of the National Association of Schools of Music.

### Bachelor of Music Education

The Bachelor of Music Education is a 124-126 hour professional degree program (depending on concentration) that leads to licensure to teach music in the State of Mississippi. The Department of Music offers four concentrations of the BME: Guitar, Instrumental, Keyboard and Vocal.

The Instrumental concentration qualifies the student for a Music Instrumental (K-12) teaching license. The Vocal, Keyboard, and Guitar concentrations qualifies the student for a Music Choral (K-12) teaching license.

The Vocal concentration qualifies the student for a K-12 Choral Music teaching license, allowing graduates to teach General, Instrumental, and Choral music in all grades in the state of Mississippi.

### Bachelor of Music Performance

The Bachelor of Music Performance is a 120-hour professional degree program that prepares students to work independently towards performance at the highest possible level; possess knowledge of applicable solo and ensemble literature; and to gain experience with the fundamentals of music pedagogy. The Department of Music offers four concentrations of the Bachelor of Music Performance; Guitar, Instrumental, Keyboard, and Vocal.

### Bachelor of Arts in Music

The Department of Music offers a Bachelor of Arts in Music degree in a liberal arts tradition of music study. This degree is designed to provide foundation coursework to apply to a variety of interdisciplinary careers including music, in preparation for graduate study, or for self-improvement.

For suggested course sequence for all degrees and concentrations, visit the Department of Music website: <http://www.music.msstate.edu/academics/>

Students are required to earn a "C" or better in all required (non-elective) Applied Music (MUA), Music (MU), and Music Education (MUE) courses.

### Auditions

All potential music majors and minors are required to audition for appropriate faculty in order to determine their preparedness to enter the program, participate in ensembles, and determine eligibility for a scholarship or service award.

Although alternate dates are available, the preferred audition date for music majors and minors in all areas is the third Saturday in February. Other audition dates are available by contacting the applied faculty of your area of concentration, the department office (662) 325-3070, or the major ensemble offices.(Choir (662) 325-3490; Band (662) 325-2713; Orchestra (662) 325-3070).

### Transfer Information

After successful admission to the University, and in addition to the music major audition, transfer students are required to complete a music theory and aural skills entrance exam to determine preparedness for upper division study. For more information see the Department of Music website at <http://www.music.msstate.edu/students/transfers/> or call 662-325-3070.

### Music Minor

The Department of Music offers MSU students the opportunity to complete a Minor in Music. The Music Minor is a comprehensive set of courses designed to increase student musicianship and knowledge. Students must audition/ interview and be accepted as a music minor before the minor may be declared. Acceptance in any given studio area is on a space available basis. The requirements for the music minor cannot be completed after graduating from MSU.

There are two tracks in the Minor of Music:

1. A General Minor in Music that offers the first two semesters of the Major in Music: Music Theory, Ear Training, Piano, Applied Study, Ensembles and a Fine Arts Music Topics course.
2. A Minor in Music and Culture which is intended for students with an interest in non-Western music, especially the music of Africa and the African Diaspora. This minor features an interdisciplinary approach to exploring music and supports MSU's vision of diversity and global involvement

For information and required courses, visit the Department of Music website: <http://www.music.msstate.edu/academics/minorinmusic/>

## Music Education Major

General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

Choose one of the following:		3
MA 1213	Math in Your World	
MA 1323	Trigonometry	

MA 1413	Structure of the Real Number System	
MA 2113	Introduction to Statistics	
MA 1423	Problem Solving with Real Numbers	
MA 1613	Calculus for Business and Life Sciences I	
MA 1713	Calculus I	
<b>Natural Science</b>		
2 lab-based sciences		6
<b>Math or Science Elective</b>		3
<b>Humanities</b>		
Literature Elective		3
History Elective		3
<b>Fine Arts</b>		
MU 3013	Survey of Western Music History I	3
<b>Social Science</b>		
PSY 1013	General Psychology	3
Social/Behavioral Science Elective		3
<b>College Core</b>		
EPY 3143	Human Development and Learning Strategies in Education	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
MUE 1151	Technology for Music Education	1
MUE 2153	Foundations of Music Education	3
MUE 2163	Elementary Music Methods	3
MUE 4152	Secondary Music Methods	2
MUE 4873	Managing the Music Education Classroom	3
MUE 4886	Teaching Internship in Music Education	6
MUE 4896	Teaching Internship in Music Education	6
<b>Major Core</b>		
Oral Communication		
Satisfied through music history courses, upper division proficiency exam, music education courses and student teaching.		
Upper Level Writing Requirement		
Satisfied through music theory, music history, music education courses and the upper division proficiency exam.		
MU 1213	Music Theory I	3
MU 1321	Ear Training I	1
MU 1413	Music Theory II	3
MU 1521	Ear Training II	1
MU 2613	Music Theory III	3
MU 2721	Ear Training III	1
MU 2813	Music Theory IV	3
MU 2921	Ear Training IV	1
MU 2012	World Music	2
MU 3023	Survey of Western Music History II	3
MU 3412	Conducting	2
MU 3442	Advanced Conducting	2
MU 4313	Form and Analysis	3
MU 1010	Recital Hour (7 semesters of C or better)	0
Major Ensemble (7 semesters of study)		7
Piano Proficiency Exam		
Music Theory & Aural Skills Proficiency Exam		

Upper Division Performance Exam  
Degree Recital

Choose one of the following concentrations:

### Instrumental Concentration (MUI)

Piano Class or Functional Skills: choose 4 hours from the following 4

MU 2111	Piano Class	
MU 2121	Piano Class	
MU 3111	Piano Class	
MU 3121	Piano Class	
MU 3112	Functional Skills of Piano I	
MU 3122	Functional Skills of Piano II	
MUE 1141	Voice Methods	1
MUE 3212	Brass Methods	2
MUE 3222	Woodwind Methods	2
MUE 3231	String Methods	1
MUE 3242	Percussion Methods	2
MU 4322	Band Arranging	2
Applied Lessons – (6 semesters of study)		12
<b>Total Hours</b>		<b>124</b>

### Vocal Concentration (MUV)

Piano Class or Functional Skills: choose 4 hours from the following: 4

MU 2111	Piano Class	
MU 2121	Piano Class	
MU 3111	Piano Class	
MU 3121	Piano Class	
MU 3112	Functional Skills of Piano I	
MU 3122	Functional Skills of Piano II	
MU 1142		
MU 1152		
MU 1242	Diction I	2
MU 1252	Diction II	2
MUE 3262	Instrumental Methods	2
Applied Voice – (6 semesters of study)		12
Choose one of the following:		
MU 3411	(2 Semesters of study)	
Applied Piano – (2 Semesters of Study)		2
<b>Total Hours</b>		<b>126</b>

### Keyboard Concentration (MUP)

MU 3112	Functional Skills of Piano I	2
MU 3122	Functional Skills of Piano II	2
MUE 3262	Instrumental Methods	2
MUE 3333	Introduction to Piano Pedagogy	3
MUE 1141	Voice Methods	1
Applied Voice – (2 semesters of study)		2
Applied Piano – (6 semesters of study)		12

Directed Electives 2  
**Total Hours 124**

### Guitar Concentration (GUIT)

Piano class or Functional Skills: choose 4 hours from the following 4

MU 2111	Piano Class	
MU 2121	Piano Class	
MU 3111	Piano Class	
MU 3121	Piano Class	
MU 3112	Functional Skills of Piano I	
MU 3122	Functional Skills of Piano II	
MUE 1141	Voice Methods	1
MUE 3231	String Methods	1
MUE 3233	Guitar Pedagogy	3
MUE 3262	Instrumental Methods	2
Applied Guitar - (6 semesters of study)		12
Applied Voice - (2 semesters of study)		2
Directed Electives		1
<b>Total Hours</b>		<b>124</b>

### Music Performance Major

General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Fine Arts

MU 3013	Survey of Western Music History I	3
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#### Natural Sciences

Any General Education Science courses with a lab		6-8
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#### Mathematics

If ACT Math score is less than 24:

MA 1313	College Algebra	
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If ACT Math score is 24 or higher:

MA 1323	Trigonometry	
or MA 2113	Introduction to Statistics	

#### Math/Science Elective 3

If ACT Math score is less than 24:

MA 1323	Trigonometry	
or MA 2113	Introduction to Statistics	

If ACT Math score is 24 or higher then any General Education Math or Science course is acceptable

#### Humanities

Any Gen Ed course		6
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#### Social Science

Any Gen Ed course		6
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#### Major Core

MU 1010	Recital Hour	1
MU 1213	Music Theory I	3
MU 1321	Ear Training I	1

MU 1413	Music Theory II	3
MU 1521	Ear Training II	1
MU 1553	Computer Skills for Musicians	3
MU 2012	World Music	2
MU 2613	Music Theory III	3
MU 2721	Ear Training III	1
MU 2813	Music Theory IV	3
MU 2921	Ear Training IV	1
MU 3023	Survey of Western Music History II	3
MU 3333	Orchestration	3
MU 3412	Conducting	2
MU 4313	Form and Analysis	3
Piano Class or Functional Skills - choose 4 hours:		4
MU 2111	Piano Class	
MU 2121	Piano Class	
MU 3111	Piano Class	
MU 3121	Piano Class	
MU 3112	Functional Skills of Piano I	
MU 3122	Functional Skills of Piano II	

**Oral Communication**

Satisfied through music history courses, upper division proficiency exam, music literature, and pedagogy courses.

**Upper Level Writing Requirement**

Satisfied through music theory, music history, music literature, and pedagogy courses and the upper division proficiency exam

**Foreign Language**

One semester of any foreign language 3

**Choose one of the following concentrations:****Guitar Concentration**

Applied Guitar - (8 semesters of study)	16	
Concert Ensembles	6	
Ensemble Electives	6	
MUE 3233	Guitar Pedagogy	3
MU 3233	Guitar Literature	3
MU 4951	Senior Performance Recital	1
Electives	13	
<b>Total Degree Hours</b>	<b>120</b>	

**Instrumental Concentration**

Applied (brass, percussion, string, woodwind) - 8 semesters of study	16	
Concert Ensembles	6	
Ensemble Electives	6	
Pedagogy Course (brass, percussion, string, woodwind)	3	
Literature Course (brass, percussion, string, woodwind)	3	
MU 4951	Senior Performance Recital	1
Electives	13	
<b>Total Degree Hours</b>	<b>120</b>	

**Keyboard Concentration**

Applied Piano - (8 semesters of study)	16	
Ensembles	8	
MU 3433	Piano Literature	3
MU 4443		
MU 4733		
MU 4951	Senior Performance Recital	1
Electives	14	
<b>Total Degree Hours</b>	<b>120</b>	

**Vocal Concentration**

Applied Voice - (8 semesters of study)	16	
Concert Ensembles	6	
Ensemble Electives	4	
MU 1142		
MU 1152		
MU 2242		
MU 2252		
MU 4951	Senior Performance Recital	1
Electives	13	
<b>Total Degree Hours</b>	<b>120</b>	

**Minor in Music and Culture**

The minor in Music and Culture is intended for students with an interest in non-Western music, especially the music of Africa and the African Diaspora. The program offers students from any major, the opportunity to study the ways in which human cultural diversity is represented through music. The minor features an interdisciplinary approach to exploring music and supports MSU's vision of diversity and global involvement. The minor is distinct from other existing degrees in that it offers an anthropological approach that does not rely heavily on music performance skills.

**Required Courses**

6

AN 1143	Introduction to Cultural Anthropology
MU 2012	World Music
PE 1091	Contemporary Dance

**Electives**

12

Choose at least two Non-Western Music and Culture electives

MU 1103	African American Music
MU 1153	Music of Africa
MU 2023	Music of Latin America
MU 3103	Native American Music

Choose up to two Western Music and Culture electives

MU 1123	History and Appreciation of American Music
MU 1133	The History of Rock and Roll
MU 1143	The History of Jazz
MU 1163	Introduction to Music in Film

**Total Hours**

18

**General Minor in Music**

The General Minor in Music is a comprehensive set of courses designed to increase student musicianship and knowledge. Students must

audition and be accepted as a music minor before it can be declared. Acceptance in any given studio area is on a space available basis. The requirements for the music minor can not be completed after graduating from MSU.

**Music History** **2-3**

Choose from the following:

MU 1103	African American Music	
MU 1113	History and Appreciation of Music	
MU 1123	History and Appreciation of American Music	
MU 1133	The History of Rock and Roll	
MU 1143	The History of Jazz	
MU 1153	Music of Africa	
MU 1163	Introduction to Music in Film	
MU 1173	Music of the Beatles	
MU 2012	World Music	
MU 2023	Music of Latin America	
MU 2173	Women in Music	
MU 3013	Survey of Western Music History I	

**Music Theory and Aural Skills**

MU 1213	Music Theory I	3
MU 1321	Ear Training I	1
MU 1413	Music Theory II	3
MU 1521	Ear Training II	1

**Class Piano**

MU 2111	Piano Class	2
& MU 2121	and Piano Class	
or MU 3112	Functional Skills of Piano I	

**Applied Study** **4**

Two semesters of study (2 credit hours each semester); must be completed on the same instrument

**Ensembles** **2**

Two semesters of major or minor ensembles

**Recital Hour**

MU 1010	Recital Hour (must be taken for 2 semesters)	1
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**Total Hours** **18-19**

To earn a Minor in Music from Mississippi State University, all of the coursework listed above must be completed at Mississippi State University, Starkville Campus, with a grade of C or better. The requirements for any music minor cannot be completed after graduating from MSU.

# The James Worth Bagley College of Engineering

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## General Information

The James Worth Bagley College of Engineering is a professional college whose purposes are to provide both undergraduate and graduate education, to conduct basic and applied research, and to engage in outreach and public service activities. The BCoE consists of the following academic departments:

- Department of Aerospace Engineering
- Department of Agriculture and Biological Engineering
- Dave C. Swalm School of Chemical Engineering
- Richard A. Rula School of Civil and Environmental Engineering
- Department of Computer Science and Engineering
- Department of Electrical and Computer Engineering
- Department of Industrial and Systems Engineering
- Department of Mechanical Engineering

In addition to these academic departments, the Bagley College offers opportunities for faculty and student research in the following centers:

- Alliance for System Safety of UAS through Research Excellence (ASSURE)
- Center for Advanced Vehicular Systems (CAVS)
- CAVS Extension
- Center for Computer Security Research
- Center for Cyber Innovation
- Center of Biomedical Research Excellence
- Geosystems Research Institute (GRI)
- High Voltage Laboratory
- High Performance Computing Collaboratory (HPCC)
- Institute for Clean Energy Technology (ICET)
- Institute for Genomics, Biocomputing, and Biotechnology (IGBB)
- Institute for Imaging and Analytical Technologies
- Institute for Neurocognitive Science and Technology

- Institute for Systems Engineering Research (ISER)
- Mississippi Transportation Research Center
- Mississippi Water Resources Research Institute
- National Strategic Planning and Analysis Research Institute
- Northern Gulf Institute (NGI)
- Raspet Flight Research Laboratory

The vision of the Bagley College of Engineering is to be known for excellence in scholarly achievement, innovative engineering solutions, and economic and educational outreach that enhances the quality of life across the globe.

It is the mission of the Bagley College of Engineering to provide a world-class research, outreach and educational environment that supports, cultivates and fosters the talents of students, faculty and staff to discover new knowledge and technology for the benefit of society. To accomplish this mission the College has established the following goals:

- a. Foster a professional environment that cultivates and enhances our faculty members' scholarly knowledge base and supports them in building an accomplished academic reputation for themselves and the college.
- b. Provide engineering graduates who, through their excellent technical and leadership skills, cultural awareness, and social responsibility, will solve the challenges of the 21st century.
- c. Increase engineering opportunities for underrepresented groups to support and serve the diverse demographic of the state of Mississippi and the nation to ensure that the college encourages a variety of input, influences and participation in all its endeavors.
- d. Conduct cutting edge research to enhance the quality of human life and earth's sustainability.
- e. Provide engineering expertise, engagement and outreach to create positive change and economic development in Mississippi and the region.

The Bagley College includes a study abroad program which provides students with an opportunity to take courses in another country and experience different cultures. This experience broadens the vision of those who participate and increases their awareness of the global environment in which engineers work. Engineering students also have the opportunity to apply for Congressional internships. Currently internships are in place for the U.S. Congress in Washington, D.C.

In addition to study abroad and Congressional internships, the Bagley College offers its own minor in Global Engineering Leadership and fully participates in the university's Leadership Studies minor. Through these programs, engineering students are provided an opportunity to develop their leadership and management skills through both general leadership courses and courses focused on skills specific to leadership in the engineering profession. More information on each of these can be found in this catalog. Students pursuing either of these minors should consult with their academic advisor as early as possible so that course work can be adequately planned.

The Bagley College is dedicated to producing outstanding graduates who are capable of achieving excellence. With a strong focus on engineering fundamentals and an attitude among the faculty of helping each student achieve his or her best, Bagley engineering graduates are ready to obtain positions with the leading companies or further their educations at the finest graduate and professional schools in the nation.

Basic-level professional programs leading to the Bachelor of Science degree are offered in Aerospace Engineering, Biological Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Cybersecurity, Electrical Engineering, Industrial Engineering, Mechanical Engineering, Petroleum Engineering, and Software Engineering.

All basic-level engineering programs are designed to give the student an understanding of the fundamental principles underlying engineering science and engineering practice. Each curriculum consists of four sequences: Basic Sciences and Mathematics; a general education component; Engineering Sciences; and Engineering Analysis, Design and Systems.

Included in the Basic Sciences and Mathematics sequence are Biology, Chemistry, Physics, and Mathematics, through Calculus and other advanced mathematics topics.

There is also a General Education component required for graduation which is also published in this bulletin.

The sequence in Engineering Sciences consists of studies in engineering mechanics, thermodynamics, transfer and rate mechanisms, electrical theory, the nature and properties of materials, and computer science.

The Engineering Analysis, Design and Systems sequence is directed toward the creative and practical phases of economic design, involving analysis, synthesis, and engineering research and development. This sequence is the most distinctive feature of the engineering curricula, since it is the element of creative and economic design which distinguishes the engineer from the pure scientist.

Engineers and Computer Scientists must develop communication skills through courses in English composition, public speaking, and upper level writing. These skills are reinforced throughout the curricula.

The curriculum in Computer Science consists of general studies, mathematics, science, computer science, and electives.

## Entrance Requirements

Prospective students are encouraged to take as many courses as possible in mathematics, science, English, social studies, and foreign languages while in high school. One unit of computer-aided graphics is recommended for engineering students and at least one-half unit of keyboarding and one-half unit of computer programming are recommended.

The level of high school preparation needed to be successful in engineering or computer science degree programs as measured by ACT or SAT scores and high school academic core grade point average has been identified. The following guidelines are established to help high school students understand the level of preparation required for engineering and computer science. These guidelines are established to help MSU students at risk who want to pursue engineering or computer science.

## Math Prerequisites

In order to be successful in engineering, a student must develop good math skills through courses in calculus, differential equations, and other math topics. In engineering and computer science, the first math course that applies to a degree is calculus. Taking calculus requires

that a student have an adequate preparation in algebra, geometry, and trigonometry.

To provide students with the best possible opportunity for success in calculus, the Department of Mathematics and Statistics has established the following guidelines for placing students in math courses:

- MA 1713 Calculus I - have an ACT math sub-score of 26 or higher, or have grades of C or better in MA 1313 College Algebra and MA 1323 Trigonometry or a C or better in MA 1453 Precalculus.
- MA 1453 Precalculus - have an ACT math sub-score of 24 or higher, or have a grade of C or better in MA 1313 College Algebra
- MA 1313 College Algebra - have an ACT math sub-score of 19 or higher.

Students who are not prepared for Calculus I will be required to first complete Precalculus or a sequence of College Algebra and Trigonometry before taking calculus. This may delay a student from taking some engineering courses until they have developed the proper math background, but this should not discourage a student from pursuing an engineering degree. Improving math skills early in their academic career will result in a student having greater academic success.

Students who do not meet the guidelines for enrolling in Calculus I should consider completing Precalculus or a sequence of College Algebra and Trigonometry during the summer prior to attending Mississippi State. These courses may be taken either at Mississippi State, at a Mississippi Community or Junior College, or at any other accredited two-year or four-year institution. Only grades of C or better will be accepted as satisfying these pre-requisites. Courses taken during high school will not count for this credit unless they were taken as part of a dual enrollment program and appear on a separate transcript from a two-year or four-year institution of higher learning. A combination of College Algebra and Trigonometry may be substituted for Precalculus.

## New Freshmen Admission

For regular admission to one of the Bagley College of Engineering's degree-granting programs as a freshman, students must be admitted to MSU, complete the following high school academic core: 4 units of English, 4 units of mathematics (algebra, geometry, trigonometry), 3 units of science (chemistry and either biology or physics), 3 units of social studies and/or foreign languages and 2 units of electives, and meet any one of the following criteria:

- Have a composite score greater than or equal to 23 on the ACT or 1130 on the SAT
- Have a composite score of 20, 21, or 22 on the ACT or between 1030 and 1120 on the SAT with a high school GPA of 3.0 or greater on academic core courses listed above
- Have any ACT or SAT score with a high school GPA of 3.5 or greater on academic core courses listed above.

These criteria are essential for the success of a student beginning an engineering or computer science curriculum at the level shown in the following pages of this Bulletin. Applicants with justifiable circumstances may petition the Dean of Engineering for special admission.

New freshmen applicants who do not meet these requirements, are otherwise admitted to MSU, and want to pursue an engineering degree should join the undeclared major. These students will be advised for the first 30 hours by the University Academic Advising Center.



All students who are classified as Undeclared but plan to eventually move into engineering must enroll in an appropriate math course each semester they are enrolled in this major.

Students with course work deficiencies will be required to schedule preparatory course work. This course work will be in addition to that shown in the engineering and computer science curricula and will, in general, extend the time to graduation.

## Internal Transfers

Undeclared and other students at Mississippi State University may transfer into an engineering degree-granting program if they satisfy any one of the following criteria:

- Meet engineering new freshmen requirements listed above.
- Have completed at least 30 hours with a cumulative GPA greater than or equal to 2.0 and passed Calculus I (MA 1713), English Composition I (EN 1103), and Chemistry I (CH 1213) with grades of C or better.

Internal transfer students should discuss the transfer with the appropriate department head or program coordinator before completing a Change of Major form. Some departments have additional admission requirements for internal transfers.

Students admitted to one engineering or computer science degree program may transfer to another engineering or computer science program at any time so long as they meet departmental transfer requirements.

## External Transfers

Students may transfer from other colleges or universities into MSU engineering degree programs if they meet all requirements to transfer to MSU and satisfy any one of the following criteria:

- Meet engineering new freshmen admission standards listed above.
- Have completed at least 30 hours with a cumulative GPA greater than or equal to 2.0 and passed courses equivalent to Calculus I (MA 1713), English Composition I (EN 1103), and Chemistry I (CH 1213) with grades of C or better.

Applicants with justifiable circumstances may petition the Dean of Engineering for special admission.

Coursework taken elsewhere will not be applied toward a degree in the Bagley College of Engineering until it is determined that it is equivalent to required coursework or is an acceptable substitute. Also, only coursework taken elsewhere on which a grade of C or better has been earned will be considered for application toward a degree. No more than one-half of the hours of an engineering or computer science curriculum from two-year community or junior colleges may be applied towards graduation.

For admission to undergraduate programs, international students must earn a minimum paper-based TOEFL score of 550 or a computer-based minimum score of 213.

## Personal Computer Requirement

All engineering students are required to own a personal laptop computer. Minimum specifications for a computer are developed and posted on the Bagley College of Engineering home page by July of each year. A computer meeting these minimum specifications should suffice for the entirety of a student's program of study as long as normal progress is

made each semester. Transfer students are required to have a computer that meets the minimum specifications in place at the time their cohorts would have been freshmen. For example, a student transferring as a junior in the Fall of 2023 is required to have a computer that meets the minimum specifications in place for freshmen who entered the Bagley College in the Fall of 2021.

Information on the computer specifications and special pricing which may be available, can be found by visiting the Web site at <http://www.bagley.msstate.edu>.

Computers are used by students to solve engineering problems, write papers, and develop presentations for classes. Computer technology improves communication between students and faculty and develops the computational skills demanded of engineering graduates by employers. Further, email is the official means of communication with students per university policy.

Students applying for or receiving financial aid should notify the office of Student Financial Aid and Scholarships that they are entering the Bagley College of Engineering and are required to have a personal computer. The cost of the personal computer can then be added to the total cost of education and financial aid may be awarded accordingly. The full cost of the computer will not necessarily be covered by financial aid or scholarships depending on the total amount of aid received and other regulations.

## Graduation Requirements

Graduation requirements are the courses and hours shown in the individual programs. Some majors require a grade of C or better in certain courses. This information is available from the department in which the student is enrolled. All students are required to study these requirements together with the course prerequisites, and to be sure that they are taking the proper courses in the curriculum in which they expect to graduate. Students should discuss their programs with their academic advisors each semester, particularly before course registration. To graduate with a baccalaureate degree from the Bagley College of Engineering, in addition to meeting the requirements as specified in the Mississippi State University Academic Operating Policy 12.11 (<https://www.policies.msstate.edu/policy/1211>) (<https://www.policies.msstate.edu/policy/1211/>), candidates must have earned at least a 2.00 cumulative grade point average on all courses scheduled and rescheduled (average on all attempts) at Mississippi State University that are applied toward meeting degree requirements. Departments within the College may have requirements in addition to those specified above. It is the student's responsibility to be sure that requirements are fulfilled in a particular program before applying for a degree.

Independent study credit up to a maximum of six semester hours will be accepted, with the prior approval of the department head and the dean. In no case will engineering courses taken by independent study be approved.

No courses taken under the pass/fail option may be used to satisfy degree requirements.

## Advanced-Level and Graduate Programs

### Graduate Study

The Bagley College of Engineering offers graduate degrees at both the Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) levels. Some undergraduate programs also offer a process by which promising

undergraduate students may be directly admitted to the Ph.D. program following graduation. Students interested specifically in a graduate program should consult the Graduate Catalog or contact the department of interest directly.

The Bagley College has a Thrive in Five (accelerated) program which is designed to allow highly qualified undergraduate students to take up to 9 credit hours of applicable courses at the graduate level and use them to satisfy requirements for both their B.S. degree and their M.S. degree. This option is available for students interested in pursuing M.S. degrees in aerospace, chemical, computer, electrical, industrial, mechanical, and software engineering as well as computer science and a Master of Engineering. For additional information and admissions requirements, contact Ms. Josie Guerry at [josie@bagley.msstate.edu](mailto:josie@bagley.msstate.edu) or contact the department directly.

Master of Science degrees are offered in Aerospace Engineering, Biological Engineering, Biomedical Engineering, Chemical Engineering, Civil Engineering, Computer Engineering, Computer Science, Computational Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering. The Master of Science degree requires 24 semester hours of coursework and six semester hours of thesis research. The Master of Science non-thesis option is also offered and requires 30-31 semesters of coursework. For more information on these programs, interested students should contact the graduate coordinator in the department of interest.

The Doctor of Philosophy degree is available in all engineering departments, either through a composite interdisciplinary program or a specific major. In addition to these, Ph.D. degrees are offered in interdisciplinary programs in Computational Engineering and Applied Physics.

The Bagley College offers many of its MS and PhD degrees in an online format. Please contact the graduate coordinator in the department of interest for more information.

Most teaching departments are able to offer teaching assistantships to qualified graduate students. Additionally, many departments are also able to offer research assistantships. Because Mississippi State University is a member of the National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (GEM), students with GEM Fellowships are eligible to study in the Bagley College.

Students interested in pursuing a graduate education should consult with the graduate coordinators in each academic department, the Associate Dean and The Office of the Graduate School.

## Engineering Study Abroad Programs

(See International Study Programs)

### MINOR IN GLOBAL ENGINEERING LEADERSHIP

To succeed in today's highly competitive global economy and become a leader in companies and organizations that span multiple countries, it is imperative for engineers to have special knowledge and skills. Engineering leaders need to have an understanding of other cultures, the ways of doing business in other countries, and how to effectively collaborate with others across the globe. To be effective, engineering leaders in this global economy must not only have a strong engineering background, but they must also have experience in working across cultures and skills in management and leadership.

The Bagley College of Engineering's minor in Global Engineering Leadership is designed to provide motivated students with the skills and experiences necessary to put them on the path towards leading engineering activities around the world. Through this program students will develop a proficiency in a foreign language and culture, understanding a different culture through living and studying in a foreign country, and understand leadership and management skills needed in engineering.

The Global Engineering Leadership minor requires to complete 18 hours of coursework from the following areas:

GE 3813	Challenges in Global Engineering	3
Foreign Language		6
Relevant Overseas Engineering Experience <sup>1</sup>		3
Leadership Electives		6
BL 4273	International Business Law	
CE 4703	Construction Engineering and Management	
CE 4743	Analysis and Mitigation of Conflicts, Claims and Disputes	
CE 4903	Civil Engineering Comprehensive	
CSE 3981	Social and Ethical Issues in Computing	
CSE 4223	Managing Software Projects	
GE 2713	Introduction to Engineering and Public Policy	
GE 3011	Engineering Entrepreneurship Seminar	
IB 4103	International Business	
EC 4303	International Economic Development	
EC 4323	International Economics	
IE 3913	Engineering Economy I	
IE 4513	Engineering Administration	
IE 4533	Project Management	
IE 4553	Engineering Law and Ethics	
ISE 4103	Cross-Cultural Leadership	
MGT 3823	Socially Responsible Leadership	
MGT 4613	Cross-Cultural Management	
MKT 3323	International Logistics	
MKT 4033	International Transportation	
MKT 4333	International Supply Chain Management	

<sup>1</sup> Examples include: MSU Faculty-led Study Abroad in an engineering course, International Engineering Internship, Semester-long Engineering Exchange Program, or Overseas Service Learning (e.g. Engineers Without Borders)

For more information on the Global Engineering Leadership minor, please contact:

Galyna Melnychuk  
 International Programs Coordinator  
 Bagley College of Engineering,  
 250 McCain Engineering Bldg.  
 Box 9544  
 Mississippi State, MS 39762  
[gm2@bagley.msstate.edu](mailto:gm2@bagley.msstate.edu)  
 (662) 325-5878

## Program Endorsements

### Automotive Engineering Endorsement

This endorsement will enable students enrolled in a variety of engineering degree programs to enhance their education in topical subject matter related specifically to automotive engineering.

The 15 hours of academic credit required for this endorsement may be earned by completing selected courses from a list of qualifying designated by a representative faculty committee. These courses include one from the Level I list; two courses from the Level II list; Automotive Engineering (cross-listed as CHE, ECE, IE or ME 4193/ME 6193); plus a directed individual study course related to a team experience in automotive engineering.

Additionally, at least six hours taken for the endorsement must be in addition to the courses required for the student's graduation requirements for his or her major. Students should see an advisor for a list of approved courses. In the case of graduate students, the student's graduate committee will determine how many of the courses taken for the endorsement fulfill course requirements for the student's degree.

### Computational Biology Endorsement

The availability of entire genomes of both simple and complex organisms has made advances in the life sciences critically dependent upon computing. The field of computational biology combines computer science and biology to address questions of how biological systems work by analyzing and synthesizing the data made available with high throughput biology. This endorsement program will allow undergraduate and graduate students in the computational and life sciences to pursue a well-defined program where they will gain fundamental skills in computing integrated with biology and will become competitive for high-end employment in emerging technical fields. Students will learn how to apply computational techniques to understand structures, functions, dynamics, and evolution of living organisms.

The endorsement program is ideal for students working toward or possessing a BS or MS degree in computer science, computer engineering, mathematics, statistics, biological engineering, or one of the life sciences. A Computational Biology endorsement will be issued jointly by the Bagley College of Engineering and the College of Agriculture and Life Sciences upon a candidate's successful completion of the requirements of the program.

#### Endorsement Requirements:

CSE 4623/6623	Computational Biology (required of all students)	3
CSE 4613/6613	Bio-computing (required of students in the life sciences)	3
BCH 4113/6113	Essentials of Molecular Genetics (required of students in computer science, computer engineering and biological engineering.)	3

3 additional relevant courses as approved by the Certificate Advisory Board – required of all students

### The Jack Hatcher Engineering Entrepreneurship Program

The role of the engineering entrepreneur in the expansion of the economy is self-evident. Engineers with entrepreneurial spirit and skills are the locomotives of the technology-based startup company and,

perhaps more importantly, of the evolution of established industry. Developing entrepreneurial thinking in our graduates is one of the primary learning goals of the Bagley College of Engineering at Mississippi State University. Through an endowment by alumnus Jack Hatcher, we have established a multi-level engineering entrepreneurship program to serve students with different degrees of interest. The primary mission of the program is to expose our students to the broader elements of running a business and the general managerial skills required to prepare them for opportunities in management. For a more limited number, our mission is to equip technologically creative students to recognize opportunities and help instill the confidence to start entrepreneurial businesses.

The basic and broadest element of the entrepreneurship program is a weekly seminar series in which successful entrepreneurs present case histories. Also business leaders discuss specific items, such as patents, hiring employees, and venture capital.

### Engineering Entrepreneurship Endorsement

For students with higher levels of interest, a formal course of study leading to an Entrepreneurship Endorsement is available. The endorsement program is a joint program with the College of Business that requires a minimum of 15 semester hours. Students gain knowledge in finance, marketing, and accounting followed by a management course in entrepreneurship where the capstone project is a business plan.

All undergraduate engineering and computer science students in good standing are eligible to join the program. Each student must have a faculty mentor from both engineering and business. To join the program, a student must submit an application that has been signed by both mentors to the Associate Dean of Engineering .

The Entrepreneurship Endorsement Program is comprised of three major parts:

1. Completing 15 hours of business and engineering classes:

ACC 2013	Principles of Financial Accounting	3
EC 2123	Principles of Microeconomics	3
IE 3913	Engineering Economy I	3
MKT 3013	Principles of Marketing	3
MGT 3323	Entrepreneurship	3

2. The Seminars Series

GE 3011	Engineering Entrepreneurship Seminar	1
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3. The "company" or project experience.

By utilizing electives, students in most engineering disciplines can complete the course requirements with a maximum of six to nine hours of additional work above the degree program. Also, much of the coursework will apply toward the prerequisites for an MBA degree at a later time should the student decide to pursue that path.

A GPA of 2.25 is required on all coursework, and no grade less than a C can be applied toward the endorsement. A maximum of two courses can be transfer courses, and correspondence courses will not be accepted. In addition, a passing grade must be obtained for three semesters of GE 3011 Engineering Entrepreneurship Seminar.

The "company" or project experience is the real-world engineering experience of developing a marketable product or service. In most cases, the endorsement candidate can get academic credit through the senior design course or a technical elective. For example, Electrical Engineering and Computer Engineering majors can receive credit for the senior design project requirement (ECE 4512/ECE 4522). The "company"

experience may be a concept developed by students or faculty members. To complete the requirements for the project experience, the candidate submits a report to the Associate Dean, which has been approved by both mentors. This report usually takes the form of a Business Plan and is developed as part of the entrepreneurship course MGT 3323.

Upon completion of the Entrepreneurship Endorsement Program requirements, the Associate Dean will review the student's records. If all requirements are met satisfactorily, the Associate Dean will submit the candidate to the Deans of Business and of Engineering for issuance of the certificate. The Associate Dean will notify the Registrar to have a statement placed on the candidate's transcript. The certificate will be issued concurrently with the B.S. Degree in Engineering or Computer Science.

For more information contact:

Mr. Eric Hill  
 Program Coordinator  
 Box 5282, Mississippi State University, MS 39762  
 Phone: (662) 325-3521  
 email: ehill@oett.msstate.edu

### Information Assurance Endorsement

MSU is certified by the National Security Agency as a Center of Academic Excellence in information assurance (IA) education. The IA endorsement program is designed for but not limited to, students of the following backgrounds:

- Students participating in the Department of Defense IA Scholarship Program at MSU
- Students participating in the National Science Foundation's Scholarship for Service at MSU
- Government employees interested in IA who desire to take advantage of education support available from their employer
- Government students on campus as part of the National Defense University educational partnership with MSU who are studying IA topics
- MSU students with a desire to focus on IA topics and wish to demonstrate to perspective employers a competency in this area.

### Requirements

Admission to the program is managed by the Department of Computer Science and Engineering. All candidates must:

- Be enrolled as a full-or part-time student at MSU
- Demonstrate mastery of computer science, computer engineering, electrical engineering or management information systems fundamentals
- Exhibit knowledge of discrete mathematics, algorithms and data structures at the level of an undergraduate course
- Demonstrate a practical knowledge of computer organization

A minimum of 15 hours must be completed for the Information Assurance endorsement.

#### Required courses

CSE 4243/6243	Information and Computer Security	3
CSE 4273/6273	Introduction to Computer Forensics	3
CSE 4383/6383	Network Security	3
Choose two of the following:		6

BIS 4513/6513	Microcomputers and Networks
BIS 4113/6113	Business Information Systems Security Management
CSE 4153/6153	Data Communications and Computer Networks
CSE 4733/6733	Operating Systems I
CSE 4503/6503	Database Management Systems
MIS students may substitute:	
BIS 3753	Business Database Systems
BIS 8313	Advanced Database Design Administration
Any advanced (4000-level or above) IA course approved by the program administrator.	
<b>Total Hours</b>	<b>15</b>

### Materials Endorsement

The Materials Science and Engineering Endorsement, administered through the Bagley College of Engineering, is available to qualified students who complete an organized plan of study in the interdisciplinary field of Materials Science and Engineering at Mississippi State University.

The University's various departments offer a range of materials-related courses in both the science and engineering fields, such as biomaterials, electronic and semiconductor materials, metals, composites, polymers, ceramics, and construction materials. We also have a wide range of supporting courses in the areas of materials modeling, mechanics, processing, and characterization, along with special topics in tribology, fatigue, fracture, and corrosion. Faculty participating in these course offerings are organized as the Materials Working Group (MWG).

As part of an organized plan of study, including Directed Individual Study courses under the direction of a MWG member, materials-based courses allow students to pursue an interdisciplinary education and training program tailored to individual interests.

The Materials Science and Engineering Endorsement is available to both traditional and non-traditional students. This allows industry to offer employees further training in materials, as well as provide current university students the opportunity to pursue an interdisciplinary materials specialty.

To apply for this program, the candidate must submit the initial application for the endorsement to a MWG Faculty in their home department. The MWG Faculty will validate the proposed courses and forward the package to the MWG Chair. Upon successful completion of the required courses, the MWG will recommend award of the endorsement by the Dean of Engineering.

### Admission to the Endorsement Program:

Students pursuing a materials endorsement typically fall into one of the following categories:

- Persons possessing at least a bachelor's degree in engineering or science; or
- Persons working towards either a bachelor's or master's degree in engineering or science

### Minimum admission requirements:

To be admitted to the program a student must have satisfactorily completed

**Chemistry**

CH 1213 & CH 1211	Chemistry I and Investigations in Chemistry I	4
CH 1223 & CH 1221	Chemistry II and Investigations in Chemistry II	4

**Calculus**

MA 1713	Calculus I	3
MA 1723	Calculus II	3

**Physics**

PH 2213	Physics I	3
PH 2223	Physics II	3

In addition, the student is responsible for meeting all prerequisites for each course taken towards the materials certificate.

Candidates in categories (1) and (2) automatically will meet the program requirements, either upon entrance to the program or in parallel. For those lacking the prerequisites, additional course work must be completed successfully.

In all cases, it is the responsibility of the student to provide an official transcript of all courses taken prior to admission into the program. An application form including a proposed course of study must be completed by the student and an official transcript must be provided for admission to the program. A member of Materials Engineering Working Group will review the application and agree to the program of study.

**Endorsement Requirements:**

To receive a materials endorsement, students must complete at least one course from Level I, at least two courses from Level II, at least one course from level III, and a three-hour Directed Individual Study that incorporates a materials-related research project and is under the direction of a MWG faculty member. Students must obtain a grade of "C" or better in each class taken.

Level I: Fundamental materials course. This course may be part of the student's home curriculum. Student must take at least ONE course. 3

ABE 3813	Biophysical Properties of Materials
CE 3313	Construction Materials
CHE 3413	Engineering Materials
ME 3403	Materials for Mechanical Engineering Design

Level II: Intermediate material courses. These courses extend and enrich the basic materials topics introduced in the Level I courses. Students must take at least TWO courses. 6

CE 4633	Concrete Structures
CHE 4143/6143	Advanced Polymeric and Multicomponent.
ECE 4243/6243	Introduction to Physical Electronics
ECE 3213	Introduction to Solid State Electronics
EM 4133/6133	Mechanics of Composite Materials
PH 3613	Modern Physics
ME 4133/6133	Mechanical Metallurgy

Elective Special topics: Courses under development related to basic materials properties such as: Ceramics, Crystallography, Polymers, Composites and Electronic Materials.

Note: Only one of the two courses in Level II maybe a special topic.

Level III: Advanced or Applied materials courses. Students must take at least ONE course. 3

ABE 4523/6523	Biomedical Materials
ABE /CHE /ME 4624/6624	Experimental Methods in Materials Research
CHE 4423/6423	Fundamentals of Industrial Corrosion
CHE 4153/6153	Introduction to Particle and Crystallization Technology
CHE 4163/6163	Nanotechnology in Chemical Applications
ECE 4283/6283	Microelectronics Device Design
EPP /ME 8144	Transmission Electro Microscopy
EPP 8223	Scanning Electron Microscopy
ME 4413/6413	Casting and Joining
ME 4123/6123	Failure of Engineering Materials
PH 4813/6813	Introduction to Solid State Physics

For further details about the program and a current listing of allowed courses, please contact the Office of the Dean of Engineering at (662) 325-2270 or visit [www.bagley.msstate.edu](http://www.bagley.msstate.edu) (<http://www.bagley.msstate.edu>).

**Energy Endorsement**

The Energy Endorsement is designed to permit students in an MSU engineering discipline to designate a five-course sequence leading to a well-defined program in energy. The Energy Endorsement utilizes courses in most MSU engineering programs plus a required course in alternate energy sources. Students who successfully complete the Energy Endorsement will have acquired significant energy engineering expertise in their and related engineering disciplines, as well as an interdisciplinary overview of energy and sustainable energy concepts.

The Energy Endorsement is open to undergraduate students in good standing at MSU. Each student who wishes to participate in the program must provide a letter of intent outlining the proposed course of study to the Chair of the BCoE Energy Working Group.

In order to meet the requirements of the Energy Endorsement, a student must complete with a grade of "C" or better at least 15 hours of courses as designated in the Level I, Level II, and Level III categories. Additionally, two of the Level I, II, or III courses must be above the degree requirements of the student.

The list of courses for the Energy Endorsement is given below:

**Level I**

<b>Thermodynamics</b>		
CHE 3113	Chemical Engineering Thermodynamics I	3
or ME 3513	Thermodynamics I	
or ASE 3333	Aerothermodynamics	
<b>Circuits</b>		
ABE 3413	Bioinstrumentation I	3
or ECE 3183	Electrical Engineering Systems	
or ECE 3413	Introduction to Electronic Circuits	

**Level II**

ME 4353	Alternate Energy Sources	3
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**Level III**

Two senior-level energy courses. See advisor for approved list.

**Athlete Engineering Certificate**

Through the development of wearable technology, human performance data has become readily available and can be used to monitor and improve the performance of athletes in a variety of fields both inside and outside of sports. Athlete Engineering employs various technologies such as human factors concepts, wearable sensors, and human performance technologies combining them with engineering analysis to enhance the performance and safety of traditional athletes as well as other human athletes such as war fighters, emergency responders, those working in industry, and elsewhere. Athlete Engineering is an interdisciplinary field which interfaces with other disciplines such as kinesiology, fashion design, and others.

For more information on the Athlete Engineering Certificate, please visit [https://www.cavs.msstate.edu/research/athlete\\_engineering.php](https://www.cavs.msstate.edu/research/athlete_engineering.php) or contact AThEng@cavs.msstate.edu.

**Dave C. Swalm School of Chemical Engineering**

Director: Bill Elmore  
Office: 330 Swalm Chemical Engineering Building

**Chemical Engineering**

Chemical Engineering is a profession where a diverse group of individuals contribute to the invention, development, and deployment of an incredible range of processes and products in a variety of industries including chemical, petrochemical, environmental, pharmaceutical, environmental, and materials. Chemical engineering is the branch of engineering that deals with the chemical and physical processes used to develop and manufacture many different products of greater value from lesser valued chemicals and feedstocks. Without question, chemical engineers are making major contributions to the technological infrastructure of modern society.

The mission of the Swalm School of Chemical Engineering is to produce graduates who have the ability to apply the principles of the physical sciences, together with the principles of economics and human relations, to fields that pertain directly to processes and process equipment that treat material to effect a change in state, energy content, or composition.

Graduates will receive a broad education that will enable them to become leaders in industry, the profession, and the community. Those graduates who excel academically will be prepared for entry to graduate or professional school.

To achieve our mission, Program Educational Objectives have been established to help us assess the degree to which we have achieved these objectives.

**Chemical Engineering Program Educational Objectives**

Mississippi State University Chemical Engineering graduates will:

- a. Successfully enter the chemical engineering profession as design, process and research engineers (and related designations) with prominent companies in the chemical process industries, energy,

environmental, government agencies, consulting or other related industries.

- b. Apply communication and engineering technical skills to the field of chemical engineering to enhance economic development and address technical issues facing industry, academia and the government.
- c. Pursue post-baccalaureate degrees in chemical engineering and related fields, business and professional programs including medicine and law.
- d. Demonstrate proficiency in chemical engineering practice and leadership development by advancing in their chosen fields to technical leadership, supervisory and management positions.
- e. Enter their chosen fields maintaining the highest degree of ethical conduct and safety responsibility.

**Concentrations**

Students choosing to major in Chemical Engineering will select one of three concentration areas within the Chemical Engineering Program:

- a. Chemical Engineering Practice Concentration;
- b. Chemical Engineering Research/Development Concentration; or
- c. Biomolecular Engineering Concentration.

**Chemical Engineering Practice Concentration.** This concentration area prepares the graduate to enter industry upon graduation well-prepared to function as a chemical engineer, in a variety of industries as well as in a variety of job functions. Students pursuing this option are also well prepared for graduate studies in chemical engineering or professional school. A combination of 12 hours of technical electives, chemical engineering elective, and chemistry elective allows a student to emphasize an area of interest, including materials, environmental, energy (including alternative energy), or traditional chemical engineering.

**Chemical Engineering Research/Development Concentration.** This concentration area prepares the chemical engineering graduate for further educational endeavors at the graduate level and for opportunities in research and development by providing them with additional training in mathematics and chemical engineering topics. Focused selection of technical, chemistry, and basic engineering electives provides the opportunity to develop the depth required for post-graduate research activities in chemical engineering.

**Biomolecular Engineering Concentration.** This concentration area prepares the graduate for a career in the biotechnology industry. The concentration area also provides students the opportunity to fulfill prerequisites for medical, dental, or veterinary school upon completion of their chemical engineering degree. Focused selection of technical, chemistry, and basic engineering electives provides the opportunity to develop the depth required in biology, biochemistry, and microbiology for students interested in this concentration. While students regularly enter medical school via the Chemical Engineering Practice concentration, the biomolecular engineering concentration offers students not only a bachelor's degree in chemical engineering, but also highlights those topics encountered in biotechnology, medical school or in veterinary school.

The B. S. program in Chemical Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for

Chemical, Biochemical, Biomolecular, and similarly named engineering programs.

## Petroleum Engineering

This curriculum is designed to educate students on the foundational principles required for success in the petroleum industry. Graduates will be prepared to enter the workforce and manage the human and energy resources in the petroleum industry. Students will develop hands-on, communication, and critical thinking skills to be successful. The program offers unique training with a particular emphasis on petroleum reservoir engineering, enhanced petroleum recovery methods, and thorough economic analysis. The degree is housed within the Swalm School of Chemical Engineering, and offers a student-focused curriculum with one-on-one advising and professional development opportunities.

The petroleum industry is one of the world's largest industries and is relied upon in numerous ways for sustaining a modern and ever-advancing energy-driven, technologically-based society.

### Petroleum Engineering

#### Program Educational Objectives

Mississippi State University Petroleum Engineering graduates will:

- Obtain gainful employment and hold positions of increasing responsibility in the field of Petroleum Engineering as a Reservoir, Production, Data Analytics, Drilling, or Field Engineer.
- Apply effective communications, leadership, and teaming skills in the field of petroleum engineering in industry, academia or government.
- Demonstrate continuing improvements in technical skills through professional development and training, professional licensure, or appropriate certification.

The B. S. program in Petroleum Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Petroleum and similarly named engineering programs.

## Chemical Engineering

### General Education and Degree Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

See Major Core

#### Science

See Major Core

#### Humanities

See General Education courses 6

#### Fine Arts

See General Education courses 3

#### Social/Behavioral Sciences

See General Education courses 6

#### Major Core

<b>Math and Basic Science</b>		<b>36</b>
MA 1713	Calculus I	

MA 1723	Calculus II
MA 2733	Calculus III
MA 2743	Calculus IV
MA 3253	Differential Equations I
CH 1213	Chemistry I
CH 1211	Investigations in Chemistry I
CH 1223	Chemistry II
CH 1221	Investigations in Chemistry II
CH 4511	Organic Chemistry Laboratory I
CH 4513	Organic Chemistry I
CH 4523	Organic Chemistry II
PH 2213	Physics I
PH 2223	Physics II (or accepted substitutions)

#### Engineering Topics **49**

CHE 1101	Introduction to Chemical & Petroleum Engineering
CHE 2114	Mass and Energy Balances
CHE 2213	Chemical Engineering Analysis
CHE 3113	Chemical Engineering Thermodynamics I <sup>1</sup>
CHE 3123	Chemical Engineering Thermodynamics II
CHE 3203	Fluid Flow Operations <sup>1</sup>
CHE 3213	Heat Transfer Operations <sup>1</sup>
CHE 3222	Chemical Engineering Laboratory I
CHE 3223	Separation Processes
CHE 3232	Chemical Engineering Laboratory II
CHE 3413	Engineering Materials
CHE 4113	Chemical Reactor Design
CHE 4134	Process Design
CHE 4223	Process Instrumentation and Control
CHE 4233	Chemical Plant Design
CHE 4633	Chemical Process Safety
IE 3913	Engineering Economy I

#### Oral Communication Requirement

Fulfilled in CHE 3222, CHE 3232, CHE 4134 and CHE 4233

#### Writing Requirement

GE 3513	Technical Writing	3
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#### Computer Literacy

Fulfilled in CHE 2213 and CHE 4134

#### Choose one of the following sets of courses to complete the degree: **19**

##### Chemical Engineering Practice Concentration (CHEP)

EM 2413	Engineering Mechanics I
or ECE 3183	Electrical Engineering Systems
CHE 3331	Professional Development Seminar
CH 4413	Thermodynamics and Kinetics
Chemical Engineering Elective <sup>2</sup>	
Chemistry Elective <sup>3</sup>	
Technical Electives <sup>3</sup>	

(It is strongly recommended that CHE 4313 Transport Phenomena be used as a technical elective)

##### Chemical Engineering Research/Development Concentration (CERD)

CHE 4313	Transport Phenomena
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CHE 3331	Professional Development Seminar	
MA 3113	Introduction to Linear Algebra	
MA 3353	Differential Equations II	
MA /ST 4543	Introduction to Mathematical Statistics I (MA/ST 4543 is a cross-listed course, but the student should choose MA 4543 if a minor in mathematics is desired.)	
or IE 4613	Engineering Statistics I	
CH 4413	Thermodynamics and Kinetics	
Chemistry Elective <sup>3</sup>		
<b>Biomolecular Engineering Concentration (BIOM)</b>		
BIO 1134	Biology I	
BIO 1144	Biology II	
BIO 3304	General Microbiology	
BCH 4603	General Biochemistry I	
CH 4521	Organic Chemistry Laboratory II	
Choose one of the following:		
PH 2233	Physics III (pre-medical students)	
Advanced biology course (pre-veterinary students)		
Biotechnology course from an engineering dept. (Biomolecular engineering practice)		
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> With consent of student's advisor, the following course substitutions are acceptable:

- EM 3313 Fluid Mechanics for CHE 3203
- ME 3513 Thermodynamics I for CHE 3113
- ME 3313 Heat Transfer for CHE 3213

<sup>2</sup> CHE 4000 Directed Individual Study will generally be disallowed for the required chemical engineering elective but may be used as a technical elective.

<sup>3</sup> The Chemistry and Technical Electives are to be chosen from an approved list available online and from the student's advisor.

## Petroleum Engineering

### General Education and Degree Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics (see Major core)

#### Science (see Major core)

**Humanities (see General Education list) 6**

**Fine Arts (see General Education list) 3**

**Social/Behavioral Sciences (see General Education list) 6**

#### Major Core-Math and Basic Science

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3253	Differential Equations I	3

CH 1211	Investigations in Chemistry I	1
CH 1213	Chemistry I	3
CH 1221	Investigations in Chemistry II	1
CH 1223	Chemistry II	3
PH 2213	Physics I	3
Geology & Geography Electives (Choose two - at least one must be a Geology Elective; a second can be Geography selected from the list below)		6
GG 4063	Earth and Atmospheric Energy Resources	
GG 4233	Applied Geophysics	
GG 4304	Principles of Sedimentary Deposits I	
GG 4413		
GG 4443	Principles of Sedimentary Deposits II	
GG 4633	Introduction to Geochemistry	
GR 4303	Principles of GIS	3
GR 4313	Advanced GIS	3
GR 4323	Cartographic Sciences	3

#### Major Core - Engineering Topics

PTE 1101	Introduction to Petroleum Engineering	1
CHE 2114	Mass and Energy Balances	4
CHE 2213	Chemical Engineering Analysis	3
CHE 3113	Chemical Engineering Thermodynamics I	3
CHE 3203	Fluid Flow Operations	3
CHE 3213	Heat Transfer Operations	3
CHE 3413	Engineering Materials	3
EM 2413	Engineering Mechanics I	3
EM 3213	Mechanics of Materials	3
IE 3913	Engineering Economy I	3
IE 4613	Engineering Statistics I	3
PTE 3902	Petroleum Engineering Lab 1	2
PTE 3903	Petroleum Reservoir Fluid Properties	3
PTE 3912	Petroleum Engineering Lab 2	2
PTE 3953	Petroleum Reservoir Rock Properties and Fluid Flow	3
PTE 3963	Drilling	3
PTE 3973	Petroleum Production Operations	3
PTE 4903	Petroleum Reservoir Engineering 1	3
PTE 4913	Petroleum Reservoir Engineering 2	3
PTE 4923	Completion Design	3
PTE 4953	Formation Evaluation	3
PTE 4963	Oil Recovery Methods	3
PTE 4983	Petroleum Engineering Capstone Design	3
PTE 4993	Petroleum Economic Analysis	3

#### Writing Requirement

GE 3513	Technical Writing	3
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**Oral Communication Requirement - Fulfilled in PTE 3902, PTE 3912, and PTE 4993**

**Computer Literacy - Fulfilled in CHE 2213 and PTE 4993**

**Technical Electives 6**

**Total Hours 128**



## Petroleum Engineering Minor

The minor in Petroleum Engineering consists of 7 courses for a total of 21 credit hours. Engineering undergraduate students enrolled at Mississippi State University may be admitted into the minor program during any semester (fall, spring, or summer). All hours earned in the Petroleum Engineering minor program must be taken at MSU. A minimum GPA of 2.5 is required in all courses in the minor program. The Undergraduate Coordinator for the Swalm School of Chemical Engineering will oversee all admission decisions.

### Required Courses

PTE 3903	Petroleum Reservoir Fluid Properties	3
PTE 3953	Petroleum Reservoir Rock Properties and Fluid Flow	3
PTE 3963	Drilling	3
PTE 3973	Petroleum Production Operations	3
PTE 4903	Petroleum Reservoir Engineering 1	3
PTE 4923	Completion Design	3
Choose one of the following electives:		3
PTE 4913	Petroleum Reservoir Engineering 2	
PTE 4953	Formation Evaluation	
PTE 4963	Oil Recovery Methods	
<b>Total Hours</b>		<b>21</b>

## Department of Aerospace Engineering

Interim Department Head: Professor Rani W. Sullivan  
Academic Coordinator: Ms. Machaunda Bush  
Office: 321 Walker Engineering Building

The Department of Aerospace Engineering at Mississippi State University provides an accredited undergraduate curriculum with the mission of preparing students to enter the workplace as qualified entry-level aerospace engineers or to enter any aerospace engineering graduate program adequately prepared for advanced study. This mission is accomplished by a strong foundation in mathematics and physical and engineering sciences upon which student problem-solving and application skills are developed. The curriculum stresses analytical and communication skills, with particular emphasis placed on engineering design throughout the curriculum. A capstone design experience in the senior year provides the opportunity to integrate design, analytical, and problem-solving skills along with communication skills in a team environment that emulates aerospace engineering practice.

The mission is accomplished by the following educational objectives, which describe the career and professional accomplishments we are preparing our graduates to achieve. Our graduates will:

- Be involved in solving unstructured engineering problems within their organization that will allow them to successfully advance in the engineering profession.
- Be engaged in lifelong learning and pursue professional development through actions such as persistent study of the current literature in the field, participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies.
- Be professionally and ethically responsible to the profession, society, and the environment incumbent on an engineering professional.

- Collaborate successfully and positively on multi-disciplinary, culturally-diverse teams in support of their organizational goals.
- Communicate effectively in various settings and contexts by activities such as writing technical reports and peer-reviewed articles and presenting at technical interchanges.

These objectives are accomplished in two different concentrations in the aerospace engineering curriculum, an aeronautics concentration and an astronautics concentration. The concentration in aeronautics focuses on the analysis and design of aircraft and other vehicles that operate primarily within the earth's atmosphere, and the concentration in astronautics focuses on the analysis and design of spacecraft and other vehicles that operate primarily outside the earth's atmosphere. A student in aerospace engineering will choose one of these two concentrations upon choosing the aerospace engineering major.

The B. S. program in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Aerospace and similarly named engineering programs.

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

See Major Core		9
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### Science

See Major Core		6
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### Humanities

See General Education courses		6
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### Fine Arts

See General Education courses		3
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### Social/Behavioral Sciences

See General Education courses		6
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### Major Core

#### Math and Basic Science

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3113	Introduction to Linear Algebra	3
MA 3253	Differential Equations I	3
Math/Science Elective <sup>1</sup>		3
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
PH 2213	Physics I	3
PH 2223	Physics II	3
CSE 1233	Computer Programming with C	3

#### Engineering Topics

ECE 3413	Introduction to Electronic Circuits	3
EM 2413	Engineering Mechanics I	3

EM 2433	Engineering Mechanics II	3
EM 3213	Mechanics of Materials	3
EM 3313	Fluid Mechanics	3
EM 3413	Vibrations	3
ASE 1013	Introduction to Aerospace Engineering	3
ASE 2013	Astrodynamics, Propulsion and Structures	3
ASE 2113	Introduction to Aircraft and Spacecraft Performance	3
ASE 3233	Aerospace Structural Analysis I	3
ASE 3243	Aerospace Structural Analysis II	3
ASE 3333	Aerothermodynamics	3
ASE 4113	Aerospace Engineering Laboratory I	3
ASE 4123	Aerospace Controls	3
ASE 4343	Compressible Aerodynamics	3
ASE 4623	Aerospace Structural Design	3
ASE 4721	Aerospace Engineering Laboratory II	1
Technical Electives <sup>2</sup>		6

**Oral Communication Requirement**

Satisfied by successful completion of ASE 2013, ASE 4513/ASE 4523 or ASE 4533/ASE 4543, ASE 4623, ASE 4721 and GE 3513.

**Writing Requirement**

GE 3513	Technical Writing	3
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**Computer Literacy**

Satisfied by successful completion of ASE 1013, ASE 2013, and ASE 2113.

**Choose one of the following concentrations:** **15**

**Aeronautics Concentration (ARO)**

ASE 3123	Aircraft Flight Dynamics
ASE 3313	Incompressible Aerodynamics
ASE 4413	Aircraft Propulsion
ASE 4513	Aircraft Design I
ASE 4523	Aircraft Design II

**Astronautics Concentration (ASO)**

ASE 3813	Introduction to Orbital Mechanics
ASE 3823	Spacecraft Attitude Dynamics
ASE 4443	Spacecraft Propulsion
ASE 4533	Spacecraft Design I
ASE 4543	Spacecraft Design II

**Total hours** **128**

<sup>1</sup> The department maintains a list of pre-approved math/science electives on its website. Other courses may be selected upon approval of the department.

<sup>2</sup> Technical electives may be selected from any of the department's listing of Advanced Undergraduate/Graduate Courses, plus EM 4123, EM 4133 and EM 4143. Other courses may be selected upon approval of the department. All required courses in one concentration qualify as technical electives for students in the other concentration.

## Department of Agricultural and Biological Engineering

Department Head: Dr. Alex Thomasson

Office: 150 J. Charles Lee Agricultural and Biological Engineering Building

### Biosystems Engineering (BSE)

Biosystems Engineering is the branch of the engineering profession that deals with problems encountered in biological systems including ecology, the rural environment, and agriculture. The responsibilities of the Biosystems Engineer often include designing solutions to problems in the following applications:

- water issues in the rural environment such as infiltration, runoff, and evapotranspiration in crops.
- biomass for energy and bio-based products
- autonomous systems including sensors, artificial intelligence, and robotics and for agriculture and food-production systems.

The curriculum in Biosystems Engineering is designed to give the student a thorough grounding in the basic sciences of biological systems, mathematics, physics, and chemistry, followed by a series of fundamental and applied courses in engineering. Apart from preparing students to work in natural resources and agriculture, the B.S. in Biosystems Engineering is an excellent foundation for graduate study in biosystems engineering and other engineering disciplines, and preparation for entry into certain professional schools including law school. Biosystems Engineering students can choose to focus their course sequence on one of two emphasis areas:

**Natural Resources and Environment.** Agricultural activities and climatic changes affect the rural environment. Engineers are needed to design solutions to problems in this area, which can involve improving sustainable land-use practices, developing efficient water-usage strategies, improving water quality, and protecting and conserving soil and water resources. Students in this emphasis will take courses on soil and water management, nonpoint-source pollution, remote sensing, and geospatial computing. This emphasis prepares students for careers in land-use permitting, natural resource management, and conservation.

**Autonomous Agricultural Systems.** Worldwide trends demand that significantly more food be produced per acre, with less environmental risk, and with significantly less labor. This requirement can be met only with autonomous agricultural systems, which involve sensors, analytical tools like artificial intelligence, and mechatronic and robotic systems. Examples of such technologies include self-driving tractors, agricultural drones, and robotic harvesters. Students in this emphasis will take courses on sensors, imaging, machinery, and robotics. This emphasis prepares students for careers in design of agricultural machinery and systems as well as precision agriculture.

The B. S. program in Biosystems Engineering program is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Biological and Similarly Named Engineering Programs.

### Biomedical Engineering (BME)

#### Biomedical Engineering (BME)

Biomedical Engineering is an interdisciplinary field of engineering that integrates engineering and life sciences to solve problems associated with the human body and human health. Biomedical engineers combine engineering principles with medical and biological sciences to design and create materials and devices, computer systems, software and equipment

for use in healthcare. Examples include orthopaedic implants, drug pumps, cardiac assist devices, and bio-engineered skin.

The curriculum in Biomedical Engineering is designed to give the student a thorough grounding in the basic sciences of biological and medical sciences, mathematics, physics, and chemistry, followed by a series of fundamental and applied courses in engineering. Apart from preparing students to work in the biomedical industry, the B.S. in Biomedical Engineering is an excellent foundation for graduate study in many fields, including the further study of biomedical engineering, and preparation for entry into professional schools, including medical school, dental school, veterinary school, and law school. Biomedical engineering students can choose to focus their course sequence on one of three emphasis areas:

**Biomaterials.** Biomaterials play an integral role in medicine today – restoring function and facilitating healing for people after injury or disease. Biomaterials may be natural or synthetic and are used in medical applications to support, enhance, or replace damaged tissue or a biological function. The modern field of biomaterials combines medicine, biology, physics, and chemistry. Students in this emphasis will take courses in mechanics of materials, biomedical materials, and immunology. This emphasis prepares students for careers in the biomedical device industry.

**Sensors and Instrumentation.** In medicine and biotechnology, biomedical sensors are used to detect specific biological, chemical, or physical processes, which then transmit or report the monitored data. These sensors can also be components in systems that process clinical samples, such as increasingly common lab-on-a-chip devices. This emphasis also encompasses medical imaging technologies that are used to view the human body in order to diagnose, monitor, or treat medical conditions. Students in this emphasis will take courses in digital devices, machine control, artificial intelligence (e.g. machine learning), and biological imaging. This emphasis prepares students for careers in the biomedical instrumentation and medical imaging industries.

**Premedical.** The Biomedical Engineering curriculum prepares students for acceptance into most medical, dental, and veterinary schools. Students completing this program have demonstrated their ability to tackle tough subjects, perform well under stressful conditions, work together in teams, learn new material, and achieve ambitious goals – characteristics desired by the best medical, dental, and veterinary schools.

The B. S. program in Biomedical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Bioengineering and Biomedical and similarly named engineering programs.

The Biosystems Engineering and the Biomedical Engineering curricula are offered by the Department of Agricultural and Biological Engineering which is jointly administered by the College of Engineering and the College of Agricultural and Life Sciences.

## Biosystems Engineering

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

See Major Core

### Science

See Major Core

### Humanities

6

Any Gen Ed course

### Fine Arts

3

Any Gen Ed course

### Social/Behavioral Sciences

6

Any Gen Ed course

### Major Core

Math and Basic Science		29
MA 1713	Calculus I	
MA 1723	Calculus II	
MA 2733	Calculus III	
MA 2743	Calculus IV	
MA 3253	Differential Equations I	
CH 1213	Chemistry I	
CH 1211	Investigations in Chemistry I	
CH 1223	Chemistry II	
CH 1221	Investigations in Chemistry II	
PH 2213	Physics I	
PH 2223	Physics II	
Engineering Topics		40
ABE 1912	Computer Based Problem Solving in Biosystems Engineering	
ABE 1922	Introduction to Engineering Design	
ABE 3303	Transport in Biological Engineering	
ABE 3413	Bioinstrumentation I	
ABE 3513	The Global Positional System and Geographic Information Systems in Agriculture and Engineering	
ABE 3813	Biophysical Properties of Materials	
ABE 4803	Biosystems Simulation	
ABE 4813	Principles of Engineering Design	
ABE 4833	Practices of Engineering Design	
EM 2413	Engineering Mechanics I	
EM 2433	Engineering Mechanics II	
EM 3213	Mechanics of Materials	
EM 3313	Fluid Mechanics	

### Oral Communication Requirement

Fulfilled in GE 3513 and other ABE courses

### Writing Requirement

GE 3513	Technical Writing	3
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### Computer Literacy

Fulfilled in Engineering Topics courses

### Major Requirements and Engineering Electives

ADS 1113	Animal Science	3
PSS 1313	Plant Science	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1
Restricted Engineering Electives *		9
Approved Engineering Electives **		6
ABE Electives		6

Math Elective (3000- or 4000-level MA or ST)	3
Laboratory or Seminar	1
<b>Total Hours</b>	<b>128</b>

- \* Restricted Engineering Electives: ABE 4313, ABE 4483, ABE 4990, CE 2803, CE 3503, CSE 4643, ME 3133, ME 3423, ME 3613, ME 4643
- \*\* Engineering Electives: ABE 2873, ABE 4263, ABE 4313, ABE 4483, ABE 4443, ABE 4463, ABE 4990, ASE 4423, ASE 4713, CE 2803, CE 3313, CE 3413, CE 3503, CE 3603, CE 3823, CE 4233, CE 4243, CE 4513, CE 4523, CE 4533, CE 4563, CE 4843, CE 4923, CE 4963, CE 4983, CHE 3113, CHE 3123, CHE 4163, CHE 4173, CHE 4613, CHE 4673, CHE 4683, CSE 3713, CSE 4153, CSE 4243, CSE 4413, CSE 4423, CSE 4503, CSE 4613, CSE 4623, CSE 4633, CSE 4643, CSE 4683, CSE 4693, ECE 3283, ECE 3443, ECE 4413, ECE 4423, ECE 4783, ECE 4813, ECE 4823, ECE 4943, IE 3323, IE 3913, IE 4113, IE 4173, IE 4333, IE 4353, IE 4513, IE 4533, IE 4553, IE 4573, IE 4613, IE 4623, IE 4653, IE 4673, IE 4683, IE 4713, IE 4743, IE 4753, IE 4923, ME 3133, ME 3103, ME 3163, ME 3313, ME 3403, ME 3423, ME 3513, ME 3523, ME 3613, ME 4113, ME 4123, ME 4133, ME 4193, ME 4223, ME 4233, ME 4343, ME 4353, ME 4403, ME 4413, ME 4423, ME 4443, ME 4453, ME 4543, ME 4623, ME 4643, ME 4833

## Biomedical Engineering

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

See Major Core

### Science

See Major Core

### Humanities

Any Gen Ed course

### Fine Arts

Any Gen Ed course

### Social/Behavioral Sciences

Any Gen Ed course

### Major Core

Math and Basic Science		33
MA 1713	Calculus I	
MA 1723	Calculus II	
MA 2733	Calculus III	
MA 2743	Calculus IV	
MA 3253	Differential Equations I	
CH 1213	Chemistry I	
CH 1211	Investigations in Chemistry I	
CH 1223	Chemistry II	
CH 1221	Investigations in Chemistry II	
PH 2213	Physics I	
PH 2223	Physics II	
BIO 1134	Biology I	
Engineering Topics		43

ABE 1912	Computer Based Problem Solving in Biosystems Engineering
ABE 1922	Introduction to Engineering Design
ABE 3303	Transport in Biological Engineering
ABE 3413	Bioinstrumentation I
ABE 3813	Biophysical Properties of Materials
ABE 4803	Biosystems Simulation
ABE 4323	Physiological Systems in Biomedical Engineering
ABE 4423	Bioinstrumentation II
ABE 4813	Principles of Engineering Design
ABE 4833	Practices of Engineering Design
MA 3123	Introduction to Statistical Inference
or IE 4613	Engineering Statistics I
EM 2413	Engineering Mechanics I
EM 2433	Engineering Mechanics II
EM 3213	Mechanics of Materials
EM 3313	Fluid Mechanics

### Oral Communication Requirement

Satisfied by successful completion of GE 3513

### Writing Requirement

GE 3513	Technical Writing	3
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### Computer Literacy

Fulfilled in Engineering Topics courses

### Major Requirements and Engineering Electives

BIO Science Elective *		3
Engineering/Technical Elective **		10
Engineering Electives		6
Engineering or Math/Physics Elective ***		3
ABE Elective ****		6
<b>Total Hours</b>		<b>128</b>

- \* Bio Sci Electives: BIO 2103, BIO 3004, BIO 3014, BIO 3103, BIO 3443, BIO 3504, BIO 3524, BIO 4113, BIO 4133, BIO 4143, BIO 4405, BIO 4413, BIO 4433, BIO 4503, BIO 4504, BIO 4514, ADS 4613, BCH 2023, BCH 4113, BCH 4443, CVM 2443, CVM 4193
- \*\* Engineering/Technical Electives: ABE 4911, ASE 3213, BIO 3304, BCH 4013, CH 2503, CH 2501, CH 4331, CH 4341, CH 4461, CH 4513, CH 4511, CH 4523, CH 4521, CHE 3413, CHE 4143, CSE 1233, CSE 1273, CSE 4613, CSE 4623, CSE 4683, ECE 3213, ECE 3413, ECE 3283, ECE 3423, ECE 3421, ECE 3424, ECE 3443, ECE 3714, ECE 4273, ECE 4293, IE 3121, EM 3413, EM 4123, EM 4133, EM 4143, EM 4213, IE 3123, IE 3913, IE 4113, IE 4553, IE 4623, IE 4683, IE 4733, IE 4743, IE 4753, EG 1143, ME 3113, ME 3163, ME 3403, ME 3423, ME 3513, ME 3613, ME 4113, ME 4123, ME 4233, ME 4643, ME 4723, ME 4833, SBP 3133
- \*\*\* Math/Physics Electives: MA 3113, MA 3353, MA 4143, MA 4373, PH 2233, PH 3613, PH 4113
- \*\*\*\* ABE Elective: ABE 3773, ABE 4443, ABE 4463, ABE 4523, ABE 4613, ABE 4723

# Richard A. Rula School of Civil and Environmental Engineering

Department Head: Professor Isaac Howard  
Office: 1040 Rula Hall

Civil and Environmental Engineers plans, designs, and supervises construction of almost every facility essential to modern life. Roads, bridges, buildings, water supply and waste disposal systems, transit systems, airfields, dams and irrigation projects are examples of the creative efforts of Civil and Environmental Engineers. The field of Civil and Environmental Engineering offers limitless employment opportunities that range from high-tech computer-aided design to hands-on field engineering. Civil and Environmental Engineers find rewarding careers in government, military, industry or private practice to meet the challenges of pollution control, energy, transportation, housing and other problems that face modern society.

The mission of the Department of Civil and Environmental Engineering is to proactively utilize teaching, research, and service to educate baccalaureate, masters, and doctoral students so they can become competent, dynamic, and ethical engineers of the future. To complement the classroom experience, students are encouraged to reinforce instruction by participating in cooperative education programs, assisting faculty with research, or becoming involved in professional societies. Students are expected to develop an appreciation for life-long learning and pursue professional engineering licensure. The ultimate goal is to prepare students to be future leaders who will positively impact their profession and society.

Furthermore, students should become prepared to combine research and classroom experiences to solve complex interdisciplinary problems.

The overall goal of the program is to challenge students to study and innovatively solve the global sustainability challenges that they encounter. Finally, faculty, students, and staff will be engaged in professional organizations, campus committees, consultancy, student organizations, and continuing education. Through these service activities, the department will be a reliable professional resource for the University, alumni, and society.

The educational objectives of the Department of Civil and Environmental Engineering are to enable graduates to achieve career and professional accomplishments that include:

- Demonstrate a broad knowledge of principles and fundamentals of civil engineering and their application, through their successfully practice as professional civil engineers, their pursuit of graduate or professional degrees, or their engagement in other professional careers that involve the application of the engineering method.
- Achieve success in the multidisciplinary environment of the 21st century, and demonstrate their ability to adapt to emerging and evolving technologies, social conditions, professional standards, and career opportunities, by attaining leadership, managerial, administrative, supervisory, or other positions of responsibility within their organization.
- Demonstrate an understanding and appreciation of the ethical, societal and professional responsibilities of a civil engineer, through professional registration and active membership in professional organizations.
- Demonstrate an appreciation for lifelong learning and for the value of continuing professional development in maintaining their professional

competence, through participation in graduate and continuing education activities.

The department offers a Bachelor of Science in Civil Engineering. For those interested in Environmental Engineering, the department offers an Environmental Engineering concentration within the Bachelor of Science in Civil Engineering. The B. S. program in Civil Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Civil and similarly named engineering programs.

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

See Major Core

### Science

See Major Core

### Humanities

See General Education courses 6

### Fine Arts

See General Education courses 3

### Social/Behavioral Sciences

See General Education courses 6

### Major Core

#### Math and Basic Science

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3253	Differential Equations I	3
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II	1
PH 2213	Physics I	3

#### Engineering Topics

EG 1143	Graphic Communication	3
IE 3913	Engineering Economy I	3
ST 3123	Introduction to Statistical Inference	3
ME 3513	Thermodynamics I	3
EM 2413	Engineering Mechanics I	3
EM 2433	Engineering Mechanics II	3
EM 3213	Mechanics of Materials	3
EM 3313	Fluid Mechanics	3
CE 1001	Introduction to Civil Engineering	1
CE 2213	Surveying	3
CE 2803	Environmental Engineering Issues	3
CE 3113	Transportation Engineering	3
CE 3311	Construction Materials Lab	1

CE 3313	Construction Materials	3
CE 3411	Soil Mechanics Laboratory	1
CE 3413	Soil Mechanics	3
CE 3501	Water Resource Engineering Lab	1
CE 3503	Water Resource Engineering	3
CE 3603	Structural Mechanics	3
CE 3801	Environmental Engineering and Water Resources Engineering Lab	1
CE 3823	Environmental Engineering	3
CE 4903	Civil Engineering Comprehensive	3

**Oral Communication Requirement**

Fulfilled in GE 3513 and various CE courses

**Writing Requirement**

GE 3513	Technical Writing	3
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**Computer Literacy**

Fulfilled in various Engineering Topics courses

**Civil Engineering Electives 12**

Choose one course from each of the following two lists:

List A

CE 4513	Engineering Hydrology
CE 4523	Open Channel Hydraulics
CE 4863	Water and Wastewater Engineering
CE 4883	Engineered Environmental Systems

List B

CE 4963	Steel Structures I
CE 4973	Concrete Structures I

Choose one course from two of the following four lists:

List C

CE 4133	Geometric Design of Highways
CE 4143	Traffic Engineering

List D

CE 4103	Pavement Design
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List E

CE 4433	Foundations
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List F

CE 4703	Construction Engineering and Management
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**Basic Science Elective <sup>1</sup> 3**

**Additional Civil Engineering Electives 6**

Any CE course, except CE 4233 or CE 4243, not applied to another curriculum requirement.

**Technical Elective**

GR 4303	Principles of GIS	3
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**Total Hours 130**

**Environmental Engineering Concentration Electives (in place of Civil Engineering Electives above)**

Environmental Engineering Concentration Electives	Choose one course from each of the following three lists:	12
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**List A:**

CE 4513	Engineering Hydrology
CE 4523	Open Channel Hydraulics

**List B:**

CE 4883	Engineered Environmental Systems
CE 4863	Water and Wastewater Engineering

**List C:**

CE 4963	Steel Structures I
CE 4973	Concrete Structures I

Choose one course from the following list:

**List D:**

CE 4133	Geometric Design of Highways
CE 4143	Traffic Engineering
CE 4103	Pavement Design
CE 4433	Foundations
CE 4703	Construction Engineering and Management

Environmental Engineering Concentration Basic Science Elective <sup>2</sup> 3

Restricted Environmental Engineering Concentration Electives <sup>3</sup> 6

Environmental Engineering Concentration Technical Electives <sup>4</sup> 3

**Total hours 130**

- <sup>1</sup> Civil Engineering Basic Science Electives: GG 4153, GG 4433, GG 4503
- <sup>2</sup> Environmental Engineering Concentration Basic Science Electives: BIO 1123, BIO 1134, BIO 1144, BIO 3304, GG 4523, GG 4613, GG 4623
- <sup>3</sup> Restricted Environmental Engineering Concentration Electives: CE 4000, CE 4513, CE 4523, CE 4533, CE 4563, CE 4583, CE 4843, CE 4863, CE 4883, CE 4893, CE 4990
- <sup>4</sup> Environmental Engineering Concentration Technical Electives: ABE 4313, ABE 4803, ABE 4843, BIO 3304, BIO 4324, BL 4263, CHE 4613, GG 4613, GR 4303

## Minor in Civil Engineering

Civil engineers design, build, and maintain the infrastructure, the very foundation of any civilization. All undergraduate students at Mississippi State University, with the exception of those already majoring in civil engineering, are eligible to pursue a minor in civil engineering.

Civil engineering is an incredibly broad field, and students have a choice of five specialty tracks to match interests and career objectives: Construction Engineering and Management, Environmental and Water Resources Engineering, Geotechnical and Materials Engineering, Structural Engineering, and Transportation Engineering. The civil engineering minor requires at least 15 credit hours of undergraduate coursework, typically at the junior and senior levels. Students develop a program of study in consultation with CEE faculty members.

Students interested in pursuing a civil engineering minor should consult with a CEE advisor for specific information regarding specialty tracks, prerequisites, and other requirements.

## Department of Computer Science and Engineering

Department Head: Dr. Shahram Rahimi  
 Associate Department Head and Undergraduate Coordinator: Dr. Andy Perkins  
 Graduate Coordinator: Dr. T. J. Jankun-Kelly  
 Office: 300 Butler Hall

The Department of Computer Science and Engineering is dedicated to maintaining quality programs in undergraduate teaching, graduate teaching, and research, and to the fruitful interaction between teaching and research. In research, we wish to maintain our present emphasis on applications (often pursued with colleagues from other disciplines), and upon the synergistic relationships between theory and applications in which the most meaningful advances often result. The department has identified six core competency areas in which we shall seek national prominence: artificial intelligence, computational science, human centered computing, graphics, systems, and software engineering. These core competencies support research applications in areas such as bio-informatics, high performance computing, computer security, computer forensics, computer science education, human-robotic interaction, and visualization. The Department of Computer Science and Engineering offers degree programs leading to the Bachelor of Science degree in Computer Science, Software Engineering, and (jointly with the Department of Electrical and Computer Engineering) Computer Engineering and the Master of Science in Cybersecurity. The department also offers study leading to the Master of Science and the Doctor of Philosophy degrees in Computer Science. An accelerated BS/MS program is also available.

## Computer Science Major (CS)

Computer Science is the study of the principles, applications, and technologies of computing and computers. It involves the study of data and data structures and the algorithms to process these structures; principles of computer architecture-both hardware and software; problem solving and design methodologies; and language design, structure and translation techniques. Computer Science provides a foundation of knowledge for students with career objectives in a wide range of computing and computer-related professions.

The objectives for the department with respect to the Bachelor of Science Degree in Computer Science are as follows:

- a. The graduate will demonstrate an understanding of computer science principles and an ability to solve unstructured computer science problems through the successful entrance into and advancement in the computer science profession.
- b. The graduate will demonstrate an appreciation for lifelong learning and for the value of continuing professional development through participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies.
- c. The graduate will demonstrate an understanding of professional and ethical responsibilities to the profession, society and the environment incumbent on a computer science professional.
- d. The graduate will successfully interact with others of different backgrounds, educations, and cultures.
- e. The graduate will demonstrate effective communication skills in their profession.

Computer Science graduates begin careers as computer programmers, system analysts, programmer/analysts, software engineers, systems programmers, computer system engineers and in a number of other computer-related jobs. A minor in computer science is available to students with major programs of study in other fields at the University.

The Bachelor of Science degree requires the completion of a total of 128 credit hours of general studies, computer science, mathematics and science, and supporting technical courses. To graduate, a student

must have a "C" average in all MSU computer science and engineering courses attempted.

The B. S. program in Computer Science is accredited by the Computing Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Computer Science and similarly named computing programs.

## Software Engineering Major (SE)

Software Engineering is the application of engineering practices to the design and maintenance of software. The Software Engineering degree program prepares students for careers in the engineering of large complex software systems and products. These systems often involve millions of lines of code and frequently operate in safety-critical environments. The Software Engineering major contains courses related to the study of software engineering in practice necessary to manage these development processes. The faculty for the Software Engineering program is drawn from the Department of Computer Science and Engineering and the Department of Industrial Engineering.

The objectives for the department with respect to the Bachelor of Science Degree in Software Engineering are as follows:

- a. The graduate will demonstrate an understanding of engineering principles and an ability to solve unstructured engineering problems through the successful entrance into and advancement in the engineering profession.
- b. The graduate will demonstrate an appreciation for lifelong learning and for the value of continuing professional development through participation in graduate education, professional education or continuing education opportunities, attainment of professional licensure, or membership in professional societies.
- c. The graduate will demonstrate an understanding of professional and ethical responsibilities to the profession, society and the environment incumbent on an engineering professional.
- d. The graduate will successfully interact with others of different backgrounds, educations, and cultures.
- e. The graduate will demonstrate effective communication skills in their profession.

A minor in software engineering is available to students with major programs of study in other fields at the University.

The Bachelor of Science degree in Software Engineering requires the completion of a total of 128 credit hours of general studies, computer science, industrial engineering, mathematics and science, supporting technical courses, and free electives. To graduate, a student must have a "C" average in all MSU computer science and engineering courses attempted.

The B. S. program in Software Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Software and similarly named engineering programs.

## Cybersecurity Major

The Bachelor of Science in Cybersecurity is designed for students who wish to help meet the challenges posed by increasing cyber-threats. Using a multidisciplinary approach, the program is designed to provide

students with a focused education for evaluating, understanding, and solving cyber security problems.

The Bachelor of Science degree requires the completion of a total of 128 credit hours of general studies, computer science, mathematics and science, and supporting technical courses. To graduate, a student must have a "C" average in all MSU computer science and engineering courses attempted.

## Computer Science Major (CS)

### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3

### Fine Arts

See General Education courses	3
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### Humanities

See General Education courses	6
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### Social/Behavioral Sciences

See General Education courses	6
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### Writing Requirement

GE 3513	Technical Writing	3
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### Departmental Requirements

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 3113	Introduction to Linear Algebra	3
Math elective		3
MA 2733	Calculus III	
or MA 3053	Foundations of Mathematics	
or MA 4143	Graph Theory	
or MA 4173	Number Theory	

### Statistics Requirement

IE 4613	Engineering Statistics I	3
or MA 4523	Introduction to Probability	
or MA 4543	Introduction to Mathematical Statistics I	
or BQA 2113	Business Statistical Methods I	

CH 1213	Chemistry I	3
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CH 1211	Investigations in Chemistry I	1
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Science electives	6
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Lab Science - Choose from:	3-4
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BIO 1134	Biology I	
BIO 1144	Biology II	
CH 1223 & CH 1221	Chemistry II and Investigations in Chemistry II	
PH 2223	Physics II	

### Natural Science - Choose from:

BIO 1134	Biology I	
BIO 1144	Biology II	
PH 2213	Physics I	
PH 2223	Physics II	
CH 1223	Chemistry II	

CSE 1011	Introduction to CSE	1
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CSE 1284	Introduction to Computer Programming	4
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CSE 1384	Intermediate Computer Programming	4
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CSE 2213	Methods and Tools in Software Development	3
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CSE 2383	Data Structures and Analysis of Algorithms	3
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CSE 2813	Discrete Structures	3
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CSE 3183	Systems Programming	3
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CSE 3724	Computer Organization	4
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CSE 3763	Ethical and Legal Issues in Computing	3
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CSE 4714	Theory & Implementation of Programming Languages	4
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CSE 4733	Operating Systems I	3
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CSE 4833	Introduction to Analysis of Algorithms	3
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## General Concentration

The general concentration in computer science allows students the flexibility to take a broad range of courses. Students are not required to focus on a specific topic area and may take a variety of courses in areas that fit their individual interests. (At least 18 hours of concentration courses, including technical electives, must be selected from upper-level CSE courses.)

### Technical Electives 27

Choose from the following:

IE 3913	Engineering Economy I
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IE 4113	Human Factors Engineering
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IE 4123	Psychology of Human-Computer Interaction
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IE 4333	Production Control Systems I
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IE 4513	Engineering Administration
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IE 4533	Project Management
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IE 4573	Process Improvement Engineering
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IE 4623	Engineering Statistics II
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IE 4653	Industrial Quality Control
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IE 4713	Operations Research I
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IE 4733	Linear Programming
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IE 4773	Systems Simulation I
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BIS 4533	Decision Support Systems
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BIS 4523	Business Programming with COBOL
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Any upper-level CSE, ECE, or MA course

### Free Electives 14

### Total Hours 128

## Systems Concentration

Computer systems are the hardware and software that provide computing capability for digital devices. Computer systems can be for embedded applications, multi-core, or distributed platforms. These help to support high performance, real-time, secure systems, and analysis of digital media for forensic purposes. Computer systems research at MSU includes investigating the use of alternate hardware architectures to improve computational speed, secure networking, develop model-driven software architectures, improve energy efficiency, and improve system robustness and resiliency. (At least 18 hours of concentration courses, including technical electives, must be selected from upper-level CSE courses.)

### Concentration Courses 9

Choose from:



CSE 4153	Data Communications and Computer Networks	
CSE 4163	Designing Parallel Algorithms	
CSE 4503	Database Management Systems	
CSE 4723	Compiler Construction	
CSE 4743	Operating Systems II	
<b>Technical Electives</b>		<b>18</b>
<b>Free Electives</b>		<b>15</b>
<b>Total Hours</b>		<b>128</b>

## Artificial Intelligence Concentration

Artificial intelligence is a branch of computer science that is concerned with developing algorithms and techniques that will allow computers to behave more like humans in the future. artificial intelligence is a broad term that incorporates a wide range of disciplines, including expert systems, natural language processing, computer vision, and robotics. Artificial intelligence is having a profound impact on a wide range of businesses. The Artificial intelligence concentration at MSU prepares students to take the next step into the field of artificial intelligence by supporting them in acquiring the information and abilities essential to improve their professional careers in the field. Instructors and students use these strategies to solve challenges in fields such as reasoning under uncertainty, bioinformatics, cyber security, geometric learning, and human-machine interfaces. (At least 18 hours of concentration courses, including technical electives, must be selected from upper-level CSE courses.)

<b>Concentration Courses</b>		<b>9</b>
Choose from:		
CSE 4633	Artificial Intelligence	
CSE 4643	AI Robotics	
CSE 4653	Cognitive Science	
CSE 4683	Machine Learning and Soft Computing	
<b>Technical Electives</b>		<b>18</b>
<b>Free Electives</b>		<b>15</b>
<b>Total Hours</b>		<b>128</b>

## Computational Science Concentration

Computational science is concerned with constructing mathematical models, quantitative analysis techniques, numerical simulations, and optimization to solve scientific problems using computers. It is now widely regarded as a third mode of scientific discovery, after theory and experiment. Faculty members in this area are participating in projects that involve algorithm development for performance optimization in scientific computing, software synthesis for computational field simulations on high-end computing platforms, distributed interactive simulation frameworks, resource allocation on high-end computing platforms, autonomic computing, uncertainty analysis in simulations, medical imaging analysis, and biological modeling. (At least 18 hours of concentration courses, including technical electives, must be selected from upper-level CSE courses.)

<b>Concentration Courses</b>		<b>9</b>
Choose from:		
CSE 4163	Designing Parallel Algorithms	
CSE 4623	Computational Biology	
MA 4243	Data Analysis I	

MA 4313	Numerical Analysis I	
MA 3253	Differential Equations I	
<b>Technical Electives</b>		<b>18</b>
<b>Free Electives</b>		<b>15</b>
<b>Total Hours</b>		<b>128</b>

## Human and Visual Computing Concentration

Humans, individually or in groups, are involved in all stages of computing. From interacting with robots, using novel virtual and extended reality methods, or analyzing data with visualization, humans are central to computing. A student in the Human and Visualization Computing concentration studies the social, cognitive, and perceptual aspects of computing through the lens of design, graphical display, and advanced interaction modalities. (At least 18 hours of concentration courses, including technical electives, must be selected from upper-level CSE courses.)

<b>Concentration Courses</b>		<b>9</b>
Choose from the following:		
CSE 4413	Principles of Computer Graphics	
CSE 4453	Game Design	
CSE 4653	Cognitive Science	
CSE 4663	Human-Computer Interaction	
IE 4113	Human Factors Engineering	
<b>Technical Electives</b>		<b>18</b>
<b>Free Electives</b>		<b>15</b>
<b>Total Hours</b>		<b>128</b>

## Software Engineering Major (SE)

<b>English Composition</b>		
EN 1103	English Composition I	3
EN 1113	English Composition II	3
<b>Fine Arts</b>		
See General Education courses		3
<b>Humanities</b>		
See General Education courses		6
<b>Social/Behavioral Sciences</b>		
See General Education courses		6
<b>Writing Requirement</b>		
GE 3513	Technical Writing	3
<b>Departmental Requirements</b>		
MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 3113	Introduction to Linear Algebra	3
Math elective		3
MA 2733	Calculus III	
or MA 3053	Foundations of Mathematics	
or MA 4143	Graph Theory	
or MA 4173	Number Theory	
Statistics Requirement		3
IE 4613	Engineering Statistics I	
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
Science electives		8

Choose from:

BIO 1134	Biology I	
BIO 1144	Biology II	
CH 1223 & CH 1221	Chemistry II and Investigations in Chemistry II	
PH 2213	Physics I	
PH 2223	Physics II	
CSE 1011	Introduction to CSE	1
CSE 1284	Introduction to Computer Programming	4
CSE 1384	Intermediate Computer Programming	4
CSE 2213	Methods and Tools in Software Development	3
CSE 2383	Data Structures and Analysis of Algorithms	3
CSE 2813	Discrete Structures	3
CSE 3183	Systems Programming	3
CSE 3213	Software Engineering Senior Project I	3
CSE 3223	Software Engineering Senior Project II	3
CSE 3724	Computer Organization	4
CSE 3763	Ethical and Legal Issues in Computing	3
CSE 4214	Introduction to Software Engineering	4
CSE 4223 or IE 4533	Managing Software Projects Project Management	3
CSE 4233	Software Architecture and Design Paradigms	3
CSE 4283	Software Testing and Quality Assurance	3
CSE 4733	Operating Systems I	3
CSE 4833	Introduction to Analysis of Algorithms	3
Technical Electives - Choose from:		15
IE 3913	Engineering Economy I	
IE 4113	Human Factors Engineering	
IE 4123	Psychology of Human-Computer Interaction	
IE 4333	Production Control Systems I	
IE 4513	Engineering Administration	
IE 4533	Project Management	
IE 4573	Process Improvement Engineering	
IE 4623	Engineering Statistics II	
IE 4653	Industrial Quality Control	
IE 4713	Operations Research I	
IE 4733	Linear Programming	
IE 4773	Systems Simulation I	
BIS 4523	Business Programming with COBOL	
BIS 4533	Decision Support Systems	
Any upper-level CSE, ECE, or MA course		
Free elective		9
<b>Total Hours</b>		<b>128</b>

## Cybersecurity Major

### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3

### Fine Arts

See General Education courses		3
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### Natural Sciences

CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1

### Science Electives

Choose from the following (6 hours minimum): 6

BIO 1134	Biology I	
PH 2213	Physics I	
PH 2223	Physics II	
CH 1223 & CH 1221	Chemistry II and Investigations in Chemistry II	
BIO 1144	Biology II	

### Math

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 3113	Introduction to Linear Algebra	3

### Math Elective

Choose from the following: 3

MA 2733	Calculus III	
MA 3053	Foundations of Mathematics	
MA 4143	Graph Theory	
MA 4173	Number Theory	

### Humanities

See General Education courses 6

### Social/Behavioral Sciences

See General Education courses 6

### Major Core Courses

CSE 1011	Introduction to CSE	1
CSE 1284	Introduction to Computer Programming	4
CSE 1384	Intermediate Computer Programming	4
CSE 2213	Methods and Tools in Software Development	3
CSE 2383	Data Structures and Analysis of Algorithms	3
CSE 2813	Discrete Structures	3
CSE 3183	Systems Programming	3
CSE 3724	Computer Organization	4
CSE 3763	Ethical and Legal Issues in Computing	3
CSE 4153	Data Communications and Computer Networks	3
CSE 4173	Cryptography	3
CSE 4243	Information and Computer Security	3
CSE 4733	Operating Systems I	3
IE 4613 or MA 4523 or MA 4543 or BQA 2113	Engineering Statistics I Introduction to Probability Introduction to Mathematical Statistics I Business Statistical Methods I	3

### Communication Requirement

GE 3513	Technical Writing	3
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### Cybersecurity Electives

Choose five of the following:

BIS 4113	Business Information Systems Security Management	
CSE 4253	Secure Software Engineering	
CSE 4273	Introduction to Computer Forensics	

CSE 4363	Software Reverse Engineering
CSE 4383	Network Security
CSE 4743	Operating Systems II
CSE 4773	Introduction to Cyber Operations

#### Technical Electives

Any upper-level course in the following areas that is not already required in the Cybersecurity curriculum: CS, ECE, MA

Free electives	6
<b>Total Hours</b>	<b>128</b>

## Computer Science Minor

Computer science has application in a broad range of disciplines, and students with majors in other fields of study may wish to complement their studies with a minor in computer science. Completion of the minor requirements should prepare the student to pursue a career as a computer applications specialist within his/her field of study or as an entry-level computer programmer in the general computing environment. The minor in computer science is not available to students majoring in computer engineering or software engineering since significant parts of these majors consist of computer science courses.

A minor in computer science consists of:

CSE 1284	Introduction to Computer Programming	4
CSE 1384	Intermediate Computer Programming	4
CSE 2383	Data Structures and Analysis of Algorithms	3
CSE 2813	Discrete Structures	3
Nine hours of approved upper-division courses		9

A list of approved courses is available from the Department of Computer Science and Engineering.

## Software Engineering Minor

Software Engineering practices and skills are valuable in a wide range of disciplines, and students with majors in other fields of study may wish to complement their studies with a minor in software engineering. Completion of the minor requirements should prepare the student to pursue careers that involve the application and development of software systems in their field of study.

A minor in software engineering consists of

CSE 1284	Introduction to Computer Programming	4
CSE 1384	Intermediate Computer Programming	4
CSE 2383	Data Structures and Analysis of Algorithms	3
CSE 4214	Introduction to Software Engineering	4
Approved upper-division software engineering courses		9

A list of approved courses is available from the Department of Computer Science and Engineering.

## Department of Electrical and Computer Engineering

Department Head: Dr. Samee Khan

Major Advisor: Kylie Crosland and Alison Stamps

Office: 216 Simrall Engineering Building

## Computer Engineering Major (CPE)

Major Advisor: Ms. Alison Stamps

Office: 135 Simrall Engineering Building

With the origin of the modern computer dating back to the late 1940's and the growth of computer hardware fueled by the availability of digital integrated circuits starting in the late 1960's, computer engineers have enjoyed a pivotal role in technology that now permeates our entire society. Whether the end product is an integrated circuit, a system of networked embedded computers, or any system that relies on digital hardware or computer software, its development requires the skills of a computer engineer. While computing systems include both hardware and software, it is the optimal combination of these components that is the unique realm of the computer engineer. Today, computer engineers are a driving force in the technological and economic development of the digital age.

Alumni, employers, faculty and students participate in a process used to develop educational objectives for the undergraduate programs in Computer Engineering. Within a few years of graduation, program graduates completing the baccalaureate degree in Computer Engineering will:

- Be recognized by their peers as fundamentally sound in the application of mathematics, science, computing, and engineering.
- Be engaged in the practice of Computer Engineering as innovative problem solvers with a strong work ethic, by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking.
- Be productive and demonstrate leadership in the practice of Computer Engineering, both individually and within multidisciplinary teams, using effective oral and written communication skills when working with peers, supervisors, and the public.
- Be responsible in the practice of Computer Engineering, relying on sound engineering ethics, a commitment to lifelong learning and a genuine concern for society and the environment.

The curriculum requirements for computer engineering are built around a substantial engineering core curriculum and required courses in electrical engineering and computer science. The requirements in mathematics, the basic sciences, and engineering sciences provide the breadth of exposure required for all engineering disciplines. Basic electrical engineering requirements include circuit theory, electronics and digital devices which are supplemented by upper-level courses in computer architecture, and computer aided design of digital systems. Basic computer science courses include a coordinated sequence providing fundamental knowledge in data structures, algorithms, object oriented programming, software engineering, real-time application and software development tools. These courses are developed across multiple platforms and are based on the Python language. Upper-level courses in data communications and computer networks, algorithms and operating systems are also provided. Students wishing to gain depth of coverage in communications, parallel computing, VLSI, embedded systems or signal processing can achieve this with the availability of technical electives selected from an approved list or in consultation with a faculty advisor. Required courses in communications skills, social sciences and humanities provide studies in non-technical areas that are traditional in a broad-based education. A capstone senior design course requires students to apply newfound knowledge and explore entrepreneurship. Students research and identify a problem and work in teams applying a combination of hardware and software to develop a solution. Critical

and final design reviews enable students to develop their professional presentation skills.

Students expecting to graduate from Mississippi State University with a bachelor of science degree in computer engineering, in addition to satisfactorily completing the CPE curriculum requirements, must meet the following minimum GPA requirements for graduation:

- make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better cumulative GPA)
- make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)
- earn at least a 2.00 cumulative grade point average on all courses scheduled and rescheduled (average on all attempts) at MSU that are applied toward meeting degree requirements
- earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes at all institutions attended, including MS, that are applied toward meeting degree requirements

The B. S. program in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission’s General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and similarly named engineering programs.

This program is offered through joint efforts of faculty in the Department of Electrical and Computer Engineering and the Department of Computer Science and Engineering.

## Electrical Engineering Major (EE)

Major Advisor: Ms. Kylie Crosland  
Office: 135 Simrall Engineering Building

The electrical engineer is a principal contributor to the modern technological age in which we live today. Following in the footsteps of inventors such as Thomas Edison and Alexander Graham Bell, the electrical engineer is developing technology that improves the quality of life. Developments in microelectronics, telecommunications, and power systems have had a profound effect on each of us. Electrical engineers have affected all segments of our society such as transportation, medicine, and the entertainment industry, to name only a few. Indeed, the electrical engineer has principally been responsible for the advent of the computer age in which we live today as well as the computer’s miniaturization and rapid expansion in computational power.

Alumni, employers, faculty and students participate in a process used to develop educational objectives for the undergraduate programs in Electrical Engineering. Within a few years of graduation, program graduates completing the baccalaureate degree in Electrical Engineering will:

- Be recognized by their peers as fundamentally sound in the application of mathematics, science, computing, and engineering.
- Be engaged in the practice of Electrical Engineering as innovative problem solvers with a strong work ethic, by identifying and implementing solutions using the proper tools, practical approaches, and flexible thinking.
- Be productive and demonstrate leadership in the practice of Electrical Engineering, both individually and within multidisciplinary teams, using effective oral and written communication skills when working with peers, supervisors, and the public.

- Be responsible in the practice of Electrical Engineering, relying on sound engineering ethics, a commitment to lifelong learning and a genuine concern for society and the environment.

The curriculum in electrical engineering has a foundation based on the principles of the electrical and physical sciences and uses mathematics as a common language to facilitate the solution of engineering problems. The core curriculum consists of a sequence of courses in digital devices, circuits and electronics, electromagnetic field theory, and modern energy conversion. In the senior year, students have the opportunity to take additional course work in one or more technical areas that include: telecommunications, electromagnetics, power systems, high voltage, feedback control systems, microelectronics, signal processing, and computer systems. Supporting course work outside electrical engineering consists of a strong background in mathematics, physical sciences, computer programming, social sciences, fine arts, humanities, and communication skills. Computers are used extensively throughout the curriculum, and students are expected to become proficient in higher-order programming languages and several application software tools. Although the concept of design is stressed throughout the program so as to emphasize the problem-solving skills of the engineer, the senior year includes a capstone design experience where much of the previous study is culminated. Through this two-semester design course sequence, students are required to integrate design and analytical problem-solving skills together with communication skills in a team environment.

Students expecting to graduate from Mississippi State University with a bachelor of science degree in electrical engineering, in addition to satisfactorily completing the EE curriculum requirements, must meet the following minimum GPA requirements for graduation:

- make an overall C average on all hours scheduled and rescheduled at all institutions attended, including MSU (2.00 or better cumulative GPA)
- make a C average on all hours scheduled and rescheduled at MSU (2.00 or better MSU GPA)
- earn at least a 2.5/4.0 average on all hours with ECE or CSE course prefixes scheduled and rescheduled at all institutions attended, including MSU

The B. S. program in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission’s General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s), and similarly named engineering programs.

## Computer Engineering Major (CPE)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

See Major Core

#### Science

See Major Core

#### Humanities

See General Education courses

<b>Fine Arts</b>		
See General Education courses		3
<b>Social/Behavioral Sciences</b>		
See General Education courses		6
<b>Major Core</b>		
<b>Math and Basic Science</b>		
MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3113	Introduction to Linear Algebra	3
MA 3253	Differential Equations I	3
IE 4613	Engineering Statistics I	3
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
PH 2213	Physics I	3
PH 2223	Physics II	3
<b>Engineering Topics</b>		
CSE 1284	Introduction to Computer Programming	4
CSE 1384	Intermediate Computer Programming	4
CSE 2383	Data Structures and Analysis of Algorithms	3
CSE 2813	Discrete Structures	3
CSE 4733	Operating Systems I	3
CSE 4833	Introduction to Analysis of Algorithms	3
ECE 1013	Foundations in ECE	3
ECE 1022	Foundations in Design	2
ECE 3423	Circuits I	3
ECE 3421	Circuits I Lab	1
ECE 3433	Circuits II	3
ECE 3244	Electronics I	3
ECE 3443	Signals and Systems	3
ECE 3714	Digital Devices and Logic Design	4
ECE 3724	Microprocessors	4
ECE 4512	Capstone Design I	2
ECE 4522	Capstone Design II	2
ECE 4713	Computer Architecture	3
ECE 4724	Embedded Systems	4
ECE 4743	Digital System Design	3
ECE 4833	Data Communications and Computer Networks	3
CPE Technical Electives <sup>1</sup>		6
Professional Enrichment elective		3
<b>Oral Communication Requirement</b>		
Fulfilled in ECE 1013, ECE 1022, ECE 4532, ECE 4542, and GE 3513		
<b>Writing Requirement</b>		
GE 3513	Technical Writing	3
<b>Computer Literacy</b>		
Fulfilled in Engineering Topics courses		
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> See advisor for approved courses.

## Electrical Engineering Major (EE)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

See Major Core

#### Science

See Major Core

#### Humanities

See General Education courses 6

#### Fine Arts

See General Education courses 3

#### Social/Behavioral Sciences

See General Education courses 6

#### Major Core

#### Math and Basic Science

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3113	Introduction to Linear Algebra	3
MA 3253	Differential Equations I	3
IE 4613	Engineering Statistics I	3
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
PH 2213	Physics I	3
PH 2223	Physics II	3

#### Engineering Topics

CSE 1284	Introduction to Computer Programming	4
CSE 1384	Intermediate Computer Programming	4
CSE 2383	Data Structures and Analysis of Algorithms	3
ECE 1013	Foundations in ECE	3
ECE 1022	Foundations in Design	2
ECE 3423	Circuits I	3
ECE 3421	Circuits I Lab	1
ECE 3433	Circuits II	3
ECE 3244	Electronics I	4
ECE 3443	Signals and Systems	3
ECE 3313	Electromagnetics I	3
ECE 3323	Electromagnetics II	3
ECE 3614	Fundamentals of Energy Systems	4
ECE 4512	Capstone Design I	2
ECE 4522	Capstone Design II	2
ECE 3714	Digital Devices and Logic Design	4
ECE 3724	Microprocessors	4
EM 2413	Engineering Mechanics I	3
or ME 3513	Thermodynamics I	
EE technical electives <sup>1</sup>		12

Engineering Science elective <sup>1</sup>	3
Professional Enrichment elective <sup>1</sup>	3
<b>Oral Communication Requirement</b>	
Fulfilled in ECE 1013, ECE 1022, ECE 4512, ECE 4522, and GE 3513	
<b>Writing Requirement</b>	
GE 3513      Technical Writing	3
<b>Computer Literacy</b>	
Fulfilled in Engineering Topics courses	
<b>Total Hours</b>	<b>128</b>

<sup>1</sup> See advisor for approved courses.

## Power and Energy Systems Concentration

Engineers employed in the power and energy systems workforce need a fundamental knowledge base in power distribution and power transmission plus a working knowledge of high voltage, power electronics, relays, or insulation. This concentration prepares students for jobs in power and energy industries, especially utilities.

### Concentration Course Requirements

Power and Energy Concentration students are required to take all courses listed under the General Education, College, and Major Core requirements for Electrical Engineering in addition to the following courses:

ECE 4613	Power Transmission Systems	3
ECE 4633	Power Distribution Systems	3
Power and Energy Electives		6
Choose from the following:		
ECE 4643	Power Systems Relaying and Control	
ECE 4653	Introduction to Power Electronics	
ECE 4663	Insulation Coordination in Electric Power Systems	
ECE 4673	Fundamentals of High Voltage Engineering	
See Advisor for list of additional approved elective courses		
<b>Total Hours (including Gen Ed, College, and Major Core)</b>		<b>128</b>

## Electrical Engineering Minor

A minor in Electrical Engineering (EE) will prepare students for additional study or employment in electrical engineering fields. Students will become familiar with basic theory and techniques necessary for analyzing electrical and electronics systems and informing their design decisions involving electrical and electronics systems. Academic advising toward the EE minor is available from the ECE Undergraduate Advisor located in 135 Simrall.

Students majoring in Electrical Engineering and Computer Engineering are not eligible.

A minimum of 16 hours must be taken to obtain the EE minor. All courses used to earn the EE minor must be taken at MSU. A grade of "C" or better must be earned in all courses for the EE minor. A minimum grade point average of 2.0/4.0 is required in all courses taken as a part of the EE minor.

For all eligible MSU majors, the EE minor consists of three required courses and two restricted elective courses. Note that some course choices may require other courses as prerequisites.

### Required Courses

ECE 3413	Introduction to Electronic Circuits	3
ECE 3424	Intermediate Electronic Circuits	4
ECE 3443	Signals and Systems	3
<b>Select two of the following courses:</b>		<b>6</b>

ECE 3213	Introduction to Solid State Electronics	
ECE 3313	Electromagnetics I	
ECE 3323	Electromagnetics II	
ECE 3434	Advanced Electronic Circuits	
ECE 3614	Fundamentals of Energy Systems	
ECE 4263	Principles of VLSI Design	
ECE 4293	Nano-electronics	
ECE 4313	Antennas	
ECE 4323	Electromagnetic Compatibility	
ECE 4333	RF and Microwave Engineering	
ECE 4413	Digital Signal Processing	
ECE 4433	Introduction to Radar	
ECE 4613	Power Transmission Systems	
ECE 4633	Power Distribution Systems	
ECE 4653	Introduction to Power Electronics	
ECE 4673	Fundamentals of High Voltage Engineering	
ECE 4813	Communications Theory	
ECE 4913	Feedback Control Systems I	
ECE 4923	Feedback Control Systems II	
ECE 4933	State Space Design and Instruments	
<b>Total Hours</b>		<b>16</b>

## Department of Industrial and Systems Engineering

Head: Dr. Kari Babski-Reeves  
 Undergraduate Coordinator: Dr. Brian Smith  
 Office: 260 McCain Engineering Building

Industrial and systems engineering (ISE) is the application of engineering methods and the principles of scientific management to the design, improvement, and installation of integrated systems of people, materials, information, equipment, and energy. The industrial and systems engineer is concerned with the design of total systems, and is the leader in the drive for increased productivity and quality improvement.

The ISE profession uses a variety of specialized knowledge and skills. These include communications, economics, mathematics, physical and social sciences, together with the methods of engineering analysis and design.

The ISE is often involved in designing or improving major systems that encompass the total organization. Consequently, he/she is often in contact with individuals from many segments of the organization. From his/her education and these experiences, the ISE develops a global view of the many inter-related operations necessary to deliver a firm's goods and services. Because of their management skills and global view of the

organization, a large proportion of ISEs move into management, and later advance into top management positions.

Although ISE is especially important to all segments of industry, it is also applied in other types of organizations, such as transportation, health care, public utilities, agriculture, defense, government, merchandising, distribution, logistics, and other service sectors. With increasing emphasis on quality and productivity for successful international competition, ISEs remain in demand.

The objectives of the Department of Industrial and Systems Engineering are founded in Mississippi State University's educational philosophy and in the ISE profession. They were developed to satisfy the needs of the department's constituents: employers, alumni, faculty, and the ISE profession.

The ISE program aim is to graduate students having a broad and practical education, with emphasis in industrial and systems engineering fundamentals and practices, which enables them to function effectively in systems involving people, materials, information, energy, and money.

The four educational objectives of the Bachelor of Science degree in Industrial Engineering are stated below.

- Graduates of the industrial engineering program are versed in math, science, and engineering theory, know how to apply that theory, and are capable of functioning effectively producing solutions in a broad range of organizations.
- Graduates of the industrial engineering program lead and interact cooperatively in professional situations with individuals having diverse backgrounds, cultures, training, education, and interests.
- Graduates of the industrial engineering program think independently, critically examine ideas, and make discerning professional judgments, whether intellectual, ethical, or aesthetic.
- Graduates of the industrial engineering program are professionally mature, responsible, and informed citizens who pursue lifelong learning.

Because of the importance of systems design in the many facets of ISE, instruction of the principles and methods of design is integrated throughout the ISE curriculum of industrial engineering, and culminates in a major design experience in the student's senior year.

The B. S. program in Industrial Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Industrial and similarly named engineering programs.

## Engineering Leadership Excellence Program (dual degree program with ISE and Business Administration)

The Bagley College of Engineering and College of Business jointly offer a dual degree program that facilitates the completion of the B.S. in Industrial Engineering and the B.B.A. in Business Administration in four and one-half years of coursework. This program combines an ABET accredited degree in engineering with an AACSB accredited degree in business. Graduates of the dual degree program are better positioned to advance toward management positions in the industrial engineering field. Students in the dual degree program must maintain a 2.5 GPA to remain in the program.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics 15

Math and Basic Science		9
MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 3113	Introduction to Linear Algebra	3
MA 2743	Calculus IV	3

### Natural Sciences

CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
PH 2213	Physics I	3
PH 2223	Physics II	3

### Humanities

See General Education courses		6
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### Fine Arts

See General Education courses		3
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### Social/Behavioral Sciences

PSY 1013	General Psychology	3
EC 2123	Principles of Microeconomics	3

### Major Core

Math/Science Elective <sup>1</sup>		3
Engineering Topics		12
EM 2413	Engineering Mechanics I	
Engineering Science Elective <sup>2</sup>		
Engineering Science Elective <sup>2</sup>		
Computer Programming Elective <sup>3</sup>		
IE Topics		52
IE 1313	Lean Works Systems	
IE 3123	Industrial Ergonomics	
IE 3323	Manufacturing Processes	
IE 3913	Engineering Economy I	
IE 4333	Production Control Systems I	
Engineering Management Elective <sup>4</sup>		
IE 4543	Logistics Engineering	
IE 4613	Engineering Statistics I	
IE 4623	Engineering Statistics II	
IE 4653	Industrial Quality Control	
IE 4733	Linear Programming	
IE 4753	Systems Engineering and Analysis	
IE 4773	Systems Simulation I	
IE 4914	Industrial Systems Design	
IE 4933	Information System in Industrial Engineering	
IE Design Elective <sup>5</sup>		
IE Design Elective <sup>5</sup>		

<b>Other</b>	<b>12</b>
GE 3513 Technical Writing	
ACC 2023 Principles of Managerial Accounting	
Professional Enrichment Elective <sup>6</sup>	
Approved Elective <sup>7</sup>	
<b>Total Hours</b>	<b>128</b>

<sup>1</sup> Math/Science Elective: MA 3053 Foundations of Mathematics, MA 3253 Differential Equations I, MA 4143 Graph Theory, MA 4313 Numerical Analysis I, MA 4533 Introduction to Probability and Random Processes, ST 4213 Nonparametric Methods, PH 2233 Physics III, CH 2313 , BIO 1134 Biology I, GG 4153 Engineering Geology, GG 4233 Applied Geophysics

<sup>2</sup> Engineering Science Electives: See academic advisor for list of approved Engineering Science electives

<sup>3</sup> Computer Programming Elective: CSE 1233 Computer Programming with C or CSE 1284 Introduction to Computer Programming

<sup>4</sup> Engineering Management Elective: IE 4513 Engineering Administration or IE 4533 Project Management

<sup>5</sup> IE Design Elective: Any three-hour non-required industrial engineering course

<sup>6</sup> Professional Enrichment Elective: Appropriately titled, the purpose of this elective is to aid students in the enrichment of their undergraduate program in a professional manner. The intent is to help students achieve objectives such as earning a minor or a certificate, preparing for the F.E. Exam, participating in the Study Abroad Program, or additional study in technical, primarily upper-division areas of study.

<sup>7</sup> Approved Elective: Students may choose nearly any course or combination of courses totaling three credit hours or more offered at MSU for the Approved Elective. The only exception is that students may not choose remedial courses (courses which are prerequisite to required or previously completed courses), LSK courses, and physical education courses outside of varsity sports. Examples of courses that would directly benefit ISE students include: Engineering Graphics, Foreign Language, Finance, Marketing, Engineering Entrepreneurship, etc.

Industrial engineering is an academic discipline with applicability to a broad range of students from other majors. Engineering majors specifically may wish to complement their degree programs with a minor in industrial engineering to demonstrate knowledge and competence in industrial engineering areas. Completion of the minor requirements should prepare students to apply fundamental principles of industrial engineering, such as production control, operations improvement, and engineering management, to their chosen career field.

Only students with the Bagley College of Engineering are eligible for a minor in industrial engineering. Students majoring in industrial engineering are not eligible.

A minor in industrial engineering consists of three required courses for all student pursuing the minor and two restricted elective courses.

**Required Courses**

IE 3913	Engineering Economy I	3
IE 4613	Engineering Statistics I	3
IE 4333	Production Control Systems I	3

**Students will select two of the following:**

IE 3123	Industrial Ergonomics	4
& IE 3121	and Industrial Ergonomics Laboratory	

IE 4113	Human Factors Engineering	3
IE 4173	Occupational Safety Engineering	3
IE 4513	Engineering Administration	3
IE 4533	Project Management	3
IE 4543	Logistics Engineering	3
IE 4553	Engineering Law and Ethics	3
IE 4573	Process Improvement Engineering	3
IE 4653	Industrial Quality Control	3
IE 4733	Linear Programming	3
IE 4753	Systems Engineering and Analysis	3
<b>Total Hours</b>		<b>15-16</b>

**Degree Requirements**

**English Composition/Communication**

EN 1103	English Composition I	3
EN 1113	English Composition II	3
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
GE 3513	Technical Writing	3

**Mathematics/Science**

		<b>15</b>
MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 3113	Introduction to Linear Algebra	3
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
PH 2213	Physics I	3
PH 2223	Physics II	3
	Math/Science elective	3

**Social/Behavioral Sciences**

EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
PS 1113	American Government	3

**Humanities**

See General Education courses		6
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**Fine Arts**

See General Education courses		3
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**Major Core (from both IE and Bus Admin)**

ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3
MKT 4313	Physical Distribution Management	3
MKT 4333	International Supply Chain Management	3
FIN 3123	Financial Management	3
BL 2413	The Legal Environment of Business	3
EM 2413	Engineering Mechanics I	3
IE 1313	Lean Works Systems	3
IE 3123	Industrial Ergonomics	3
IE 3323	Manufacturing Processes	3



IE 4333	Production Control Systems I	3
IE 4513	Engineering Administration	3
IE 4533	Project Management	3
IE 4613	Engineering Statistics I	3
IE 4623	Engineering Statistics II	3
IE 4653	Industrial Quality Control	3
IE 4733	Linear Programming	3
IE 4753	Systems Engineering and Analysis	3
IE 4773	Systems Simulation I	3
IE 4914	Industrial Systems Design	4
IE 4933	Information System in Industrial Engineering	3
BIS/MGT/Law/BQA/Entrepreneurship Course		3
Computer Programming Elective		3
Engineering Science Elective		6
<b>Total Hours</b>		<b>143</b>

## Department of Mechanical Engineering

Department Head: Dr. Haitham El Kadiri  
Major Advisor: Ms. Krystle D. Boyd  
Office: 210 Carpenter Engineering Building

Mechanical Engineering is the application of science and mathematics to the design, development, and operation of mechanical and energy systems. Examples of these systems include mechanical devices ranging from simple linkages and gears to complex automated robots and energy systems ranging from basic water pumps to high-performance jet engines. Since the range of applications is so broad, virtually all industries employ Mechanical Engineers in various capacities. Some of the major areas of employment are the manufacturing, chemical, paper, aerospace, utility, construction, transportation, petroleum, electronics, and computer industries.

The mission of the Department of Mechanical Engineering is to educate students in fundamental engineering principles, thus enabling the understanding of existing and next generation technologies relevant to research and engineering practice. All graduates will receive a broad education that will enable them to be successful in industry or academia, the profession and the community.

To carry out this mission, the Mechanical Engineering faculty, with input from other constituencies, has established the following objectives that describe the expected accomplishments of graduates during the first few years following graduation:

- Apply fundamental engineering knowledge, industry perspective and research skills to become experts or leaders within a chosen engineering career path.
- Exhibit life-long learning and develop personal and teamwork skills in order to effectively solve real-life problems and clearly communicate their results.
- Practice ethical responsibility and accountability in professional activities and actively participate in professional development.

The Mechanical Engineering curriculum is designed to meet these objectives. The basic courses in mechanics, materials, thermodynamics,

electrical engineering systems, and dynamics prepare the student for the comprehensive design courses in the senior year culminating in major design experiences in energy systems and in mechanical systems. Throughout the curriculum there is significant use of the computer to solve realistic engineering problems. All entering ME juniors are required to have a portable computer that they will use interactively in the classroom. The ME laboratory sequence stresses the planning, design, and operation of experiments. The curriculum also places a strong emphasis on technical communications. Senior technical electives allow the student to study particular areas of interest.

The B. S. program in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>, under the commission's General Criteria and Program Criteria for Mechanical and similarly named engineering programs.

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II <sup>1</sup>	3
or EN 1173	Accelerated Composition II	

### Mathematics

See Major Core

### Science

See Major Core

### Humanities

See General Education courses 6

### Fine Arts

See General Education courses 3

### Social/Behavioral Sciences

See General Education courses 6

### Major Core

#### Math and Basic Science

MA 1713	Calculus I <sup>1</sup>	3
MA 1723	Calculus II <sup>1</sup>	3
MA 2733	Calculus III <sup>1</sup>	3
MA 2743	Calculus IV <sup>1</sup>	3
MA 3113	Introduction to Linear Algebra <sup>1</sup>	3
MA 3253	Differential Equations I <sup>1</sup>	3
CH 1213	Chemistry I <sup>1</sup>	3
CH 1211	Investigations in Chemistry I <sup>1</sup>	1
CH 1223	Chemistry II <sup>1</sup>	3
PH 2213	Physics I <sup>1</sup>	3
PH 2223	Physics II <sup>1</sup>	3

#### Engineering Topics

IE 3913	Engineering Economy I	3
EM 2413	Engineering Mechanics I <sup>1</sup>	3
EM 2433	Engineering Mechanics II <sup>1</sup>	3
EM 3313	Fluid Mechanics <sup>1</sup>	3
EM 3213	Mechanics of Materials <sup>1</sup>	3
ECE 3413	Introduction to Electronic Circuits <sup>1</sup>	3
ME 1111	Introduction to Mechanical Engineering <sup>1</sup>	1
ME 2133	Modeling and Manufacturing <sup>1</sup>	3

ME 3103	Experimental Measurements and Techniques	3
ME 3113	Engineering Analysis <sup>1</sup>	3
ME 3313	Heat Transfer	3
ME 3403	Materials for Mechanical Engineering Design	3
ME 3423	Mechanics of Machinery	3
ME 3513	Thermodynamics I <sup>1</sup>	3
ME 3523	Thermodynamics II	3
ME 3613	System Dynamics	3
ME 4111	Professional Development Seminar	1
ME 4301	Thermo-Fluids Laboratory	1
ME 4333	Energy Systems Design	3
ME 4401	Solid Mechanics Laboratory	1
ME 4403	Machine Design	3
ME 4433	Capstone Design and Innovation	3
ME 4643	Introduction to Vibrations and Controls	3
Technical Elective <sup>2</sup>		9
<b>Oral Communication Requirement</b>		
Satisfied by successful completion of ME 2133, ME 4433, and GE 3513		
<b>Writing Requirement</b>		
GE 3513	Technical Writing	3
<b>Computer Literacy</b>		
CSE 1233	Computer Programming with C (or equivalent programming course) <sup>1</sup>	3
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> A grade of C or better must be made in these courses.

<sup>2</sup> A list of Mechanical Engineering technical electives is maintained by the Mechanical Engineering Department. Substitutions may be approved by writing the ME Dept.

# College of Forest Resources

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## Loren W. Burger, Dean

107 Thompson Hall  
Telephone: (662) 325-2953

## Steven Bullard, Associate Dean

115 Thompson Hall  
Telephone: (662) 325-1379

Mailing Address: Box 9680  
Mississippi State, MS 39762-9680

## Introduction

The College of Forest Resources (CFR) was founded in 1954 as the School of Forest Resources to provide teaching, research, and service opportunities about forests and associated renewable natural resources for the state, region, and nation. Since then, the CFR has earned a national and an international reputation as a center for science and education programs in natural resources management and conservation. The vision of the CFR is to be recognized as preeminent in research, teaching, service, and outreach in forest products, forestry, wildlife, fisheries and aquaculture in the United States.

The CFR has unique responsibilities to fulfill the goals of Mississippi State University through programs focused on Mississippi's most important renewable natural resources: forests and their products, fisheries and aquaculture, wildlife, and water. In doing so, the CFR's mission is to promote the professional and intellectual development of its students; expand through research the fundamental knowledge upon which the natural resource disciplines are based; and assist with development and utilization of the natural resources of the state and nation through research, teaching, service, and technology transfer.

## General Information

**Organization.** The CFR is composed of the Departments of Forestry; Sustainable Bioproducts; and Wildlife, Fisheries and Aquaculture. The CFR is a part of the Division of Agriculture, Forestry, and Veterinary Medicine.

Graduates receive a Bachelor of Science degree in Forestry; Natural Resource and Environmental Conservation; Wildlife, Fisheries and Aquaculture; or Sustainable Bioproducts. Within the Forestry major, there are curricular concentrations in Forest Business, Forest Products, Forest Management, Environmental Conservation, Urban Forestry, and Wildlife Management. Each of the curricular concentrations in the forestry major meets the requirements for the professional degree in Forestry. Within the Wildlife, Fisheries and Aquaculture major, there are curricular concentrations in Conservation Biology, Conservation Law Enforcement, Human-Wildlife Interactions, Wildlife Agriculture Conservation, Wildlife, Fisheries & Aquaculture Science, and Wildlife Veterinary Medicine.. Each of the curricular concentrations meets requirements for the professional degree in Wildlife by The Wildlife Society or in Fisheries by the American Fisheries Society. Within the National Resource and Environmental Conservation major, there are curricular concentrations in Natural Resource Law and Administration, Resource Conservation Science, and Natural Resource Technology.

**Graduate Programs in Forest Resources.** Graduate programs leading to an M.S. and Ph.D. degree are offered in the CFR's Departments of Forestry, Sustainable Bioproducts, and Wildlife, Fisheries and Aquaculture. For detailed information about graduate study, see the Graduate Bulletin. Copies of the Graduate Bulletin may be secured by contacting the Office of the Graduate School, P.O. Box G, Mississippi State, Mississippi 39762-5726, or by going online to the Graduate School, Mississippi State University.

**Research.** Research is conducted within the Forest and Wildlife Research Center by the Department of Forestry; the Department of Sustainable Bioproducts; and the Department of Wildlife, Fisheries and Aquaculture. Faculty members generally are employed jointly as educators and scientists. There is opportunity for students to gain valuable professional experience by working part-time as research assistants. The experimental work often provides valuable demonstrations for the teaching program. Forestry-related research also is conducted in other departments of the University, and there are cooperative research arrangements with federal agencies, notably the Southern Forest Experiment Station of the USDA Forest Service, which operates research programs in Mississippi. Wildlife and Fisheries research also is conducted by a USGS Cooperative Fish and Wildlife Research Unit which is located in Thompson Hall. All these activities enrich the teaching program.

**Facilities.** The classrooms and many laboratories and offices of the CFR are located in Thompson Hall, a building with excellent facilities for teaching and research in forestry, sustainable bioproducts, and wildlife, fisheries and aquaculture. The facilities used for research— instruments, apparatuses, literature, experimental forests and lands, greenhouses, captive animal facilities and fish ponds—also are valuable for the teaching program. Additional classroom and laboratory facilities are available within the Sustainable Bioproducts building complex, including the Franklin Center for Furniture Manufacturing and Management. The John W. Starr Memorial Forest of 8,200 acres is conveniently located close to campus and managed and regularly used for demonstration and research. Adjoining the Starr Memorial Forest are the Sam D. Hamilton Noxubee National Wildlife Refuge and Tombigbee National Forest, which also are used for student instruction and research. The Sharp Forest, 1,600 acres in Tishomingo County, was given to the University by Jack, Mollie, and Kate Sharp to be used for forest resources education and research with part of the income designated for scholarships.

## Academic Unit Administrators

Donald L. Grebner  
Forestry  
Department Head  
105 Thompson Hall

Courtney M. Siegert  
Forestry  
Undergraduate Program Coordinator  
347 Thompson Hall

Rubin Shmulsky  
Sustainable Bioproducts  
Department Head  
203 Franklin Center

C. Elizabeth Stokes  
Sustainable Bioproducts  
Undergraduate Program Coordinator

5102 Sustainable Bioproducts Lab (Building 5)  
201 Locksley Way

Andy Kouba  
Wildlife, Fisheries and Aquaculture  
Department Head  
A205 Thompson Hall

Leslie Burger  
Wildlife, Fisheries and Aquaculture  
Undergraduate Program Coordinator  
229 Thompson Hall

Lanna Miller  
Student Services Coordinator  
CFR Student Services  
129 Thompson Hall

Cory Bailey  
Admissions Coordinator  
116 Thompson Hall

## Undergraduate Student Services

CFR Student Services  
129 Thompson Hall  
662.325.9376

CFR Recruiting  
116 Thompson Hall  
662.325.7873

**Prospective Students.** The CFR encourages prospective students to visit the college and MSU to learn more about our programs. A visit to campus can include, but is not limited to, appointments with current students and faculty, tours of campus and facilities, attending lecture classes, talks with other academic units, and visits with financial aid and MSU housing. A prospective student should contact the CFR Recruiting Office two weeks ahead of a planned visit to ensure a productive visit. New students are encouraged to complete the online scholarship application after being admitted to MSU.

**Entrance Requirements.** Transfer students with less than a 2.0 quality point average may not be admitted automatically to the College of Forest Resources' degree programs. Permission to enroll will be granted on an individual basis, depending on specific circumstances and requirements of the major for which the student seeks to enroll.

**Student Academic Responsibility.** The ultimate responsibility for meeting graduation requirements and decisions on course selection resides with the student. Specifically, responsibilities of the student are to:

- be aware of and understand degree requirements of the chosen major and concentration;
- be aware of and understand the MSU, CFR, and departmental policies, procedures, and academic calendar and meet all relevant deadlines;
- meet all requirements of the degree program for the curriculum year being pursued; and
- maintain regular contact with the student's faculty advisor.

The responsibility of the faculty advisor is to provide effective counsel to the student on academic matters regarding curriculum and career decisions.

The CFR Undergraduate Handbook is available at [www.cfr.msstate.edu](http://www.cfr.msstate.edu) (<http://www.cfr.msstate.edu>) and contains curricula, policies, and other important information for a student to use to progress toward graduation. This handbook may include changes or requirements not found in the MSU Bulletin. Each student should retain a copy of the MSU Bulletin and the CFR Undergraduate Handbook that contains the curriculum year he or she is following.

The CFR Student Services Office provides academic services to students and faculty. Official academic records of CFR students are maintained in the office. The Student Services Coordinator represents the Dean and Associate Dean on all academic paperwork such as graduation clearance, coursework evaluation, change of majors, off-campus requests, withdrawals, drop/adds, and registration overrides and overloads.

## Department of Sustainable Bioproducts

**Major Advisor: Dr. C. Elizabeth Stokes, Undergraduate Coordinator**  
Office: Department of Sustainable Bioproducts, Building 3, Room 3206 at 201 Locksley Way

The bioproducts industry is one of the largest economic contributors to Mississippi, as well as in the United States. Employment in timber conversion, engineered composites, pulp and paper, logging, and furniture manufacturing is widely available. Mississippi's bioproducts industry recognizes the need for well-trained employees to help increase the conversion efficiencies and alter manufacturing processes to allow compatibility with a changing raw material base. The industry and its allied disciplines are large in terms of employment in Mississippi and nationwide.

The mission of the Department of Sustainable Bioproducts is to enhance the intellectual, cultural, social, and professional development of its students by providing them with knowledge and skills needed to utilize and conserve diverse forest and other resources effectively. In this regard, the Department's primary teaching responsibility is to provide high quality educational opportunities necessary to adequately prepare students for professional and scientific careers in wood science, timber resources, and bioproduct manufacturing, along with related technology and business fields.

The Department of Sustainable Bioproducts' physical plant consists of five laboratory/office buildings and other special purpose buildings and the Franklin Center for Furniture Manufacturing and Management, with a combined floor space in excess of 90,000 square feet. These buildings house the analytical and testing equipment, laboratories, pilot plants, and support facilities required for a comprehensive research program involving wood and biobased products.

Presently, students interested in a sustainable bioproducts curriculum have the following options:

- Bachelor of Science degree in Sustainable Bioproducts, Business concentration

- Bachelor of Science degree in Sustainable Bioproducts, Science concentration

## Sustainable Bioproducts Major

Students majoring in Sustainable Bioproducts will develop a strong foundation in the manufacturing of wood and fiber-based products, their physical and mechanical properties, environmental implications, marketing, sales, and trading of wood and composite materials composed of agricultural residues and other natural fibers. Besides structural materials, specialty chemicals such as polymers and adhesives from natural resources, and bioenergy such as bio-oils, alcohols, and pelletized fuels are increasingly important to sustainable industrial production. In addition to utilizing the state's timber and agricultural residues, the program seeks to increase the use life of wood and non-wood materials, and to enhance sustainability by use of preservative treatments and developing improved designs.

## Sustainable Bioproducts Concentrations

### *Business concentration*

Major Advisors: Dr. Frank Owens, Forest Products Lab, Building 5, Room 5205; Dr. Dan Seale, Franklin Center 218

Students majoring in Sustainable Bioproducts will develop a strong foundation in the manufacturing of wood and fiber-based products, their physical and mechanical properties, environmental implications, marketing, sales, and trading of wood and composite materials composed of agricultural residues and other natural fibers. Besides structural materials, specialty chemicals such as polymers and adhesives from natural resources, and bioenergy such as bio-oils, alcohols, and pelletized fuels are increasingly important to sustainable industrial production. In addition to utilizing the state's timber and agricultural residues, the program seeks to increase the use life of wood and non-wood materials, and to enhance sustainability by use of preservative treatments and developing improved designs.

### *Science concentration*

Major Advisors: Dr. Beth Stokes, Forest Products Lab, Building 3, Room 3206; Dr. Jason Street, Forest Products Lab, Building 5, Room 5204

Designed for students wishing to pursue a scientific research field, work for a wood products industry in research and development, or for students who intend to pursue graduate degrees in wood and biomaterials science. Students may choose to focus their elective classes on the testing of physical and mechanical properties of wood, the chemical protection of wood from biotic and abiotic stresses, environmental impacts and issues associated with treatment and disposal of wood and non-wood products, or development of engineered wood products including pelletized fuels, mass timber products, construction elements, engineered wood panels, and other wood and non-wood bioproducts. Across all areas of study, students receive training in sustainability, current industry practices, and the opportunity to interact with industry professionals.

## Sustainable Bioproducts Accelerated Program (Thrive in Five)

The Department of Sustainable Bioproducts offers an Accelerated BS/MS program to highly qualified MSU undergraduates. Programs of this type, offered in several departments across the university, give students

the opportunity to earn graduate credit while completing a Bachelor's program.

Currently enrolled undergraduates who have completed 60 credit hours toward a Bachelor's degree, and who have a GPA of 3.5 or higher for all undergraduate work may apply for the program by contacting the Department of Sustainable Bioproducts for further information. Undergraduates may enroll in graduate level courses and receive credit for both the graduate and equivalent undergraduate course upon completion. These courses will be taken during their final year of undergraduate studies, and the student is expected to apply to the graduate program in Sustainable Bioproducts in their final semester, completing both programs in as few as five years in total.

## Sustainable Bioproducts Minor

A Sustainable Bioproducts minor is available to non-majors to provide students with the knowledge of wood products, and bio-based composites, polymers, chemicals and fuels. The courses focus on material properties, environmental issues, and manufacturing principles, as well as their marketing and sales. The topics complement many fields that deal with natural materials: construction, design, business and production management, and scientific fields such as chemistry, engineering, environmental science, and biotechnology. A minor in Sustainable Bioproducts will also provide non-major students an excellent background for entering a graduate degree program in Sustainable Bioproducts. Academic advising is available in the Department of Sustainable Bioproducts located at 201 Locksley Way. A total of 18 hours is required to obtain a Sustainable Bioproducts minor.

### English (General Education)

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Fine Arts (General Education)

Any General Education Fine Arts course		3
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### Natural Sciences

BIO 1134	Biology I	4
BIO 1144	Biology II	4

### Additional Science

CH 1213	Chemistry I	3
or CH 1234	Integrated Chemistry I	
CH 1223	Chemistry II	3
or CH 1244	Integrated Chemistry II	

### Math (General Education)

MA 1323	Trigonometry	3
ST 2113	Introduction to Statistics	3
or ST 3123	Introduction to Statistical Inference	
or BQA 2113	Business Statistical Methods I	

### Humanities (General Education)

Any Gen Ed Humanities courses		6
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### Social/Behavioral Sciences (General Education)

EC 2113	Principles of Macroeconomics	3
Any General Education Social/Behavioral Sciences course		3

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

**Writing Requirement**

AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
or MGT 3213	Organizational Communications	
or BIO 3013	Professional Writing for Biologists	

**Major Core Courses (Required)**

SBP 1001	Undergraduate Seminar	1
SBP 1103	Introduction to Sustainable Bioproducts	3
SBP 2012	Introduction to Bioproduct Industries	2
SBP 2123	Materials and Processing of Structural Bioproducts	3
SBP 3113	Physics of Biomaterials	3
SBP 3123	Biomass to Bioproducts	3
SBP 4013	Wood Anatomy	3
SBP 4243	Sustainable Bioproducts	3
SBP 4313	Bioproducts and the Environment	3
SBP 4443	Capstone Sustainable Bioproducts	3

**Major Courses Professional Electives** 9-11

SBP 3133	Mechanics of Biomaterials	
SBP 4000	Directed Individual Study	
SBP 4023	Lignocellulosic Biomass Chemistry	
SBP 4113	Adhesives and Biocomposites	
SBP 4123	Lumber Manufacturing	
SBP 4133	Biorefinery Processes	
SBP 4153	Biomass Products Manufacturing	
SBP 4213	Deterioration and Preservation of Biomaterials	
SBP 4253	Quantitative Methods in Sustainable Bioproducts	
SBP 4263	Furniture Design and Fabrication	
SBP 4353	Forest Products Marketing	
SBP 4450	Undergraduate Research in Sustainable Bioproducts	

**Concentration Courses** 30

## Business Concentration

SBP 4253	Quantitative Methods in Sustainable Bioproducts	
SBP 4353	Forest Products Marketing	
AEC 2713	Introduction to Food and Resource Economics	
or EC 2123	Principles of Microeconomics	
MKT 3013	Principles of Marketing	
FO 4113	Forest Resource Economics	
FO 4323	Forest Resource Management	
Free Electives -- 12 hours		

## Science Concentration

SBP 3133	Mechanics of Biomaterials	
SBP 4023	Lignocellulosic Biomass Chemistry	
SBP 4113	Adhesives and Biocomposites	
CH 2503	Elementary Organic Chemistry	
CH 2501	Elementary Organic Chemistry Laboratory	
BIO 3304	General Microbiology	
BCH 4013	Principles of Biochemistry	

EPP 3124 Forest Pest Management

Free Electives -- 6 hours

**Professional Electives** 6

Choose any class that is 3000 level or above from the following subjects: ABE, AEC, ARC 2713, BCH, BCS, BIO, BIS, BL, CE, CH, EC, EE, EG, EM, EPP, FIN, FO, GR, IE, TKI, LA, MGT, MKT, MA, ME, NREC, PH, PS, PSS, SBP, ST, WFA

**Total Hours** 121

## Department of Forestry

### Forestry Major

**Major Advisor:** Dr. Courtney M. Siegert, Undergraduate Coordinator  
Office: 347 Thompson Hall

**The Objective.** The Forestry Major prepares its graduates for professional, science-based careers in the management and use of forested ecosystems. By combining courses offering a broad general education with specialized professional courses, the curriculum of the Forestry Major is designed to produce professionally competent graduates who have appropriate development in interpersonal relations, written and oral communications, cultural understanding, environmental awareness, and professional ethics.

**Accreditation.** Educational programs in the Forest Management, Wildlife Management, Urban Forestry, Environmental Conservation, and Forest Business concentrations lead to a professional degree in Forestry at Mississippi State University and are accredited by the Society of American Foresters (SAF).

**The Major.** The core curriculum of the Forestry Major is comprised of specifically selected and intentionally designed courses which must be completed satisfactorily by each student who intends to graduate in this major. In addition to completing the core curriculum, each student must complete one of the five academic concentrations for specialized study offered by the Forestry Major. The five academic concentrations are Forest Management, Wildlife Management, Urban Forestry, Environmental Conservation, and Forest Business. Each concentration is an integral part of the Forestry Major and accredited by SAF. Graduates of the major are qualified to become a Registered Forester in Mississippi after completing an examination for this purpose from the Board of Registration for Foresters in Mississippi. Graduates in the Wildlife Management concentration are eligible to become Associate Wildlife Biologists under the Wildlife Society.

The Forestry Major is designed for completion in four academic years which includes a nine-week Summer Field Program between the sophomore and junior years. The Summer Field Program contains many of the prerequisites needed to enroll in junior/senior level professional courses in the Forestry Major and students should plan their schedules accordingly. Correspondence courses are not accepted toward the forestry degree.

**Transfer Students.** Transfer students are encouraged to enter the Forestry Major at MSU by Spring semester of their sophomore year to complete their academic programs in the normal four-year period of study. Transfer students should be aware that course work taken elsewhere may not be accepted toward a degree in forestry. Only course work that is determined by the Forestry Department to be equivalent to required course work will be accepted. In addition, no course work will

be considered for acceptance unless a grade of C or better has been earned.

**Degree Requirements:** In addition to General Education and College requirements, students must attain a minimum grade of C in Forestry major core courses listed in the CFR Undergraduate Handbook.

## Natural Resource and Environmental Conservation Major

**Major Advisor:** Dr. Courtney M. Siegert

Office: 347 Thompson Hall

**The Objectives.** The Natural Resource and Environmental Conservation major objectives are to prepare its graduates for professional careers by: 1) providing the broader general education fundamentals of written and oral communication; mathematics; biological, social, and physical sciences; and humanities which are critical to the development and advancement of well-qualified professionals; 2) providing both the relevant domains of knowledge and their application to the solution of real-world problems and achievement of defined objectives, including in-depth coverage of ecology and biology; measurement and evaluation of natural resource environmental components, properties, and functioning; management of ecosystems; and legal, regulatory, policy, and economic aspects of ecosystem administration and management; 3) establishing awareness of historical and current issues and policies affecting ecosystem management and conservation; and 4) providing a variety of educational experiences including lectures, discussion, simulations, computer applications, individual and group projects in laboratories and field experiences, and a capstone course teaching students to conduct environmental impact assessments. The purpose of these experiences is to ensure that graduates of the program can knowledgeably develop, apply, facilitate, and/or execute natural resource and environmental management plans that adequately address matters of ownership/public goals and objectives, ecosystem health and sustainability, and the legal and regulatory environment.

**Accreditation.** Educational programs in the Natural Resource Law and Administration, Resource Conservation Science, and Natural Resource Technology concentrations lead to a professional degree in Natural Resource and Environmental Conservation at Mississippi State University and are accredited by the Society of American Foresters (SAF).

**The Major.** The core curriculum of the Natural Resource and Environmental Conservation major is comprised of specifically selected and intentionally designed courses that provide students with a broad background in the science, technology, and social aspects of natural resource and environmental science. In addition to general education and major core requirements, students will complete one of three concentrations: Natural Resource Law and Administration, Resource Conservation Science, or Natural Resource Technology.

**Transfer students.** Transfer students are encouraged to enter the Natural Resource and Environmental Conservation major at MSU in the Spring semester of their sophomore year to complete their academic programs in the normal four-year period of study. Transfer students should be aware that course work taken elsewhere may not be accepted toward the degree. Only course work that is determined by the Department of Forestry to be equivalent to required course work will be accepted. In addition, no course work will be considered for acceptance unless a grade of C or better has been earned.

**Degree Requirements.** In addition to General Education and College requirements, students must attain a minimum grade of C on the Natural Resource and Environmental Conservation Major Core courses taught within the CFR.

## Forestry

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Natural Science

BIO 1134	Biology I	4
BIO 1144	Biology II	4

#### Extra Science

CH 1043	Survey of Chemistry I	3
or CH 1213	Chemistry I	

#### Quantitative Reasoning

ST 2113	Introduction to Statistics <sup>1</sup>	3
or BQA 2113	Business Statistical Methods I	
or ST 3123	Introduction to Statistical Inference	
See concentration for additional requirements		3

#### Humanities

See General Education courses		6
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#### Fine Arts

See General Education courses		3
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#### Social/Behavioral Sciences

AEC 2713	Introduction to Food and Resource Economics <sup>4</sup>	3
or EC 2113	Principles of Macroeconomics	
or EC 2123	Principles of Microeconomics	

FO 4113	Forest Resource Economics <sup>1</sup>	3
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#### Major Core Courses <sup>2</sup>

EPP 3124	Forest Pest Management	4
FO 1101	Forest Resources Survey	1
FO 2113	Dendrology	3
FO 2213	Forest Measurements	3
FO 3012	Introduction to Forest Communities	2
FO 3015	Forest Description and Analysis	5
FO 3103	Computer Application in Forest Resources	3
FO 3213	Tree Physiology	3
FO 4113	Forest Resource Economics <sup>3</sup>	3
FO 4123	Forest Ecology	3
FO 4213	Forest Biometrics	3
FO 4221	Practice of Silviculture Laboratory	1
FO 4223	Practice of Silviculture	3
FO 4231	Introduction to Wood Supply Systems	1
FO 4233	Forest Operations and Harvesting	3
FO 4313	Spatial Technologies in Natural Resources Management	3
FO 4323	Forest Resource Management	3

FO 4413	Natural Resources Policy	3
FO 4423	Professional Practice	3
GR 1113	Physical Geography	3
PSS 3303	Soils	3
WFA 3031	Introductory Wildlife/Fisheries Practices	1
WFA 4153	Principles of Wildlife Conservation and Management	3
<b>Oral Communication</b>		
CO 1003 or CO 1013	Fundamentals of Public Speaking Introduction to Communication	3
<b>Writing</b>		
Technical Writing Elective		3

<sup>1</sup> Accepted for all concentrations but required for Forest Business Concentration

<sup>2</sup> Prerequisites and co-requisites are strictly enforced in the College of Forest Resources. It is the student's responsibility to be aware of prerequisites and co-requisites identified in the Course Description section of the Bulletin.

<sup>3</sup> FO 4113 is also used concurrently to meet university social/behavioral sciences requirement.

#### Choose one of the following concentrations:

Academic concentrations within the Forestry Major are offered to encourage the student to design a program with the assistance of a faculty advisor that will fit his or her interests and aptitudes. Each concentration has been constructed by substituting restricted, or in some cases directed, electives for what otherwise would appear as Business, Science, Free, or Professional electives in the major. Concentrations are intended to provide opportunities for the student to focus beyond the fundamental education provided by the core curriculum of the Forestry Major.

## Environmental Conservation Concentration (ENCO)

**Advisor: Dr. Adam Polinko**  
Office: 359 Thompson Hall

The Environmental Conservation Concentration prepares students for careers dealing with complex environmental issues in the realm of forest resource management. Courses to be taken in addition to those in the core curriculum of the Forestry major are as follows:

FO 3113	Forest Recreation Management	3
Geospatial Elective <sup>1</sup>		3
FO 4463	Forest Hydrology and Watershed Management	3
FO 4483	Forest Soils	3
Professional Electives <sup>1</sup>		12
Free Elective		3
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> Electives are selected from the list of electives approved by the Department of Forestry faculty.

## Forest Business Concentration (FOBN)

**Advisor: Dr. Robert K. Grala**  
Office: 343 Thompson Hall

The Forest Business Concentration is designed for students interested in careers that emphasize business aspects of forestry such as timber markets, timber trade, timberland investment and insurance, forest real estate planning and investment, and timber procurement. Students may select from a wide range of electives to meet specific career objectives. Depending on career objectives and learning interests, students will follow a carefully designed set of core courses and electives, and upon coursework completion will qualify for one of the following College of Business minors: accounting, business administration, business information systems, insurance, economics, entrepreneurship, finance, management, marketing, real estate, or business analytics.

FO 3113	Forest Recreation Management	3
Business Elective from the College of Business <sup>1,2</sup>		21
Free Elective		3
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> If a business minor has a course load less than 21 credit hours required by a minor in business administration (e.g. 18 credit hours required by a minor in finance), a student will substitute the difference in credit hours by enrolling in an additional forest business elective. If a business minor requires less than 18 credit hours (e.g. 15 credit hours required by a minor in real estate), a student will substitute the difference in credit hours by enrolling in an additional forest business elective first and then enrolling in professional electives to maintain the program total of 128 credit hours.

<sup>2</sup> Electives are selected from the list of electives approved by the Department of Forestry faculty.

## Forest Management Concentration (FOMG)

**Advisor: Dr. Krishna P. Poudel**  
Office: 315 Thompson Hall

The Forest Management Concentration provides the basic education necessary to enter the profession of forestry with the Bachelor of Science degree, yet permits a wide choice of electives. The student may elect courses in almost any subject of interest, if prerequisites are met; however, credit toward the degree will not be allowed for remedial courses, nor for courses covering substantially the same material as courses already passed, or covering only part of the subject matter of required courses.

Faculty advisors are assigned to assist students in selecting electives to meet their personal objectives. A program of study leading to a degree in forestry and a number of business minors are available.

Courses to be taken in addition to those in the core curriculum of the Forestry Major are as follows:

SBP 1103	Introduction to Sustainable Bioproducts	3
FO 3113	Forest Recreation Management	3
FO 3203	Forest Fire	3
FO 4253	Timber Procurement	3
Geospatial Electives <sup>1</sup>		3
Ecosystem Service Elective <sup>1</sup>		3
Professional Electives <sup>1</sup>		6



Free Elective	3
<b>Total Hours</b>	<b>128</b>

<sup>1</sup> Electives are selected from the list of electives approved by the Department of Forestry faculty.

## Urban Forestry Concentration (URBN)

**Advisor: Dr. Ashley Schulz**

Office: 327 Thompson Hall

The Urban Forestry Concentration addresses an emerging need for the management of trees in towns and cities. Urban and community foresters manage trees along city streets, in municipal parks, private wood lots, and utility right-of-ways. Employers include federal, state, and municipal governments, private consultants, and industry.

Courses to be taken in addition to those in the core curriculum of the Forestry major are as follows:

PS 1113	American Government	3
PSS 2423	Plant Materials I	3
PSS 3473	Plant Materials II	3
PSS 4353	Arboriculture and Landscape Maintenance	3
LA 3623	Urban Planning Theory	3
FO 3113	Forest Recreation Management	3
FO 4683	Introduction to Urban and Community Forestry	3
Geospatial Elective <sup>1</sup>		3
Free Elective		3
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> Electives are selected from the list of electives approved by the Department of Forestry faculty.

## Wildlife Management Concentration (WFMG)

**Advisor: Dr. Austin Himes**

Office: 353 Thompson Hall

Undergraduate students who wish to prepare for careers in wildlife management may do so by completing the Wildlife Management Concentration of the Forestry Major. This concentration is designed for forestry students who intend to pursue careers that emphasize wildlife management within the context of multiple-use management of forest land. In addition, the Wildlife Management Concentration prepares the student for a number of wildlife management positions and fulfills the course requirements for certification as a Professional Wildlife Biologist by The Wildlife Society. Graduates of this concentration may undertake graduate studies in forestry or wildlife ecology and related areas.

Courses to be taken in addition to those in the core curriculum of the Forestry Major are as follows:

WFA 4243	Wildlife Techniques	3
Policy Elective <sup>1</sup>		3
Wildlife Biology Elective <sup>1</sup>		3
Wildlife Management Elective <sup>1</sup>		3
Zoology Elective <sup>1</sup>		3
Professional Elective <sup>1</sup>		9

Free Elective	3
<b>Total Hours</b>	<b>128</b>

<sup>1</sup> Electives are selected from the list of electives approved by the Department of Forestry faculty.

## Natural Resources and Environmental Conservation

### General Education Requirements

#### English

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Fine Arts

LA 1803	Landscape Architecture Appreciation	3
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#### Natural Sciences

BIO 1134	Biology I	4
BIO 1144	Biology II	4

#### Extra Science

GR 1113	Physical Geography	3
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#### Quantitative Reasoning

ST 2113	Introduction to Statistics	3
or ST 3123	Introduction to Statistical Inference	

#### Humanities

PHI 1123	Introduction to Ethics	3
Any General Education Humanities course		3

#### Social/Behavioral Sciences

AEC 2713	Introduction to Food and Resource Economics	3
or EC 2113	Principles of Macroeconomics	
or EC 2123	Principles of Microeconomics	
SO 1003	Introduction to Sociology	3

#### Major Core

Chemistry - See Concentration for requirements		
NREC 1102	Survey of Natural Resource Management	2
FO 2113	Dendrology	3
FO 3103	Computer Application in Forest Resources	3
NREC 3113	Forest Recreation Management	3
FO 4213	Forest Biometrics	3
NREC 4313	Spatial Technologies in Natural Resources Management	3
FO 4343	Forest Administration and Organization	3
NREC 4353	Natural Resource Law	3
NREC 4413	Natural Resource Policy	3
GR 2313	Maps and Remote Sensing	3
NREC 3213	Environmental Measurements	3
NREC 4423	Environmental Assessment	3
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1
Ecology Elective <sup>1</sup>		3

<b>Oral Communication</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Writing Requirement</b>		
Technical Writing Elective <sup>1</sup>		3
<b>Concentration Courses</b>		
See concentration requirements		41
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> Electives are selected from the list of electives approved by the Department of Forestry faculty.

## Natural Resource Law and Administration Concentration (NRLA)

**Advisor: Dr. Changyou Sun**  
Office: 317 Thompson Hall

There are numerous laws, regulations, and policies affecting natural resource administration and management that have created a need for professionals with an understanding of the complex interactions between the science of managing natural resources and laws, regulations, policies, and processes involved in their utilization and protection. This Concentration will provide students with a background in the science of natural resource management as well as a foundation in the legal, regulatory, and administrative environment in which this management occurs. Students completing this program will be prepared for post-graduate studies in law, public policy administration, and a wide range of natural resource disciplines, as well as employment with private and public organizations and agencies.

<b>Natural Resource Law and Administration Core Courses</b>		
CH 1043	Survey of Chemistry I	3
or CH 1213	Chemistry I	
PHI 1113	Introduction to Logic	3
BL 2413	The Legal Environment of Business	3
PS 3063	Constitutional Powers	3
Professional Electives <sup>1</sup>		21
Free Electives		8
<b>Total Concentration Hours</b>		<b>41</b>

<sup>1</sup> Electives are selected from the list of electives approved by the Department of Forestry faculty.

## Resource Conservation Science Concentration (RCS)

**Advisor: Dr. Courtney M. Siegert**  
Office: 347 Thompson Hall

There is a need for expertise in resource conservation that relies on a science-based education and an understanding of effective applications of this knowledge to solve problems in natural resource settings. This Concentration promotes learning and skill sets in resource conservation and science that will meet this objective. Universities and employers are looking for natural resource professionals who have the necessary tools to be able to attend graduate school or become employed by private organizations, private industry, and state and federal agencies whose primary mission is environmental protection and resource conservation.

This is particularly important since these organizations and agencies are under increasing demands to document and verify their activities in both protecting natural resources (i.e., aquatic and terrestrial) and assessing impacts on human, floral, and faunal populations relying on these environments.

<b>Resource Conservation Science Core Courses</b>		
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
CH 1211	Investigations in Chemistry I	1
CH 1213	Chemistry I	3
CH 1221	Investigations in Chemistry II	1
CH 1223	Chemistry II	3
NREC 4463	Forest Hydrology and Watershed Management	3
FO 4483	Forest Soils	3
Professional Electives <sup>1</sup>		18
Free Electives		6
<b>Total Concentration Hours</b>		<b>41</b>

<sup>1</sup> <p>Electives are selected from the list of electives approved by the Department of Forestry faculty.</p>

## Natural Resource Technology Concentration (NRT)

**Advisor: Dr. Jia Yang**  
Office: 319 Thompson Hall

Modern protocols for natural resource monitoring and management are highly dependent on utilization of spatial technologies such as remote sensing and geographic information systems (GIS). Spatial technologies and allied measurement and quantitative disciplines, combined with general knowledge needed for resource management, are essential in public- and private-sector natural resource professions. Students will also be amply prepared to continue with graduate studies in this area. This Concentration is specifically designed to provide students with the fundamental background to meet the rapidly growing need for professionals who can collect, manage, and manipulate complex geospatial and ancillary data used in natural resource management.

<b>Natural Resource Technology Core Courses</b>		
MA 1323	Trigonometry	3
CH 1043	Survey of Chemistry I	3
or CH 1213	Chemistry I	
FO 2213	Forest Measurements	3
FO 4453	Remote Sensing Applications	3
NREC 4473		
Professional Electives <sup>1</sup>		21
Free Electives		5
<b>Total Concentration Hours</b>		<b>41</b>

<sup>1</sup> <p>Electives are selected from the list of electives approved by the Department of Forestry faculty.</p>

## Department of Wildlife, Fisheries and Aquaculture

**Major Advisors: Andy Kouba, Department Head; Leslie Burger, Undergraduate Coordinator**

Office: A205 Thompson Hall; 259 Thompson Hall

Sustainable management of wildlife and fisheries resources by private and public sectors requires knowledgeable and technically competent people. The Department of Wildlife, Fisheries and Aquaculture offers a major in Wildlife, Fisheries and Aquaculture (WFA) designed to provide students with a foundational curriculum grounded on biology, ecology, habitat and population management, social sciences, mathematics, and other contemporary educational needs for natural resources professionals. Six concentrations are available to students: wildlife, fisheries and aquaculture science; conservation law enforcement; wildlife veterinary medicine; conservation biology; wildlife agriculture conservation; and human-wildlife interactions. The curriculum will prepare students for employment in natural resource professions within private, federal, or state wildlife, fisheries, or aquaculture sectors. Additionally, the curriculum ensures students are academically prepared for post-graduate studies. Students are also strongly encouraged to garner professional experience in conversation-related disciplines to enhance employability & professional development.

Students seeking to apply to veterinary school should choose the wildlife veterinary medicine concentration curriculum. The wildlife veterinary medicine concentration allows students to fulfill the academic requirements for entrance into veterinary school while completing a baccalaureate program in wildlife-related science.

A student may use their curriculum coursework to fulfill the coursework requirements necessary to become a Certified Associate Wildlife Biologists by The Wildlife Society and/or an Associate Fisheries Scientist by the American Fisheries Society.

The Wildlife, Fisheries and Aquaculture Major is designed for completion within four years, but some students may not complete the program in that time because of course scheduling or other constraints. Transfer students are encouraged to contact the College of Forest Resources Student Support Services after completing their freshman year to get assistance in course planning that will enable graduation from MSU in four years. Transfer students should be aware that coursework taken elsewhere may not necessarily be accepted toward a degree in Wildlife, Fisheries and Aquaculture. Only coursework determined by the Registrars' Office and the Wildlife, Fisheries and Aquaculture Department to be equivalent to required coursework will be accepted. Correspondence courses will not be accepted. Transfer students with a grade point average less than or equal to 2.0 may not be admitted automatically into the WFA major. In addition to University and College requirements, students must attain a minimum grade of C in WFA Major Core courses. Students interested in pursuing the Veterinary Medicine program must meet all admission requirements by the College of Veterinary Medicine.

### Conservation Law Enforcement Concentration (CLE)

Advisor: Dr. Kevin M. Hunt

Room 1203 Sustainable Bioproducts Lab (Building 1)

This concentration is designed for undergraduate students who wish to seek employment immediately following receipt of a B.S. degree and obtain positions related to natural resource law enforcement (e.g., conservation officers, park rangers) or wildlife managers. Students seeking careers in conservation law enforcement should be aware that application and acceptance into enforcement training programs will still be necessary upon completion of a B.S. degree. Students may, upon graduation within this concentration, continue on to graduate school in the human dimensions, law enforcement, or wildlife arenas.

### Wildlife, Fisheries and Aquaculture Science Concentration (WLFS)

Advisor: Dr. Leslie Burger

Room 259 Thompson Hall

This concentration is designed for undergraduate students who wish to pursue a career as a biologist or advanced degrees (M.S., Ph.D.). Employment following this B.S. program is possible, although competition for entry-level jobs can be keen. Diverse options for professional electives enable students in this curriculum to select courses of interest to career goals in wildlife, fisheries, or aquaculture.

### Wildlife Veterinary Medicine Concentration (WLVM)

Advisor: Dr. Peter Allen

Room 261 Thompson Hall

This academically rigorous curriculum provides students with solid training in wildlife and fisheries science that allows them to meet veterinary school entry requirements as well as prepares them for employment or graduate school. Acceptance to veterinary medicine schools is a highly competitive process and successful completion of the WLVM curriculum with an A-B academic record will be necessary to improve the likelihood of acceptance to a veterinary medicine school.

### Wildlife Agriculture Conservation Concentration (WLAC)

Advisors: Dr. Mark McConnell

Room 251 Thompson Hall

This curriculum provides the educational background for students pursuing careers as wildlife biologists or conservationists in agricultural areas, which require a strong background in both wildlife biology and agricultural science. Successful graduates of this program will meet minimum educational requirements for NRCS conservationist positions. Students completing this concentration may seek employment immediately following graduation. Students will be equally prepared to pursue one or more graduate degrees (M.S., Ph.D.) in wildlife biology and related natural resource fields.

### Human-Wildlife Interactions Concentration (HWI)

Advisor: Dr. Ray Iglay

Room 271 Thompson Hall

This curriculum provides the educational background for those students wishing to pursue a career as a wildlife biologist with a strong background in addressing human-wildlife interactions, including conflict resolution. Students completing this concentration may seek employment immediately following graduation; however, competition for positions

may be intense. Students will be equally prepared to pursue one or more graduate degrees (M.S., Ph.D.).

## Conservation Biology Concentration (CONB)

Advisor: Dr. Kristine O. Evans  
Room 265 Thompson Hall

This curriculum provides undergraduate students with a comprehensive background necessary for regional, national, and international careers in conservation biology. Students will be equipped with skill sets to address population ecology, imperiled and at-risk species, global threats to biodiversity, in situ and ex situ conservation, conservation genetics, conservation planning, and sociocultural elements of conservation. This concentration is intended for serious, academically strong students, who can be successful in challenging coursework. Students will be equally prepared for entry-level employment.

## General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics and Statistics

see concentrations 6

### Natural Science

BIO 1134	Biology I	4
BIO 1144	Biology II	4

### Humanities

PHI 1123	Introduction to Ethics (required for CLE)	3
Any Gen Ed course; 1 for CLE, 2 for all other concentrations		3-6

### Fine Arts

Any General Education course 3

### Social/Behavioral Sciences

PSY 1013	General Psychology (required for CLE)	3
SO 1003	Introduction to Sociology (required for CLE)	3
WFA Social/Behavioral Sciences (all concentrations except CLE)		3

Any Gen Ed course (all concentrations except CLE) 3

### Major Core <sup>2</sup>

WFA 1102	Wildlife and Fisheries Profession	2
WFA 3133	Applied Ecology	3
WFA 4153	Principles of Wildlife Conservation and Management	3
WFA 4223	Wildlife Plant Identification	3
WFA 4243	Wildlife Techniques	3
WFA 4353	Fish and Wildlife Policy and Law Enforcement	3
WFA 4473	Wildlife and Fisheries Practices	3
Plant Elective <sup>1</sup>		3
Aquatics Elective <sup>1</sup>		3
WFA 4173	Fish Physiology (required for WLVM concentration)	
Natural Resources Policy Elective <sup>1</sup>		3

### Oral Communication Requirement

Choose One:

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
or AELC 3333	Professional Presentations in Agriculture and Life Sciences	

**Writing Requirement <sup>1</sup>** 3

**Total** 35

<sup>1</sup> All electives chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.

<sup>2</sup> Note: Pre-requisites and co-requisites are strictly enforced in the College of Forest Resources. It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

Choose one of the following concentrations:

**The Concentrations:** The academic concentrations within the Wildlife, Fisheries, and Aquaculture Major are offered to enable students to develop an academic background that is suited to their professional career goals. Each concentration has been developed to supplement the core curriculum which provides the basis for the wildlife and fisheries science major, regardless of the area of expertise desired by the student.

## Conservation Law Enforcement Concentration (CLE)

Advisor: Dr. Kevin M. Hunt, 1203 Sustainable Bioproducts Bldg. 1  
Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

CH 1043	Survey of Chemistry I <sup>3</sup>	3
or CH 1213	Chemistry I	
CH 1053	Survey of Chemistry II	3
or CH 1223	Chemistry II	
CRM 1003	Crime and Justice in America	3
MA 1313	College Algebra <sup>3</sup>	3
or MA 1613	Calculus for Business and Life Sciences I	
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
PHI 1123	Introduction to Ethics <sup>3</sup>	3
PSY 1013	General Psychology <sup>3</sup>	3
SO 1003	Introduction to Sociology <sup>3</sup>	3
SO 3313	Deviant Behavior	3
or CRM 3313	Deviant Behavior.	
Computer Applications Elective <sup>1</sup>		3
CLE Elective <sup>1</sup>		18
Natural Resources Mgt Elective <sup>1</sup>		17
Zoology requirement		4
BIO 3524	Biology of Vertebrates	
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.

<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

<sup>3</sup> Course meets MSU General Education requirements

## Wildlife, Fisheries and Aquaculture Science Concentration (WLFS)

Advisor: Dr. Leslie Burger, 259 Thompson Hall

Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

BIO 3103	Genetics I	3
CH 1043	Survey of Chemistry I <sup>3</sup>	3
or CH 1213	Chemistry I	
CH 1053	Survey of Chemistry II	3
or CH 1223	Chemistry II	
MA 1613	Calculus for Business and Life Sciences I <sup>3</sup>	3
or MA 1713	Calculus I	
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
WFA 4123	Wildlife & Fisheries Biometrics	3
WFLS Professional Electives <sup>1</sup>		21
Wildlife Biology Electives <sup>1</sup>		6
Life Science elective <sup>1</sup>		4
Computer Application Elective <sup>1</sup>		3
Zoology elective		3
Free elective		1
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.

<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

<sup>3</sup> Course meets MSU General Education requirements

## Wildlife Veterinary Medicine Concentration (WLVM)

Advisor: Dr. Peter Allen, 261 Thompson Hall

Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

BCH 4013	Principles of Biochemistry	3
BIO 3103	Genetics I	3
BIO 3304	General Microbiology	4
CH 1213	Chemistry I <sup>3</sup>	3
CH 1211	Investigations in Chemistry I	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II	1
CH 4513	Organic Chemistry I	3
CH 4511	Organic Chemistry Laboratory I	1
CH 4523	Organic Chemistry II	3
CH 4521	Organic Chemistry Laboratory II	1
MA 1613	Calculus for Business and Life Sciences I <sup>3</sup>	3
or MA 1713	Calculus I	
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
PH 1113	General Physics I	3
PH 1123	General Physics II	3

Aquatics Requirement		3
WFA 4173	Fish Physiology	
Zoology requirement		3
BIO 2103	Cell Biology	
WFA 4123	Wildlife & Fisheries Biometrics <sup>4</sup>	3
Free elective		1
Wildlife Biology Elective <sup>1</sup>		6
WLVM Professional Electives <sup>1</sup>		9
Wildlife / Veterinary Internship		
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.

<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

<sup>3</sup> Course meets MSU General Education requirements

<sup>4</sup> Fulfills computer application requirement

## Wildlife Agriculture Conservation Concentration (WLAC)

Advisors: Dr. Mark McConnell, 251 Thompson Hall

Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

BIO 3103	Genetics I	3
CH 1043	Survey of Chemistry I <sup>3</sup>	3
or CH 1213	Chemistry I	
CH 1053	Survey of Chemistry II	3
or CH 1223	Chemistry II	
MA 1613	Calculus for Business and Life Sciences I <sup>3</sup>	3
or MA 1713	Calculus I	
ST 2113	Introduction to Statistics <sup>3</sup>	3
or MA 3123	Introduction to Statistical Inference	
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
WFA 4123	Wildlife & Fisheries Biometrics <sup>4</sup>	3
WFA 4373	Principles and Practice of Conservation in Agriculture Landscapes	3
GIS Elective <sup>1</sup>		3
Crop Science elective <sup>1</sup>		6
Animal Science elective <sup>1</sup>		3
Zoology elective		3
Free elective		1
Wildlife Biology Elective <sup>1</sup>		6
WLAC Professional Electives <sup>1</sup>		9
Life Science elective <sup>1</sup>		4
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife, Fisheries and Aquaculture.

<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

<sup>3</sup> Course meets MSU General Education requirements

<sup>4</sup> Fulfills computer application requirement

## Human-Wildlife Interactions Concentration (HWI)

Advisor: Dr. Raymond Iglay, 271 Thompson Hall

Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

CH 1043	Survey of Chemistry I <sup>3</sup>	3
or CH 1213	Chemistry I	
CH 1053	Survey of Chemistry II	3
or CH 1223	Chemistry II	
MA 1613	Calculus for Business and Life Sciences I <sup>3</sup>	3
or MA 1713	Calculus I	
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3
WFA 4123	Wildlife & Fisheries Biometrics	3
WFA 4273	Ecology and Management of Human-Wildlife Conflicts	3
WFA 4283	Human-Wildlife Conflict Techniques	3
WFA 4513	Current Topics in Human-Wildlife Interactions	3
Zoology elective <sup>1</sup>		3
HWI Professional Electives <sup>1</sup>		12
Life Science Electives <sup>1</sup>		7
Wildlife Biology Electives <sup>1</sup>		6
Computer Application Elective <sup>1</sup>		3
Free elective		1
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife and Fisheries

<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.

<sup>3</sup> Course meets MSU General Education requirements

## Conservation Biology Concentration (CONB)

Advisor: Dr. Kristine O. Evans, 265 Thompson Hall

Courses<sup>2</sup> to be taken in addition to those of the core curriculum include:

BIO 3103	Genetics I	3
BIO 4113	Evolution	3
CH 1211	Investigations in Chemistry I	1
CH 1213	Chemistry I <sup>3</sup>	3
CH 1221	Investigations in Chemistry II	1
CH 1223	Chemistry II	3
CH 2503	Elementary Organic Chemistry	3
MA 1613	Calculus for Business and Life Sciences I <sup>3</sup>	3
ST 2113	Introduction to Statistics <sup>3</sup>	3
or ST 3123	Introduction to Statistical Inference	
WFA 4123	Wildlife & Fisheries Biometrics	3
WFA 4253	Application of Spatial Technologies to Wildlife and Fisheries Management	3
WFA 4623	Conservation Biology	3

WFA 4633	Problem Solving in Conservation Biology	3
WFA 4881	Current Topics in Conservation Biology	1
Computer Application Elective <sup>1</sup>		3
Organismal elective <sup>1</sup>		6
CONB Professional Electives <sup>1</sup>		15
<b>Total Hours</b>		<b>124</b>

<sup>1</sup> All electives are chosen from a list approved by the Department of Wildlife and Fisheries

<sup>2</sup> It is the student's responsibility to be aware of pre-requisites and co-requisites identified in the Course Description section of the Bulletin.&#160;

<sup>3</sup> Course meets MSU General Education requirements

# Shackouls Honors College

Thomas P. Anderson, Interim Dean

Office: 210 Griffis Hall  
Telephone: (662) 325-2522

Mailing Address: P.O. Box EH, Mississippi State, MS 39762

<http://www.honors.msstate.edu>

The Shackouls Honors College is a university-wide program that reports to the Provost. It serves all undergraduate majors and cooperates with academic departments in tailoring programs for talented students. The Shackouls Honors College allows many undergraduate students throughout the University to enrich their academic experiences. There are Honors sections of many required and elective courses; these are generally small sections, and they are always taught by highly qualified faculty. There are also Honors courses in addition to these sections of regular courses. To enroll in Honors courses, one must have been admitted to the College or obtain permission from the Dean. Requirements for joining the College and a full explanation of its offerings are explained below.

Honors students have the opportunity to compete for research grants from the Shackouls Honors College allowing them to participate in groundbreaking research under the supervision of a faculty mentor. Furthermore, students can also obtain travel grants to allow them to present their research at regional and national meetings, giving them invaluable experience and networking opportunities for future graduate work or careers. Students are also encouraged to participate in one of Mississippi State University's twice annual undergraduate research symposia, which are sponsored by the Shackouls Honors College.

The Honors College strongly encourages Mississippi State students to develop a global perspective through foreign language study and study abroad. Our Honors students have studied in Spain, Italy, Germany, Quebec, and Australia. Beyond the exposure to other peoples and other cultures, the Honors College also seeks to connect our students to international universities and agencies of the highest caliber. Our unique Shackouls Summer Study at the University of Oxford places Honors students in the top Oxford colleges and gives them the true Oxford experience by having them taught by Oxford faculty. Our students are eligible for Honors-only scholarships to support their study abroad.

The Shackouls Honors College plays an important role in the cultural and social lives of students and faculty members, through Honors Forum and also through programs co-sponsored with the Holmes Cultural Diversity Center, the Stennis Institute, the Women's Studies Program, the Institute for the Humanities, the Model United Nations, and the Center for International Security and Strategic Studies, as well as every one of the University's colleges.

Honors College-sponsored exhibitions and gallery talks have included the Roger Ogden collection that now forms the Museum of Southern Art in New Orleans and the works of such artists as Walter Anderson, Marie Hull, William Wegman, William Dunlap, and Maude Gatewood. The Honors College has provided performances and lecture-recitals by notables such as the National Shakespeare Company, the Vienna Chamber Trio, Ballet Mississippi, and the Alvin Ailey Dance Company.

Speakers at Honors Forum include former U.S. Poet Laureate and Pulitzer Prize-winner Ted Kooser, jazz guitarist Earl Klugh, vocalist Jane Monheit, philosopher Michael Boylan, classicist Philip Freeman, and archaeologist Eric Cline. The Orators Series, begun in 2018, invites speakers from various disciplines to engage and enrich the campus and local communities through public forums, panel discussions, seminars, course work, research, and public lectures. Speakers in the Series included classicist Norma Thompson, sociologist Corey Keyes, and political scientist Melvin Rogers.

The Honors College is student-centered. Honors students elect their peers to the eighteen-member Honors Council, which advises the Dean and plans activities. At the end of each academic year, outstanding students are honored at an awards ceremony, including those who have completed the Cursus Honorum ("Path of Honors").

The Shackouls Honors College is a residential College where students live together in the living-learning communities of Griffis Hall, Nunnelee Hall, and Hurst Hall. Housing assignments are made through the Office of Housing and Residence Life.

The Honors College invites applications from incoming freshmen, current MSU students, and transfer students with outstanding academic records. To remain in the College, a student must maintain a 3.40 GPA, earn credit for at least one 3-hour Honors course per academic year, and complete a senior capstone experience.

## The Cursus Honorum

To be recognized as an Honors College Scholar at graduation, and to receive the Honors designation (*Collegium Honorum*) on the diploma, a student must complete the Cursus Honorum. This distinctive and rigorous curriculum includes at least 27 Honors credits with a 3.4 average in Honors courses and

- complete the English composition requirement within the first year of admission to the College;
- complete the first-year Honors "Quest" sequence (6 credits);
- complete two interdisciplinary Honors courses (6 credits);
- complete three discipline-specific Honors courses or tutorials (9 credits);
- complete a for-credit Study Abroad or additional foreign language course (3 credits); and
- successfully write and defend an Honors thesis (3-6 credits).

All Honors students are required to complete a senior capstone experience. This can be a Senior Seminar in their major field of study, with a substantial presentation to the class; an internship with a presentation to a group of professionals; or a research project culminating in an Honors Thesis, with formal defense.

Those students intending to graduate as an Honors College Scholar should, at the beginning of their junior year, identify a faculty mentor and a thesis topic. The student may register for Honors Thesis credit during their junior and/or senior years, depending on the complexity of the research project.

## First-year Honors sequence <sup>1</sup>

HON 1163	The Quest Begins	3
HON 1173	The West and the Wider World	3

<sup>1</sup> Students who complete HON 1163 Quest 1 and HON 1173 Quest 2 and earn a grade of C or higher will receive the following general education credits:

- 3 humanities credits
- 3 Social Sciences credits

Students who complete Quest 1 and Quest 2 will have integrated fine arts into the Quest sequence and are exempt from taking a fine arts course as part of their general education requirements. Please note that any additional 3-credit course must be completed in place of the fine arts in order to meet total degree hours for the major.

## **Interdisciplinary Courses**

Honors students will be encouraged to take innovative courses designed by faculty recruited by the Honors College. These courses will often be interdisciplinary, some revolving around a defined problem, and some team-taught. Students will receive the appropriate General Education credit for these courses.

## **Discipline-Specific Courses**

Honors students will by their nature seek challenging courses in their major/discipline. These courses can be Honors sections of existing courses, newly designed Honors courses, or Oxbridge tutorials.

## **Honors Students in Good Standing**

To be considered a student in good standing in the Honors College a student must complete one Honors course during the first semester at MSU and at least one 3 credit hour course per academic year, plus the Senior Capstone Experience. All students must also keep a cumulative GPA of 3.4 or above to be in good standing. In order to be in good standing after 3 semesters, each student must file with the Honors College Office a declaration of intent to complete the Senior Capstone Experience with a tentative selection of their chosen path.



# College of Veterinary Medicine

KENT H. HOBLET, Dean

Office: College of Veterinary Medicine (Wise Center)  
Telephone: (662) 325-3432

Mailing Address: Box 6100, Mississippi State, MS 39762-6100

## General Information

The College of Veterinary Medicine was established in 1974 by an act of the Mississippi Legislature. The first class was admitted during the 1977-78 academic year and graduated in May of 1981.

The permanent College facilities, completed in the fall of 1981, include the learning resources center, the animal health center, and the research facility. College programs, faculty, students, and staff are located in these facilities.

The primary objective of the College is to serve the needs of Mississippi. In quest of this objective, the College will provide training in the sciences required for a career in veterinary medicine and veterinary medical technology. The Doctor of Veterinary Medicine curriculum focuses on the skills of the veterinary practitioner who will serve the animal-owning public of Mississippi while the veterinary medical technology curriculum focuses on the skills necessary to facilitate the work of veterinarians.

Students seeking a degree in either veterinary medicine or veterinary technology should acquire a sound foundation in the biological and physical sciences and a general knowledge of the humanities in high school and college. Because of the increasing use of information technology in veterinary medicine, students are strongly encouraged to acquire familiarity with computers. They must have a demonstrated aptitude for scientific study, and, in addition, experience with animals. An awareness of the requirements and characteristics of the practice of veterinary medicine is desirable in reaching a mature decision to pursue a career in either veterinary medicine or veterinary technology.

## Early Entry Program for the College of Veterinary Medicine

The Early Entry Program is offered on a competitive basis to high school seniors who have demonstrated exceptional academic achievement.

Applications are available by October 1st of each year and are due for return by January 5th. Online applications are available at [www.cvm.msstate.edu](http://www.cvm.msstate.edu) (<http://www.cvm.msstate.edu>). Questions should be addressed to the Office of Student Admissions, College of Veterinary Medicine at (662) 325-1326 or [msu-cvmadmissions@cvm.msstate.edu](mailto:msu-cvmadmissions@cvm.msstate.edu).

The Program is designed so an individual has the opportunity to obtain both a B.S. degree and a D.V.M. degree in seven to eight years. Those accepted into the Early Entry Program are pre-accepted into the professional program at the College of Veterinary Medicine contingent upon their maintaining predetermined qualifications throughout their college career and providing documentation of no less than 480 hours veterinary experience.

## Traditional Entrance Requirements

A Test of English as a Foreign Language (TOEFL®) score of 213 is required for applicants whose primary language is not English, also due September 15. Three (3) completed LOR (Letter of Recommendation) forms are required with the completed VMCAS application. At least one evaluator must be a veterinarian. To apply, applicants must have a minimum overall grade point average of 2.80. Minimum GPAs must be maintained throughout the application process. No grade lower than a C- is acceptable in any required course. Remediated and repeated courses must be completed before the application is submitted. Prerequisite courses for entrance into the college must include specific courses:

English composition	6
Speech or Technical Writing	3
Mathematics (college algebra or higher)	6
Biological science with lab	8
Microbiology with lab	4
Inorganic chemistry with lab	8
Organic chemistry with lab	8
Biochemistry	3
Physics (can be Trig-based)	6
Advanced Upper-level Science electives	12
Humanities/fine arts/social and Behavioral sciences	15
<b>Total Hours</b>	<b>79</b>

Science and mathematics courses must be completed or *updated* within six calendar years prior to the anticipated date of enrollment.

## Admission Procedure

Applications are accepted through September 15 each year for the upcoming academic year. Admissions, interviews, and decisions take place in the spring, with new students beginning classes around July 1. All applicants apply electronically through the Veterinary Medical College Application Service (VMCAS) at [www.aavmc.org](http://www.aavmc.org) (<http://www.aavmc.org>). Applications are available online from May 15 to September 15 each year.

Further information may be obtained from:

Office of Student Admissions  
College of Veterinary Medicine  
Mississippi State University  
Box 6100, Mississippi State, MS 39762-6100  
662-325-1326; [msu-cvmadmissions@cvm.msstate.edu](mailto:msu-cvmadmissions@cvm.msstate.edu)

## DVM Curriculum

The professional curriculum is divided into two phases - Phase 1 (DVM 1 and DVM 2 years) and Phase 2 (DVM 3 and DVM 4 years).

Phase 1 is conducted in a lecture/lab based format.

### DVM 1

Year 1 Fall Courses		
CVM 5011	Professional Development I	1
CVM 5013	Veterinary Neuroscience	3
CVM 5021	Professional Development II	1
CVM 5023	Infectious Agents I	3
CVM 5033	Immunology	3

CVM 5036	Veterinary Physiology	6
CVM 5046	Veterinary Anatomy I	6
CVM 5073	Veterinary Histology	3

**Year 1 Spring Courses**

CVM 5022	Veterinary Epidemiology	2
CVM 5044	Veterinary Pathology	4
CVM 5072	Veterinary Anatomy II	2
CVM 5111	Professional Development III	1
CVM 5163	Veterinary Parasitology	3
CVM 5193	Veterinary Agents of Infectious Disease II	3
CVM 5223	Veterinary Pharmacology I	3

**Total Hours 43**

**DVM 2**

**Year 2 Fall Courses**

CVM 5123	Veterinary Clinical Pathology	3
CVM 5143	Theriogenology	3
CVM 5152	Toxicology	2
CVM 5153	Equine Medicine & Surgery I	3
CVM 5186	Small Anim Med & Surgery I	6
CVM 5213	Introduction to Veterinary Anesthesiology	3
CVM 5553	Pharmacology II	3

**Year 2 Spring Courses**

CVM 5121	Professional Development IV	1
CVM 5133	Veterinary Preventive Medicine	3
CVM 5162	Diagnostic Imaging	2
CVM 5173	Equine Medicine & Surgery II	3
CVM 5175	Food Animal Medicine and Surgery	5
CVM 5183	Special Species	3
CVM 5196	Small Animal Medicine and Surgery II	6

**Total Hours 46**

**Clinical and Elective**

Phase 2, (DVM3 and DVM4 years) is conducted in a clinical and elective format. Students participate in nineteen required clinical rotations of two to six weeks duration each. In these rotations students actively participate in the clinical diagnosis and management of patients admitted to the Animal Health Center and affiliated sites.

During the final year (DVM4) students complete 10 core courses (totaling 33 credits) and will fulfill the remainder of their required 46 credits with electives. The options for these electives include: elective clinical rotations, externships experiences, small group or discussion based courses and directed individual study (DIS) opportunities. In essence, each student, working closely with a faculty advisor, designs a schedule which most uniquely meets the student's needs and career preferences

Conducted in an experiential-learning mode, the clinical rotations and many of the electives continue to make the student responsible for his or her own education. The clinical cases or elective courses provide the environment for continued student growth and development.

**DVM 3**

**Year 3 Core Clinical Rotations**

CVM 5214	Laboratory Services	4
CVM 5224	Radiology	4

CVM 5234	Anesthesiology	4
CVM 5254	Large Animal Intensive Care Rotation	4
CVM 5264	Equine Medicine & Surgery	4
CVM 5274	Food Animal Practice	4
CVM 5304	Community Veterinary Services	4
CVM 5314	Small Animal Surgery	4
CVM 5674	Population Medicine	4

**Total Hours 36**

**DVM 4**

**Core Clinical Rotations**

CVM 5282	Ambulatory/Large Animal Primary Care	2
CVM 5292	Flowood/MVRDL Externship	2
CVM 5294	Enhanced Clinical Practicum	4
CVM 5294	Enhanced Clinical Practicum (taken twice)	4
CVM 5301	Clinicopathological Conference	1
CVM 5314	Small Animal Surgery	4
CVM 5316	Specialty Medicine Rotation	6
CVM 5332	Shelter Medicine Spay/Neuter Rotation	2
CVM 5364	Veterinary Neurology/Neurosurgery Rotation	4

CVM 5414	Small Animal Internal Medicine	4
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**Elective Options (minimum of 13 hours)**

CVM 5000	Directed Individual Study in CVM	1-6
CVM 5182	Veterinary Disaster Management	2
CVM 5221	Elective Rotation in Shelter Medicine	1
CVM 5222	Small Animal Clinical Nutrition	2
CVM 5242	Small Animal Dermatology	2
CVM 5382	Cytology Elective	2
CVM 5392	Pharmacy	2
CVM 5420	Advanced Rotation in Radiology	1-6
CVM 5430	Advanced Rotation in Anesthesiology	1-6
CVM 5452	Small Animal Physical Rehabilitation	2
CVM 5454	Advanced Rotation in Small Animal Surgery	4
CVM 5464	Adv Rot Eq Med & Surg	4
CVM 5474	Advanced Rotation in Food Animal Practice	4
CVM 5510	Veterinary Medicine/Animal Industry Externship 1	1-6
CVM 5520	Veterinary Medicine/Animal Industry Externship 2	1-6
CVM 5530	Veterinary Medicine/Animal Industry Externship 3	1-6
CVM 5540	Veterinary Medicine/Animal Industry Externship 4	1-6
CVM 5550	Veterinary Medicine/Animal Industry Externship 5	1-6
CVM 5552	Veterinary Cardiology	2
CVM 5560	Advanced Clinical Rotation 1 (ACR 1)	1-6
CVM 5570	Advanced Clinical Rotation 2 (ACR 2)	1-6
CVM 5580	Advanced Clinical Rotation 3 (ACR 3)	1-6
CVM 5602	Comparative Endocrinology	2
CVM 5652	Equine Podiatry	2
CVM 5662	Clinical Neurology	2

CVM 5672	Veterinary Dentistry	2
CVM 5682	Veterinary Ophthalmology	2
CVM 5692	Veterinary Art and Business Management	2
CVM 5702	Clin Hematology & Immunology	2
CVM 5722	Small Ruminant Production Medicine	2
CVM 5754	Advanced Small Animal Surgery	4
CVM 5764	Advanced Equine Reproduction	4
CVM 5772	Canine Theriogenology	2
CVM 5784	Clinical Behavioral Medicine	4
CVM 5802	Practical Small Animal Oncology	2
CVM 5812	Behavior for the Companion Animal Veterinarian	2
CVM 5814	The Feline Patient	4
CVM 5840	Veterinary Student Research Initiative	2-6
CVM 5842	Clinical Pharmacology	2
CVM 5854	Aquarium Health Management	4
CVM 5862	Equine Lameness	2
CVM 5864	Bovine Production Medicine	4
CVM 5882	Small Animal Gastroenterology	2
CVM 5990	Special Topics in CVM	1-6
CVM 5903	Tropical Veterinary Medicine and One Health	3

(Plus any courses approved by advisor)

**Total Hours - Year 4** **46**  
(minimum)

Students must complete a minimum of 46 hours/credits during Year 4. Available electives can be selected from the above listed CVM courses or from University courses upon advisor's approval.

## Veterinary Medical Technology (VMT)

The Veterinary Medical Technology program (VMT) prepares students for multiple career opportunities. Upon completion of this program, graduates will positively contribute to the veterinary health care team regardless of the area/specialty graduates wish to pursue. Potential work environments for VMTP graduates include but are not limited to private veterinary practice, biomedical research, pharmaceutical industry, zoological parks, humane societies, nutrition companies, United States Department of Agriculture, U.S. military and academic institutions. Students interested in the Veterinary Medical Technology Program will have the option of selecting Undeclared with a Vet Tech concentration as their major at the time of their admission to Mississippi State University. Once students are admitted into the third year of the program, they will be classified as VMT majors.

During the first two years of the curriculum, students are enrolled as Undeclared with a Vet Tech concentration or another major of their choosing. The first two years of the curriculum are mainly composed of general education courses. Students can apply as early as the spring semester of their sophomore year for entry into the junior year of the VMTP if not already accepted under the Pre-admission policy. The third year of the curriculum is competitive and enrollment is limited to 40 students. Entry into the third year of the program requires successful completion of either the Pre-admission or Regular Admission application process. Students will be allowed a maximum of two times to apply to the VMTP. At that point, if they are not successful, they will be required to seek another major.

Accepted students will begin classes the fall semester following acceptance. The fourth year mainly consists of clinical experiences and begins the fall semester following successful completion of the third year. Students will be evaluated by exams throughout the curriculum for successful program advancement.

## Pre-admission Policy

Pre-admission to the junior year is offered on a competitive basis to high school seniors and college students who have only resided on a college campus for a semester or less. Applicants must have demonstrated significant academic achievement including an overall GPA of 2.8 (80% or higher) for high school seniors or an overall GPA of 2.8 for college freshmen. There is also an ACT requirement of 21 or an SAT requirement of 1470. Complete admissions requirements and online applications are available at [www.cvm.msstate.edu](http://www.cvm.msstate.edu) (<http://www.cvm.msstate.edu>). Those granted pre-admission into the VMTP are pre-accepted into the junior year of the VMTP contingent upon maintaining predetermined qualifications during their freshman and sophomore years. The application window for preadmission is October 1st - November 1st.

## Regular Admission Policy

Applications are available online January 15 - March 1. Admission procedures include a critique of each applicant's academic record, an evaluation of each applicant's references, and a personal interview of selected applicants. Further information may be obtained from Veterinary Medical Technology Program, College of Veterinary Medicine, Mississippi State University, PO Box 6100, Mississippi State, MS, 39762; 662-325-1103; [msuvmt@cvm.msstate.edu](mailto:msuvmt@cvm.msstate.edu)

## Entrance Requirements to the Junior Year

An applicant to the junior year of the VMTP must successfully complete prerequisite courses by the end of the spring semester prior to beginning the junior year. Three (3) letters of recommendation are required. To apply, applicants must have a minimum grade point average of 2.5 (regular admission) or 2.8 (pre-admission) on a 4.00 scale with no grade less than "C" in any prerequisite course. The minimum GPA must be maintained throughout the application process. Prerequisite courses for entrance into the VMTP must include specific courses:

English Composition	6	
Mathematics (college algebra or higher)	6	
Inorganic Chemistry	7	
Humanities	6	
Social/Behavioral Sciences	6	
Public Speaking	3	
Microbiology with lab	4	
Biological Science with lab	8	
Fine Arts	3	
ADS 1113 & ADS 1121 or VS 3014	Animal Science and Animal Science Laboratory Anatomy and Physiology	4
VS 1012	Introduction to Veterinary Medicine Careers	2
CVM 3101	Veterinary Technology Medical Terminology	1

**Total Hours** **56**

Further information may be obtained from:

Veterinary Medical Technology Program  
College of Veterinary Medicine  
Mississippi State University  
PO Box 6100, Mississippi State, MS 39762-6100  
662-325-1103; www.msuvmt@cvm.msstate.edu

## Veterinary Medical Technology General Education Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1313	College Algebra	3
MA 1323	Trigonometry	3
or ST 2113	Introduction to Statistics	

### Natural Science

BIO 1134	Biology I	4
BIO 1144	Biology II	4

### Humanities

See General Education courses		6
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### Fine Arts

See General Education courses		3
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### Social/Behavioral Sciences

See General Education courses		6
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### Other courses

CH 1043	Survey of Chemistry I (or higher)	3
CH 1051	Experimental Chemistry (or higher)	1
CH 1053	Survey of Chemistry II (or higher)	3
BIO 3304	General Microbiology	4
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Major Core

ADS 1113	Animal Science	3
VS 1012	Introduction to Veterinary Medicine Careers	2
CVM 3112	Animal Handling, Husbandry, and Nutrition	2
CVM 3243	Basics of Practice Procedures and Management	3
CVM 3101	Veterinary Technology Medical Terminology	1
CVM 3014	Applied Anatomy and Physiology for Veterinary Technologists	4
CVM 3013	Small Animal Diseases and Management	3
CVM 3022	Small Animal Technical Skills & Nursing Care	2
CVM 3032	Food Animal Diseases and Management	2
CVM 3031	Food Animal Technical Skills & Nursing Care	1
CVM 3042	Equine Diseases and Management	2
CVM 3041	Equine Technical Skills & Nursing Care	1

CVM 3232	Pharmacology & Toxicology for Veterinary Technologists	2
CVM 3111	Parasitology for Veterinary Technologists	1
CVM 3121	Hematology for Veterinary Technologists	1
CVM 3132	Clinical Pathology Laboratory Techniques	2
CVM 3212	Anesthesiology for Veterinary Technologists	2
CVM 3051	Laboratory Animal Health Management	1
CVM 3061	Laboratory Animal Technical Skills	1
CVM 3201	Dental Principles for Veterinary Technologists	1
CVM 3202	Diagnostic Imaging for Veterinary Technologists	2
CVM 3222	Surgical Skills & Nursing Care for Veterinary Technologists	2
CVM 3221	Surgical Nursing & Anesthetic Management Laboratory	1
CVM 3141	Anatomical Pathology Laboratory Techniques	1
CVM 4103	Large Animal Clinical Experience	3
CVM 4113	Large Animal Clinical Elective	3
or CVM 4223	Small Animal Clinical Elective	
CVM 4333	Emergency/ICU Clinical Experience	3
CVM 4214	Small Animal Surgery & Anesthesia Clinical Experience	4
CVM 4102	Professional Development for Veterinary Technologists	2
CVM 4701	Application & Process for VTNE	1
CVM 4206	Small Animal Clinical Experience	6
CVM 4003	Internship Experience	3
CVM 4601	Animal Emergency & Referral Center Elective	1

### Elective Experiences

Choose two of the following:		2
CVM 4101	Veterinary Technology Academic Elective	
CVM 4201	Clinical Experience Elective	
CVM 4501	Diagnostic Laboratory Experience	
CVM 4511	Biomedical Research Experience Elective	

**Total Hours** **120**

# Office of Academic Affairs

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Office: 3501 Lee Hall  
662-325-3742  
P.O. Box BQ; Mississippi State, MS 39762

## Center for Academic Excellence

**Executive Director: Dr. Clay Armstrong**

YMCA 1st Floor  
Mailstop 9711  
Web site <http://cae.msstate.edu>  
Telephone: (662) 325-2957  
195 Lee Blvd.  
Mississippi State, MS 39762

### Mission

The Center for Academic Excellence works with all MSU students – especially incoming freshmen – to help assure their smooth transition to the university and success on their road to graduation. The Center promotes student learning and an enriched MSU student experience by providing services, programs, and resources that:

- assist the student with his or her transition into university life;
  - aid the student's decision-making, especially during the freshman year; and
  - help achieve personal and academic progress and growth, targeted toward graduation.
- The Center's strategic goals are to:
- offer services, programs, and classes that assist the student's transition to MSU;
  - support student academic planning and progress through high-quality academic advising and timely feedback;
  - provide informative and engaging first-year classes and programs;
  - provide academic support for all students;
  - develop programs and take actions that are informed by analyses of relevant data; and
  - engage the university in the support of students in their progress toward graduation.

The Center for Academic Excellence operates the College Ready program, a summer program through which an incoming freshman can take two college classes prior to their first fall semester at discounted cost. The primary goal of College Ready is to smooth the student's transition to their new living and learning environment. The Center also includes the Freshman Year Navigator program, hiring 30 or more students each year to work as Navigators and help their assigned freshmen throughout their first year at MSU.

The Center also provides Supplemental Instruction and tutoring in 80 or more challenging classes each semester. It also works closely with the University Academic Advising Center, which provides all advising

for the freshman class's largest major, Undeclared. Finally, the Center works with the Pathfinders program to emphasize the importance of class attendance – class attendance is the #1 predictor of student success.

## University Academic Advising Center (UAAC)

### Undeclared (UND)

Director: Lynda K. Moore  
Professional Academic Coordinators: Bailey Berry, Wendy Dandass, Jermaine Jackson, Katy Richey, and Jaiki Shumpert

252 Famous Maroon Band Street.; Mail Stop 9729  
Web site at <http://www.uaac.msstate.edu/>  
Telephone (662) 325-4052; Fax (662) 325-4026  
P.O. Box 6117, Mississippi State, MS 39762

### UAAC Mission to Undeclared Students

The University Academic Advising Center was established to meet the needs of those students who have competing interests in more than one major area, as well as those who are uncertain of their career and educational goals. The professional staff at the center offer one-on-one advising services to traditional and non-traditional undergraduate students and provide accurate information concerning general curriculum requirements, university policies and procedures, campus resources and various programs of study. The center is committed to assisting students with the development of educational plans consistent with their life goals, objectives and abilities. Students normally remain Undeclared for no more than three semesters during which time advisors recommend courses that meet basic core requirements in relation to "majors of interest" for each individual student. Students must declare a major before completing 75 hours.

UAAC advisors traditionally recommend that Undeclared students enroll in 15-18 hours each fall and spring semester with careful considerations given to courses required in each student's majors of interest. It is the goal of the center to assist each Undeclared student in enrolling in courses that satisfy the minimum core requirements for any major the student may later choose with respect to each department's right to specify more stringent requirements than the University as a whole. However, ultimate responsibility for taking the UAAC staff's advice rests with the student.

UAAC urges students to make appointments with advisors at the center to establish a plan of action. The University Academic Advising Center staff encourages all Undeclared majors to utilize services offered by the Career Center, the Counseling Center, the Learning Center, Center for Student Success, Student Support Services and other support programs offered by various units at MSU.

The UAAC advises for the University Studies degree, the Complete to Compete Program, and Applied Science.

## University Studies - Complete to Compete Program (C2C)

Major C2C Coaches: Kristi Dearing, Kali Dunlap, Lynda Moore, and Jaiki Shumpert

The Bachelor of Science in University Studies is housed in the Office of the Provost and Executive Vice President (Academic Affairs). A student who wishes to pursue the major in University Studies must enroll in

the Complete to Compete (C2C) program (<http://www.msc2c.org/>) and be eligible for admission to the degree program. To be eligible, the student must meet the criteria of an adult learner, i.e. must be at least 21 years old, have earned at least 90 semester credit hours, have not earned a baccalaureate degree, and must not have attended a postsecondary institution within the last twenty-four months.

The University Studies degree is designed to provide eligible adult learners who have not completed a baccalaureate degree a pathway to return to Mississippi State University to complete a degree. The curriculum is individualized to meet the needs and career goals of the returning adult learner. An eligible student will meet with a C2C Coach and work with faculty to develop the best degree plan possible.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
EN 1113	English Composition II	3

### Humanities

See General Education Core	6
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### Mathematics

See General Education Core	3
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### Fine Arts

See General Education Core	3
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### Natural Sciences

See General Education Core. Two labs required.	6
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### Social Sciences

See General Education Core	6
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### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
Or other approved speech course		

### Computer Literacy

TECH 1273	Computer Applications	2-3
or BIS 1012	Introduction to Business Information Systems	
Or other approved technology course		

### Extra University Core

See General Education Core or Advisor Approved Upper Level Courses	24
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### Junior/Senior Writing Requirements

Consult with C2C Coach and/or Faculty Advisor	3
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### Major Core Emphasis Areas

Consult C2C Coach and/or Faculty Advisor	
Upper Level Courses (one, two, or three emphasis areas)	30

<b>General Electives</b>	<b>25-28</b>
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<b>Total Hours</b>	<b>120</b>
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## Bachelor of Science in Data Science

The Bachelor of Science in Data Science is an interdisciplinary program that draws upon disciplines from multiple colleges. It is a 123-hour inter-college program designed to include three general areas of coursework: general education, program core, and applications of the data science fundamentals in specific body of knowledge such as geoinformatics, computational intelligence and cybersecurity, marketing, management information systems, statistical modeling, social science analytics, architectural design and built environment, and smart agriculture.

The overall curriculum is designed to provide students with an ideal educational experience necessary to become effective professional data science experts. Under the proposed undergraduate curriculum, general education coursework will help data science students develop intellectual curiosity, critical thinking, and ethical and aesthetic awareness.

The coursework for the core program will provide students with the opportunity to build a strong foundation in the key fields of data science that include computer science, mathematics and statistics, management information systems, communication, management/leadership, design, and ethics. The course sequences for several distinct areas of academic concentration will provide students with the opportunity to become data science experts in a specific area.

### English

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Fine Arts

Any Gen Ed course	3
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### Natural Sciences

2 lab based sciences required by Gen Ed	6
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### Math

MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3

### Humanities

PHI 1113	Introduction to Logic	3
Any additional Gen Ed course	3	

### Social/Behavioral Sciences

DSCI 2013	Data Science Literacy	3
Any additional Gen Ed course	3	

### Oral Communication

CO 3213	Small Group Communication	3
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### Technical Writing

CO 3223	Communication & Media Research Methods	3
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### Major Core

MA 3123	Introduction to Statistical Inference	3
MA 3113	Introduction to Linear Algebra	3
MA 4523	Introduction to Probability	3
or ST 4523	Introduction to Probability	
CSE 1284	Introduction to Computer Programming	4
CSE 1384	Intermediate Computer Programming	4
CSE 2813	Discrete Structures	3
CSE 2383	Data Structures and Analysis of Algorithms	3
CSE 3763	Ethical and Legal Issues in Computing	3
CSE 4503	Database Management Systems	3
CSE 4633	Artificial Intelligence	3
BIS 3233	Management Information Systems	3
DSCI 2012	Data Science Lab: Data Wrangling	2
DSCI 2022	Data Science Lab: Cloud, High-Performance, and Quantum Computing	2
DSCI 3012	Data Science Lab: Description, Analysis, and Inference	2

DSCI 3013	Fundamentals of Data Acquisition	3
DSCI 3022	Data Science Lab: Data Visualization	2
DSCI 3032	Data Science Lab: Artificial Intelligence	2
DSCI 4013	Data Visualization	3
Concentration Courses		30
<b>Total Hours</b>		<b>123</b>

Each area of concentration combines fundamental, field-specific content, concentration electives designed to apply data science to the field, and a six-hour practicum/capstone project. On their third year, students will have the opportunity to select a concentration area from the several available areas offered by the different college on campus.

## Visualization and Visual Analytics for Built Environment Concentration

### Fundamental Discipline Courses

Complete 8 of the following:		24
ART 1123	Design I	
ART 2803	Introduction to Computing for ART	
ART 2813	Intermediate Computing for Designers	
ART 4813	Introduction of Multimedia I Design and Authoring	
BCS 2313	Virtual Design and Construction	
ID 3603	Digital Design for Interiors	
ID 3363	3/D CAD/Modeling	
ARC 2713	Environmental Building Systems I	
ARC 3723	Environmental Building Systems II	
ARC 4633	Architecture and Virtual Spaces	

### Capstone

DSCI 4553	Data Science Capstone 1	3
DSCI 4663	Data Science Capstone 2	3

## Computational Agriculture and Natural Resources Concentration

### Fundamental Discipline Courses

Choose 1 course from the following:		3
AEC 2713	Introduction to Food and Resource Economics	
ABE 1863	Engineering Technology in Agriculture	
BCH 4013	Principles of Biochemistry	
PSS 1313	Plant Science	
ADS 1113	Animal Science	
Choose 1 course from the following:		3
SBP 1103	Introduction to Sustainable Bioproducts	
WFA 3133	Applied Ecology	
FO 4123	Forest Ecology	

### Core Concentration Courses

Choose 6 hours from the following:		6
CALS		
EC 2113	Principles of Macroeconomics	
EC 3123	Intermediate Microeconomics	
AEC 2223	Introduction to Sustainability Economics	
AEC 3133	Introductory Agribusiness Management	

AEC 3233	Introduction to Environmental Economics and Policy
AEC 4123	Financial and Commodity Futures Marketing
ABE 2173	Principles of Agricultural and Off-Road Machines
ABE 2543	Precision Agriculture I
ABE 4543	Precision Agriculture II
BCH 3102	Essential Biochemical Concepts and Analysis
BCH 4414	Protein Methods
ADS 3013	Anatomy and Physiology
ADS 3313	Introduction to Meat Science
CFR	
SBP 2012	Introduction to Bioproduct Industries
SBP 2123	Materials and Processing of Structural Bioproducts
WFA 4313	Fisheries Management
WFA 4613	Landscape Ecology
FO 2213	Forest Measurements
FO 2443	Essentials of Biotechnology
FO 4113	Forest Resource Economics
FO 4123	Forest Ecology

### Applied Courses

Choose 12 hours from the following:		12
CALS		
AEC 4133	Analysis of Food Markets and Prices	
AEC 4223	Applied Quantitative Analysis in Agricultural Economics	
AEC 4363	Economics of Precision Agriculture	
AEC 4413	Public Problems of Agriculture	
AEC 4733	Econometric Analysis in Agriculture Economics	
ABE 2873	Land Surveying	
ABE 3513	The Global Positional System and Geographic Information Systems in Agriculture and Engineering	
ABE 4163	Agricultural and Off-Road Machinery Management	
ABE 4263	Soil and Water Management	
ABE 4463	Introduction to Imaging in Biological Systems	
ABE 4483	Introduction to Remote Sensing Technologies	
BCH 4803	Integrative Protein Evolution	
PSS 4483	Introduction to Remote Sensing Technologies	
ADS 4523	Internet-Based Management in Livestock Industries	
CFR		
SBP 4013	Wood Anatomy	
SBP 4253	Quantitative Methods in Sustainable Bioproducts	
WFA 4123	Wildlife & Fisheries Biometrics	

WFA 4243	Wildlife Techniques
WFA 4253	Application of Spatial Technologies to Wildlife and Fisheries Management
FO 3015	Forest Description and Analysis
FO 4213	Forest Biometrics
FO 4313	Spatial Technologies in Natural Resources Management
FO 4453	Remote Sensing Applications
FO 4473	GIS for Natural Resource Management

**Capstone**

DSCI 4553	Data Science Capstone 1	3
DSCI 4663	Data Science Capstone 2	3

**Business Information Systems Concentration****Fundamental Discipline Courses**

Choose 2 courses from the following: 9

BL 2413	The Legal Environment of Business
ACC 2013	Principles of Financial Accounting
ACC 2023	Principles of Managerial Accounting
EC 2113	Principles of Macroeconomics
EC 2123	Principles of Microeconomics
FIN 3123	Financial Management
MGT 3113	Principles of Management
MKT 3013	Principles of Marketing
MKT 3323	International Logistics

**Core Concentration Courses**

BQA 4423	Business Decision Analysis	3
BIS 4533	Decision Support Systems	3
BIS 4113	Business Information Systems Security Management	3
BIS 4753	Structured Systems Analysis and Design	3
4000-level business course		3
Non-business course from any of the data science concentrations		3

**Capstone**

BIS 4763	BIS Senior Seminar	3
BQA 4413	Business Forecasting and Predictive Analytics	3

**Marketing and Supply Chain Concentration****Fundamental Discipline Courses**

BQA 4423	Business Decision Analysis	3
MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3

Choose 1 course from the following: 3

BL 2413	The Legal Environment of Business
ACC 2013	Principles of Financial Accounting
ACC 2023	Principles of Managerial Accounting
EC 2113	Principles of Macroeconomics
EC 2123	Principles of Microeconomics
FIN 3123	Financial Management
MGT 3113	Principles of Management

**Core Concentration Courses**

Choose 3 courses from the following: 12

BIS 4533	Decision Support Systems
MKT 4013	Procurement
MKT 4033	International Transportation
MKT 4213	Internet Marketing
MKT 4313	Physical Distribution Management
MKT 4533	Marketing Research

Students will register for one non-business course for which they meet the prerequisites from any of the data science concentrations.

**Capstone**

Choose 2 from the following:

MKT 4333	International Supply Chain Management
BQA 4413	Business Forecasting and Predictive Analytics
BQA 4000	Directed Individual Study in Business Quantitative Analysis

**Social Data Analytics Concentration****Fundamental Discipline Courses**

Choose 9 hours from the following (but no more than 6 hours in any one field): 9

AN 1103	Introduction to Anthropology
AN 1143	Introduction to Cultural Anthropology
AN 1344	Biological Anthropology: The Making of Us
CO 1403	Introduction to the Mass Media
GR 2313	Maps and Remote Sensing
PS 1313	Introduction to International Relations
PS 1513	Comparative Government
PS 2703	Introduction to Public Policy
CRM 1003	Crime and Justice in America
SO 1003	Introduction to Sociology
SO 1103	Contemporary Social Problems

**Core Concentration Courses**

Choose 15 hours from the following: 15

AN 3343	Introduction to Forensic Anthropology
AN 4163	Anthropology of International Development
AN 4173	Environment and Society
AN 4323	Plagues and People
CO 4213	Political Communication
CO 4283	Health Communication
CRM 4253	White Collar and Computer Crime
GR 3303	Survey of Geospatial Technologies
GR 4123	Urban Geography
PS 4243	State Election Policy and Politics
PS 4283	Public Opinion
PS 4293	Political Behavior
PS 4343	International Conflict and Security
PS 4373	International Terrorism
PS 4464	Political Analysis
PS 4523	Democracy and Inequality
PS 4613	Civil Wars and Intra-State Conflicts
SO 3303	Rural Sociology
SO 4113	Social Organization and Change



SO 4123	Poverty, Analysis: People, Organization and Program	
SO 4173	Environment and Society	

**Capstone**

DSCI 4553	Data Science Capstone 1	3
DSCI 4663	Data Science Capstone 2	3

**Psychoinformatics Concentration****Fundamental Discipline Courses**

PSY 1021	Careers in Psychology	1
PSY 3104	Introductory Psychological Statistics	4
PSY 3314	Experimental Psychology	4

**Core Concentration Courses**

Choose 9 hours from the following: 9

PSY 3343	Psychology of Learning	
PSY 3623	Social Psychology	
PSY 3713	Cognitive Psychology	
PSY 3803	Introduction to Developmental Psychology	
PSY 4403	Biological Psychology	

6 hours of 4000-level PSY courses 6

**Capstone**

PSY 4000	Directed Individual Study in Psychology	6
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**Statistical Modeling Concentration****Core Concentration Courses**

Choose 24 hours from the following: 24

MA 2923	Introduction to Modern Scientific Computing	
MA 4133	Discrete Mathematics	
MA 4143	Graph Theory	
MA 4183	Mathematical Foundations of Machine Learning	
ST 4213	Nonparametric Methods	
ST 4243	Data Analysis I	
ST 4313	Introduction to Spatial Statistics	
ST 4543	Introduction to Mathematical Statistics I	

**Capstone**

DSCI 4553	Data Science Capstone 1	3
DSCI 4663	Data Science Capstone 2	3

**Computational Intelligence Concentration****Core Concentration Courses**

CSE 2213	Methods and Tools in Software Development	3
CSE 4163	Designing Parallel Algorithms	3
CSE 4293	AI for Cybersecurity	3
CSE 4623	Computational Biology	3
CSE 4643	AI Robotics	3
CSE 4653	Cognitive Science	3
CSE 4683	Machine Learning and Soft Computing	3
CSE 4833	Introduction to Analysis of Algorithms	3

**Capstone**

DSCI 4553	Data Science Capstone 1	3
DSCI 4663	Data Science Capstone 2	3

**Geoinformatics Concentration****Fundamental Discipline Courses**

GR 4303	Principles of GIS	3
GR 4633	Statistical Climatology	3

Choose 1 of the following: 3

GR 4333	Remote Sensing of the Physical Environment	
GR 4783	Satellite Meteorology	
GR 4883	Radar Meteorology	

**Core Concentration Courses**

Choose 15 hours from the following: 15

GR 4123	Urban Geography	
GR 4313	Advanced GIS <sup>2</sup>	
GR 4323	Cartographic Sciences <sup>2</sup>	
GR 4333	Remote Sensing of the Physical Environment <sup>1, 2</sup>	
GR 4343	Advanced Remote Sensing in Geosciences <sup>2</sup>	
GR 4363	Geographic Information Systems Programming <sup>2</sup>	
GR 4553	Computer Methods in Meteorology	
GR 4613	Applied Climatology	
GR 4643	Physical Meteorology and Climatology I	
GR 4693	Physical Meteorology and Climatology II	
GR 4733	Synoptic Meteorology	
GR 4783	Satellite Meteorology <sup>1</sup>	
GR 4883	Radar Meteorology <sup>1</sup>	
GG 3613	Water Resources	
GG 4233	Applied Geophysics	
GG 4503	Geomorphology	
GG 4523	Coastal Environments	
GG 4543	Community Engagement in Environmental Geosciences	
GG 4613	Physical Hydrogeology	

**Capstone**

DSCI 4553	Data Science Capstone 1	3
DSCI 4663	Data Science Capstone 2	3

<sup>1</sup> Can be used as remaining hours if not already used for the required concentration.<sup>2</sup> Counts towards the Geospatial and Remote Sensing Minor**Sports Science Concentration**

BIO 1004	Anatomy and Physiology <sup>1</sup>	4
EP 3233	Anatomical Kinesiology	3
EP 3304	Exercise Physiology	4
EP 4504	Mechanical Analysis of Movement	4
Human Performance Emphasis		3

Choose one of the following;

PE 3163	Sport Psychology	
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SS 4003	Philosophy of Sport & Physical Activity	
<b>Core Concentration Courses</b>		
PE 4283	Sport Biomechanics	3
PE 3313	Sport Physiology	3
EP 4153	Training Techniques for Exercise and Sport <sup>2</sup>	3
DSCI 4663	Data Science Capstone 2	3

<sup>1</sup> If taken as a general education credit, an additional Sports Science course will be added.

<sup>2</sup> Serves as requirement for DSCI 4553

## Data Science Minor

The Data Science minor will provide students with an overview of data science as both a field of study and an industry sector. The minor draws from courses within the 64 hours of core Bachelor of Science in Data Science coursework. Students will complete four courses that provide: an introduction to the field, preparation in computer programming, an introduction to data visualization, and specific instruction in statistics. Three labs will provide hands-on experience in managing and using data throughout the data lifecycle as students work with real-world data. Because data science is usually practiced within a specific subject matter area, students are also encouraged to work within their major departments to identify a research methodology or analysis class that will provide subject matter-specific instruction in applying data science.

CSE 1284	Introduction to Computer Programming	4
DSCI 2012	Data Science Lab: Data Wrangling	2
DSCI 2013	Data Science Literacy	3
DSCI 4013	Data Visualization	3
MA /ST 3123	Introduction to Statistical Inference	3
Choose two of the following:		4
DSCI 2022	Data Science Lab: Cloud, High-Performance, and Quantum Computing	
DSCI 3012	Data Science Lab: Description, Analysis, and Inference	
DSCI 3022	Data Science Lab: Data Visualization	
DSCI 3032	Data Science Lab: Artificial Intelligence	
<b>Total Hours</b>		<b>19</b>

## Geospatial and Remote Sensing Minor

Technology revolutions have driven the expectations of remote sensing and geospatial technologies to an all-time high for a new generation of users across a vast number of disciplines. Advances in computational technologies, visualization products, and sensor technologies have led to the development of unprecedented capabilities in geospatial technologies, such as remote sensing and geographic information systems. With the plethora of remote sensing technologies, the industry is poised to develop operational remote sensing applications that fundamentally impact management of resources. Mississippi State University has developed broad, multi-disciplinary efforts in spatial technologies of many types, and is a leader among universities in education and outreach activities to prepare the next generation for utilizing these technologies. One of the primary limitations in the development of this industry is the need for a better-educated workforce that can understand and utilize the tools of these spatial technologies. Education in geospatial and remote sensing technologies is by nature

multi-disciplinary; therefore, a minor program that crosses departmental and college boundaries has been developed to address these needs. This undergraduate minor can thus serve the needs of MSU students with diverse backgrounds from a variety of disciplines. Students may strategically assess which courses within their disciplinary academic program can be used for the minor, thus satisfying the needs of both and maximizing their education experience.

The minor should represent a student's mastery of basic GIS and Remote Sensing coursework. A minimum of 3 hours of coursework is required in each of these areas:

- Geographic Information Systems
- Remote Sensing
- Advanced Geospatial Technologies

Students are required to complete 6 hours of additional coursework within the category of Geospatial Applications. A list of geospatial application electives is listed, and it includes courses that are offered by several MSU departments.

Due to the multi-disciplinary nature of this program, the Office of the Academic Affairs is the resident office for admission and administration. Thus, the program is not focused on a single college or department. A program coordinator, appointed by the Provost, advises students seeking the GRS minor, and assists departmental advisors. The coordinator is also responsible for conducting the necessary transcript audits and authorizing the awarding of the minor.

For further information and enrollment information, contact the GRS program coordinator:

Dr. John Rodgers  
 Department of Geosciences  
 355 Lee Blvd, 108 Hilbun Hall  
 Mississippi State, MS 39762  
 662-325-3915, jcr100@msstate.edu

A total of 15 semester hours are required: nine selected from the list of required courses, and six selected from the list of elective courses.

### Required Courses

**Remote Sensing**  
 Choose one of the following: 3

ABE /PSS 4483/6483	Introduction to Remote Sensing Technologies
ECE 4423/6423	Introduction to Remote Sensing Technologies
GR 4333/6333	Remote Sensing of the Physical Environment
FO 4453/6453	Remote Sensing Applications

**GIS**  
 Choose one of the following: 3

GR 4303/6303	Principles of GIS
WFA 4253/6253	Application of Spatial Technologies to Wildlife and Fisheries Management
FO 4472/6472	
AND	
FO 4471/6471	

**Advanced Geospatial Coursework**  
 Choose one of the following: 3

FO 4313/6313	Spatial Technologies in Natural Resources Management
FO 8313	Spatial Statistics for Natural Resources
FO 8353	Ecological Modeling in Natural Resources
FO 8173	Advanced Spatial Technologies
GR 4313/6313	Advanced GIS
GR 4343/6343	Advanced Remote Sensing in Geosciences
GR 8303	Advanced Geodatabase Systems
ST 4313	Introduction to Spatial Statistics

### Geospatial Applications

Choose two of the following:(Courses must be different from the ones taken from the above categories. A course may not be used to satisfy more than one requirement) 6

ABE 3513	The Global Positional System and Geographic Information Systems in Agriculture and Engineering
ECE 3443	Signals and Systems
ECE 4413	Digital Signal Processing
ECE 8401	Current Topics in Remote Sensing
ECE 8473	Digital Image Processing
FO 4313/6313	Spatial Technologies in Natural Resources Management
FO 8173	Advanced Spatial Technologies
FO 8313	Spatial Statistics for Natural Resources
FO 8353	Ecological Modeling in Natural Resources
GR 3303	Survey of Geospatial Technologies
GR 4313/6313	Advanced GIS
GR 4323/6323	Cartographic Sciences
GR 4343/6343	Advanced Remote Sensing in Geosciences
GR 4353/6353	Geodatabase Design
GR 4363/6363	Geographic Information Systems Programming
PSS 4373/6373	Geospatial Agronomic Management
PSS /ECE 4411/6411	Remote Sensing Seminar
FO /GR 4411/6411	Remote Sensing Seminar
ST 4313	Introduction to Spatial Statistics

**Total Hours** 15

## Leadership Studies Minor

The interdisciplinary minor in Leadership Studies provides academic and experiential knowledge and skills to prepare students for future leadership positions in communities, professions, and organizations. The Leadership Studies minor is open to Mississippi State University students in all Colleges, Schools, and majors. It requires 19 hours of approved coursework, including at least one experiential internship component. No more than two courses from the same academic Department may be applied to this minor. Students in the Leadership Studies minor must maintain a grade point average of 2.00 or higher overall and a grade point average of 2.50 or higher in courses applied to the minor. Students must earn a grade of C or higher in all minor courses.

Admission and Graduation Standards: Entering freshmen may declare a Leadership Studies minor in the first semester by securing approval of a minor program of studies as outlined herein. Qualified students, including

incoming transfer students, may declare the minor during any subsequent semester. After the first semester of college, students must have a minimum overall GPA of 2.00 or higher (including all course work taken, not just in the minor) to enter or remain in the minor. To graduate with a Minor in Leadership Studies, students must meet all course requirements on their approved programs of minor study, must have an overall GPA of 2.00 or higher on all coursework attempted, and must have a 2.50 or higher GPA over all minor courses. Students must earn grades of C or higher in all courses applied to the Leadership Studies minor.

Curriculum Outline: Each student will select one core course in each of three core areas: Ethics, which are essential for any leader; Social Science, which studies leadership directly and provides knowledge of direct relevance to leadership; and Communication, which involves skills that are critically important for leaders. (For students in majors with little room for electives, judicious selection of the core courses in the Leadership Studies minor may simultaneously fulfill certain General Education requirements, College or School Core Curriculum, or Departmental Major requirements.) Each student will further select from an approved list, in consultation with his or her Leadership Studies minor advisor, at least three more courses that facilitate the student's goals. Finally, each student will register for a 1-hour (48 contact hours) experiential internship.

### Area I: Ethics and Leadership

Choose one of the following: 3

PHI 1123	Introduction to Ethics
MGT 3823	Socially Responsible Leadership

### Area II: Leadership and Social Science

Choose one of the following: 3

MGT 3813	Organizational Behavior
PSY 3623	Social Psychology
PS 3013	Political Leadership
PS /GE 2713	Introduction to Engineering and Public Policy

### Area III: Leadership and Communication Skills

Choose one of the following: 3

CO 1003	Fundamentals of Public Speaking
CO 3213	Small Group Communication
CO 3803	Principles of Public Relations

### Area IV: Experiential internship component

EXL 1191 Leadership Studies Internship I 1

### Area V: Electives

Choose a minimum of three: 9

See advisor for a complete list of approved leadership electives. Courses listed in the Minor Core may also be taken as electives if they are not being used to satisfy the minor core requirement. Students generally take all of their electives in the same college, but doing so is not a requirement. Elective are best selected in consultation with the student's Leadership Studies Minor advisor to meet the goals and objectives of the student. Electives are available in each college which allows this minor to be applicable to any major.

For additional information, contact Robert Green, Chair, Leadership Studies Minor committee at [green@bagley.msstate.edu](mailto:green@bagley.msstate.edu)

# College of Professional and Continuing Studies

**Susan D. Seal, Dean**

susan.seal@msstate.edu

**Sean M. Owen, Associate Dean**

sean.owen@msstate.edu

Office: 301 Memorial Hall

Telephone: (662) 325-3473

Mailing Address: Box 5247, Mississippi State, MS 39762

Website: <https://cpcs.msstate.edu> (<https://cpcs.msstate.edu/>)

## General Information

The college of Professional and Continuing Studies (PCS) was established in 2023 to serve as the academic home for programs that are applied or practice-based in nature. Degree programs, non-credit programs, and non-credit/for-credit certificates that focus on the application of learning to the workforce are also a part of the College's offerings through its Center for Distance Education and Center for Continuing Education that are a part of the College.

## MISSION

Our mission is to ignite learning and professional growth by providing accessible, innovative, and transformational educational experiences. As a catalyst for change within our university, we are dedicated to being an advocate for the adult learner, an educational partner with industry, and a reliable collaborator with faculty and staff. We are committed to creating an educational culture in which we empower individuals to achieve their career aspirations through lifelong learning and to providing an agile support structure to allow faculty, staff, and industry partners to thrive.

## VISION

Our vision is to be a beacon of excellence and innovation in the field of professional and continuing education. We aspire to lead our university into the future with robust growth in enrollment and graduation rates. We see the College of Professional and Continuing Studies as the key driver in shaping our region's workforce, preparing professionals equipped with relevant skills and competencies to meet industry needs, and thus, fostering regional economic growth.

## FACULTY AND LEADERSHIP

The College of Professional and Continuing Studies utilizes a combination of its own departmental faculty, faculty from other Mississippi State University colleges, and qualified practice professionals who serve as adjunct instructors to teach, advise, and mentor students. Faculty and instructors are invited to participate in the college's programs based on their professionalism and commitment to the mission, values, and goals of the organization. Leadership for the College of Professional and Continuing Studies is entrusted to the Dean, Associate Dean, college faculty, and senior staff.

## GENERAL UNIVERSITY POLICIES

Students enrolled through the College of Professional and Continuing Studies are subject to Mississippi State University's general policies, scholastic regulations, and standards as outlined in the University's

Undergraduate and Graduate Catalogs. Questions concerning MSU policies or procedures should be directed to the college.

## Bachelor of Applied Science (BAS)

Major Advisors: Kali Dunlap, Kristi Dearing, and Jaiki Shumpert

The applied baccalaureate degree is specifically intended to serve the needs of adult learners, military, and community college transfers who have completed a technical associate degree program, such as an Associate of Applied Science (AAS) from a SACSCOC accredited community college in the state of Mississippi or comparable regionally-accredited community college. The Bachelor of Applied Science is a flexible pathway design that allows learners to customize their education to advance in their career paths. Building upon the AAS or other technical associate degree program, the BAS degree prepares adult learners, military, and community college transfers to assume leadership roles and make an elevated contribution in the workplace.

The minimum number of hours required in the BAS degree is 120 hours, which may include 60 hours of credit with a 2.0 GPA earned as a part of the AAS degree. No more than 25 percent of the 120 credits may be earned through prior learning assessment and/or competency-based learning. Of the 120 credit hours, 30 shall be completed in residency at Mississippi State University and 30 shall be upper division (3/4000-level) courses. The delivery format of courses for the program may be offered face-to-face or online. In addition, up to 45 hours of approved technical or military credit may be used to fulfill the required elective hours. See advisor for information.

## Degree Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Humanities

See General Education Core		6
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### Mathematics

See General Education Core		3
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### Fine Arts

See General Education Core		3
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### Natural Sciences

See General Education Core. Two labs required.		6
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### Social Sciences

See General Education Core		6
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### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
Or other approved speech course		

### Computer Literacy

TECH 1273	Computer Applications	2-3
or BIS 1012	Introduction to Business Information Systems	

Or other approved technology course

### Extra University Core

See General Education Core or Advisor Approved Upper Level Courses		6
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### Junior/Senior Writing Requirements

Consult Advisor	3
<b>Major Core Emphasis Areas</b>	
Consult Advisor	
Upper Level Courses (one, two, or three emphasis areas)	30
<b>Electives</b>	
May include approved technical or military credits	45
<b>Total Hours</b>	<b>120</b>

## Center for Distance Education

Office: 301 Memorial Hall, (662) 325-3473

Mailing Address: P.O. Box 5247, Mississippi State, MS 39762

[www.online.msstate.edu](http://online.msstate.edu) (<http://online.msstate.edu/>)

The Center for Distance Education (CDE) is a service unit of the University and extends educational opportunities to individuals through a variety of learning options in non-traditional program formats. CDE provides leadership, coordination, and assistance in implementing distance education programs offered by Mississippi State University. The mission of CDE is to engage people in achieving their lifelong educational goals through dynamic partnerships, targeted programming, innovative technology, and quality customer service.

CDE is committed to working with faculty and staff to promote distance education. CDE assists with the facilitation and delivery of distance education programs and certificates at the graduate and undergraduate levels. All distance courses and programs offered through Mississippi State University are fully accredited and possess the same rigor and standards of the traditional campus. Delivery methods offered include completely online and hybrid. Distance classes include an instructional support fee, distance fees which may vary by course, and tuition & required fees. The instructional support fee and distance fees will be collected as part of registration. CDE also specializes in customer service for all distance education students.

# MSU-Meridian

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## Associate Vice President and Head of Campus – Dr. Terry Dale Cruse

### College Park Campus

1000 Hwy 19 North • Meridian, Mississippi 39307-5799  
(601) 484-0100 • In State-Wats 1-800-824-5288

### Riley Campus

2212 5th Street • Meridian, MS 39301  
(601) 484-0150

Mississippi State University-Meridian is a regional, upper-division, degree-granting campus of Mississippi State University. Located in east-central Mississippi, MSU-Meridian's campus is non-residential and provides site-based credit and non-credit course work, as well as classes through distance learning using resident faculty, MSU-Starkville campus faculty, and part-time adjunct instructors.

A friendly atmosphere, personal attention, two convenient locations, and a diverse student population flavor the educational experience at MSU-Meridian. Through the flexibility of day and evening classes, both nontraditional adult students and traditional college-age students are able to continue employment, maintain important roles in family life, contribute to their communities, and still obtain a quality Mississippi State University education.

Mississippi State-Meridian serves as a proud symbol of the university's heritage as "the people's university" and of its commitment to providing quality higher education through the missions of learning, research, and service.

## Location

Mississippi State University-Meridian is comprised of two campuses. The College Park Campus is located on 26 acres at 1000 Highway 19 North in Meridian, a short drive northwest of Exit 150 off Interstate 20/59. The Riley Campus is located in the heart of Meridian's downtown, off 22<sup>nd</sup> Avenue and 5<sup>th</sup> Street, where the Division of Business is housed in the Deen building and the Master of Physician Assistant Studies program is housed in the Rosenbaum building. The Riley Campus is also home to the MSU-Riley Center for Education and Performing Arts.

## Facilities

Overlooking a beautiful lake, the College Park campus is a 60,000 square-foot, two-story complex is nestled among hardwoods and loblolly pines. A 90-foot tower stands watch over the main entrance and serves as the focal point and official symbol of the campus. The complex contains 24 classrooms and laboratories, academic suites, study lounges, an 800-person multi-purpose auditorium for campus and community use, and ample parking. Although there are no dorm facilities at either campus, apartments are located nearby and in other locations throughout the area.

The Riley Campus, situated in the heart of downtown Meridian, includes the Deen building, a four-story historical landmark. The 20,175 square-foot facility, complete with a massive floor to roof sky light, houses MSU-Meridian's Division of Business faculty, state-of-the-art classrooms and computer lab, study rooms, conference rooms, and a stock ticker. Next to the Deen building is the Rosenbaum building, the renovated historic five-and-dime is home to the university's health sciences programs, including

the Master of Physician Assistant Studies. The structure's approximately 26,000 square-foot space houses six classrooms, four laboratories and two computer labs, along with a lecture hall, administrative offices and conference and reception areas. It is also the home to the second Phil Hardin Foundation Library. Completing the Riley Campus is the MSU-Riley Center for Education and the Performing Arts. The multifaceted center includes a fully restored 1889 grand opera house theater that seats approximately 950, a 200-seat theater and 30,000 square feet of meeting space.

## Students

Approximately one-half of the students who attend MSU-Meridian reside in Lauderdale County. The remainder commute from 32 other Mississippi counties and from Alabama, with a majority making their homes in the surrounding counties of Clarke, Jasper, Jones, Kemper, Leake, Neshoba, Newton, Scott, and Wayne. Advancements in course offerings, programs, and distance learning technology should expand the scope of service even further.

## Distance Learning

Interactive video conference classrooms at both the College Park and Riley campuses allows students in Meridian and Starkville, and at downlink sites elsewhere in the world, to receive instruction and interact through two-way video and audio distance technologies. This greatly improves MSU-Meridian's ability to expand the scope of its service and maintain courses of the highest quality.

The development of Web-based (direct-to-desktop) delivery systems is also being utilized to facilitate the delivery of asynchronous and synchronous real time audio and video through computer based technologies and the Internet.

## Library Facilities

The MSU University Libraries, with the Phil Hardin Foundation Library on the College Park Campus, supports the teaching, research, and service needs of the MSU-Meridian Campus community. Meridian Campus faculty, students and staff have full access to all the electronic collections offered by the University Libraries including scholarly journals, government documents, books, newspapers and reference materials. Physical items located on the Starkville campus are accessible through Interlibrary Loan and the Library Express document delivery service at no charge to MSU-Meridian community.

An "Electronic Library Room" is available so that individuals at MSU-Meridian may access these online resources and services including online workshops and podcasts. The MSU University Libraries, with a Phil Hardin Foundation Library on both the College Park Campus and Riley Campus in downtown Meridian supports the teaching, research, and service needs of the MSU-Meridian community. Meridian faculty, students and staff have full access to all the electronic collections offered by the University Libraries including scholarly journals, government documents, books, newspapers and reference materials. Physical items located on the Starkville campus are accessible through Interlibrary Loan and the Library Express document delivery service at no charge to MSU-Meridian community.

## Degree Programs

Junior, senior, and graduate-level courses offered at MSU-Meridian allow students to fulfill requirements for Bachelor's, Master's, and Specialist's

degrees. They may also elect to enroll in specific classes for professional or personal growth.

## Undergraduate Degrees

- Division of Arts and Sciences
  - Bachelor of Arts in Communication (Concentration in Broadcasting)
  - Bachelor of Arts in Criminology
  - Bachelor of Arts in General Liberal Arts
  - Bachelor of Arts in History
  - Bachelor of Arts in Psychology
  - Bachelor of Science in Interdisciplinary Studies
  - Bachelor of Social Work
  - Bachelor of Applied Technology in Healthcare Services
  - Bachelor of Applied Technology in Hospitality and Event Services
- Division of Business
  - Bachelor of Accountancy
  - Bachelor of Business Administration with concentrations in:
    - Business Administration
    - Healthcare Administration

Students may also earn a minor in:

  - Management
  - Marketing
- Division of Education
  - Bachelor of Science in Education with majors in:
    - Elementary Education
    - Secondary Education
    - Special Education
- Division of Academic Affairs
  - Bachelor of Applied Science
  - Bachelor of Healthcare Administration

## Graduate Degrees

- Division of Education
  - Master of Science degree with majors in:
    - Elementary Education
    - Secondary Education
    - Counselor Education
    - School Administration
  - Master of Arts in Teaching degree with major in Comm. College Education
  - Master of Arts in Teaching - Secondary Teaching Education (Alternate Route program)
  - Educational Specialist with concentrations:
    - Elementary Education
    - Secondary Education
    - Counselor Education
    - School Administration
- Division of Business
  - Professional Master of Business Administration
- Division of Academic Affairs
  - Master of Physician Assistant Studies

## Division of Arts and Sciences

### Dr. Richard Damms, Division Head

Professor: Dr. Vicki Gier, Dr. James Kelley, and Dr. Marian Swindell  
 Associate Professors: Dr. Toby Bates, and Dr. Amanda Cook  
 Clinical Assistant Professors: Dr. Lin Ge, and Dr. Angela Savage  
 Instructors: Dr. Jarrod Fogarty, Dr. Greg Johnson, and Dr. Andrea Germany

The Division of Arts and Sciences offers nine degree programs: Bachelor of Arts in Criminology, English, General Liberal Arts (GLA), History, Psychology, Communication – *Concentration in Broadcasting*, Bachelor of Science in Interdisciplinary Studies (BSIS), Bachelor of Applied Technology in Healthcare Services (BAT), Bachelor of Applied Technology in Hospitality and Event Services (BAT), and Bachelor of Social Work (BSW).

### Bachelor of Arts in Criminology

Advisor: Dr. Amanda Cook

The Bachelor of Arts in Criminology degree program offers students the opportunity to explore the nature and causes of crime as well as examine the social response to crime and its effect on society.

The degree emphasizes the study of types, patterns, and trends in criminal behavior, and trains students to analyze crime data, test explanations of crime and victimization, and critically evaluate crime theory and policy.

## Criminology

### General Education and College Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Foreign Language

Spanish for the Professional	3
Spanish I and Spanish II are also recommended (see Free Electives)	

#### Mathematics

MA 1313	College Algebra	3
Math higher than MA 1313		3

#### Fine Arts

ART 1113	Art Appreciation	3
or MU 1113	History and Appreciation of Music	

#### Natural Sciences

Biological Science w/lab (BIO)	4
Physical Sciences w/lab (CH, GG, PH) <sup>2</sup>	4
Natural Science Elective- no lab required (BIO, PH, GG, CH) <sup>1</sup>	3

#### Humanities

English – see General Education courses	3
History – see General Education courses	3
Philosophy - see General Education courses	3
Humanities Electives (HI, EN, PHI, REL)	9

#### Communication

CO 1003	Fundamentals of Public Speaking	3
<b>Social Sciences</b>		
SO 1003	Introduction to Sociology	3
AN/GR/PS/PSY/SO - See General Education		3
AN/GR/PS/PSY/SO/CO/CRM - Social Sciences Electives		12
<b>Major Required Courses</b>		
CRM 1003	Crime and Justice in America	3
CRM 2003	Crime, Justice, and Inequality	3
CRM 3603	Criminological Theory	3
CRM 4803	Senior Seminar in Criminology	3
SO 3213	Introduction to Social Research	3
or SW 3213	Research Methods in Social Work	
SO 4804	Social Research Practice	4
Choose two of the following:		6
CRM 3503	Violence in the United States	
CRM 4233	Juvenile Delinquency	
CRM 4243	Drugs, Crime and Control	
CRM 4253	White Collar and Computer Crime	
Choose two of the following:		6
CRM 3103	Contemporary Issues in Criminal Justice	
CRM 3113	Community Crime Prevention and Policy	
CRM 4513	Correctional Systems	
CRM 4523	Law and Society	
Choose two of the following:		6
CRM 3343	Gender, Crime, and Justice	
CRM 3353	Race, Crime and Justice	
CRM 3363	Globalization and Crime	
CRM 4323	Victimology	
<b>Free Electives</b>		
A&S Upper Division Elective (3000/4000-level)		3
Other electives - see advisor (Spanish I and II recommended)		18
<b>Total Hours</b>		<b>125</b>

## General Liberal Arts Program (GLA)

**Advisor: Dr. James Kelley**

Students who prefer to specialize in more than one field of study may earn a B.A. degree in General Liberal Arts. Requirements for this degree include all of the following: satisfactory completion of the University and College Core curriculum; satisfactory completion of the College of Arts and Sciences B.A. requirements; approval of the proposed G.L.A. program; satisfactory completion of twelve hours of upper-division courses (courses numbered 3000 and above) in each of three fields of study. The three fields may all be within the College of Arts and Sciences, or one of the three may be within another school/college of the University if that field is related to the student's educational or career goals. To insure an orderly progression of work toward the degree, interested students should meet with the program's advisor as early as possible. Furthermore, admittance into the program requires a GPA of at least 2.5 and the approval of the GLA Committee and the Associate Dean of the College of Arts and Sciences. General Liberal Arts is not suitable for students who are uncertain about their choice of a major; these students should see the Undecided listing in this section.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

3 semesters - one Foreign Language (see advisor)	9
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### Humanities

Literature - see Major Core	3
History - see A&S listing	3
Philosophy Elective - see advisor	3
Humanities Electives - consult advisor	9

### Math

MA 1313	College Algebra	3
Above College Algebra	3	

### Fine Arts

See A&S listing	3
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### Natural Sciences

Physical Science w/Lab <sup>1</sup>	3-4
Biological Science w/Lab <sup>2</sup>	3-4
Natural Science Elective <sup>3</sup>	3-4

### Social Sciences

See A&S Listing	6
Social Sciences Electives <sup>4</sup>	12

### Major Core

Students must choose 3 areas with 12 upper division hours in each area. Consult advisor.

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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### Computer Requirement

Consult advisor for approved courses

### Writing Requirement

Consult advisor for approved courses

### Electives

8 or more hours to equal 124

<b>Total Hours</b>	<b>124</b>
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<sup>1</sup> CH, GG, or PH; see General Education courses.

<sup>2</sup> BIO, EPP, or PO; see General Education courses.

<sup>3</sup> Consult advisor.

<sup>4</sup> Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. See advisor.

## Bachelor of Arts in History

**Advisor: Dr. Toby Bates**

The Bachelor of Arts in History degree prepares students to think critically beyond their immediate environment, learn research skills and the proper method of collecting data, develop historical arguments, and successfully communicate their conclusions.

Students will achieve a detailed understanding of the political, cultural, economic, and racial aspects found within American history, European history, as well as Latin American history. Through a study of Mississippi



history students will also find great insight into their local and state narratives.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

3 semesters - one Foreign Language - see advisor 9

### Humanities

Literature - see General Education courses	3
History - see major	3
Philosophy Elective - see A&S requirements	3
Humanities Elective - see A&S core (Must be from 2 different areas. Can be upper division hours; 6 hours may be HI courses; 3 hours must be from another area.)	9

### Math

MA 1313	College Algebra	3
MA 1323	Trigonometry	3
or ST 2113	Introduction to Statistics	

### Fine Arts

See A&S requirements 3

### Natural Sciences

Physical Science w/Lab <sup>1</sup>	3-4
Biological Science w/Lab <sup>2</sup>	3-4
Natural Science Elective <sup>3</sup>	3-4

### Social Sciences <sup>4</sup>

See A&S requirements	6
Social Sciences Electives	12

### Major Core

Must choose two of the following sequences:

#### World History

HI 1163	World History Before 1500	3
HI 1173	World History Since 1500	3

#### Western World

HI 1213	Early Western World	3
HI 1223	Modern Western World	3

#### U.S. History

HI 1063	Early U.S. History	3
HI 1073	Modern U.S. History	3

#### East Asian Civ

HI 1313	East Asian Civilizations to 1300	3
HI 1323	East Asian Civilizations since 1300	3

Students declaring a history major prior to Fall 2008

U.S. history U/D Electives	6
African, Ancient, Asian or Latin American U/D Electives	6
European history U/D Electives	6
U/D Electives	6

Students declaring a history major after Summer 2008

Category I History U/D Electives	6
Category II History U/D Electives	6

Category III History U/D Electives	6
U/D Electives	6

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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### Writing Requirement

HI 3903	Historiography and Historical Method	3
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### Computer Literacy

BIS 1012	Introduction to Business Information Systems	2
or TECH 1273	Computer Applications	

### General Electives <sup>5</sup>

Consult advisor	12
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**Total Hours** 124

(31 hours must be A&S 3000 or above)

<sup>1</sup> CH, GG, or PH; see General Education courses.

<sup>2</sup> BIO, EPP, or PO; see General Education courses.

<sup>3</sup> Consult advisor.

<sup>4</sup> Must be from 2 different areas and must cross 4 disciplines over the 18 hours. Only one Economics allowed. Can be upper division hours. See advisor.

<sup>5</sup> 13 hours of general electives required if BIS 1012 is chosen for computer requirement.

## Bachelor of Arts in Psychology

Advisors: Dr. Vicki Gier and Dr. Rodney Wilson

The Bachelor of Arts in Psychology degree offers students the opportunity to learn unique insights into human behavior and mental processes which enable them to have a positive impact on people's day-to-day lives. Students will develop good research, writing, and problem solving skills, and the ability to analyze, synthesize, and evaluate information.

Psychology majors are encouraged to work with faculty members on research projects and to share authorship of posters and journal articles. Students also have an opportunity to experience an internship in area mental health facilities.

## Required Curriculum

Undergraduate students wishing to major in psychology must have a minimum 2.0 grade point average on all college work attempted prior to entering the major. The Bachelor of Arts degree program in psychology is designated to provide training for advanced study in psychology or related fields. Advanced study is recommended for students desiring a career in psychology. Psychology majors must earn a C or better in all required psychology courses.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

3 semesters - one Foreign Language - see advisor 9

### Humanities

Literature - see General Education courses	3
History - see General Education courses	3
<b>Philosophy Elective</b>	
Consult advisor	3
<b>Humanities Elective</b>	
Must be from 2 different areas - see A&S Core	9
<b>Mathematics</b>	
MA 1323 Trigonometry (or higher math)	3
or ST 2113 Introduction to Statistics	
<b>Fine Arts</b>	
See A&S Core List	3
<b>Natural Sciences</b>	
Physical Sciences w/lab (CH, GG, PH) <sup>1</sup>	3-4
Biological Sciences w/lab (BIO, EPP, PO) <sup>1</sup>	3-4
Natural Science Elective <sup>2</sup>	3-4
<b>Social Sciences Core</b>	
PSY 1013 General Psychology	3
See A&S Core listing	3
<b>Social Sciences Electives</b> <sup>3</sup>	
Social Sciences Electives	12
<b>Major Core</b>	
MA 1313 College Algebra	3
PSY 1021 Careers in Psychology	1
PSY 3314 Experimental Psychology	4
PSY 3104 Introductory Psychological Statistics	4
Choose two of the following:	6
PSY 3213 Psychology of Abnormal Behavior	
PSY 3623 Social Psychology	
PSY 3803 Introduction to Developmental Psychology	
PSY 4203 Theories of Personality	
Choose one of the following:	3
PSY 3343 Psychology of Learning	
PSY 3713 Cognitive Psychology	
Choose one of the following:	3
PSY 4403 Biological Psychology	
PSY 4423 Sensation and Perception	
Choose one unused course from the groups above	3
PSY Upper Division Electives	12
<b>Oral Communication Requirement</b>	
CO 1003 Fundamentals of Public Speaking	3
<b>Writing Requirement</b>	
PSY 3314 Experimental Psychology	4
<b>Computer Literacy</b>	
PSY 3314 Experimental Psychology	4
<b>General Electives</b>	
Consult advisor	
<b>Total Hours</b>	<b>120</b>
32 hours of course work must be A&S 3000/4000	

<sup>1</sup> See General Education courses.

<sup>2</sup> Consult advisor.

<sup>3</sup> Must be from 2 different areas and must cross 4 disciplines over the 18 hours (6 hours from the Social Science core and 12 hours of SS electives). Only one Economics allowed. See advisor.

## Bachelor of Science in Interdisciplinary Studies (BSIS)

**Advisor: Dr. Jarod Fogarty**

The Bachelor of Science in Interdisciplinary Studies is a university-wide degree coordinated through the Office of Academic Affairs by the Interdisciplinary Studies Committee. This multi-discipline academic program is appropriate for students motivated by specific interests not recognized in traditional majors and is not intended to compete with existing programs. All University requirements, including 32 hours of upper division course work and a year's residence, must be met for graduation.

The Bachelor of Science in Interdisciplinary Studies is intended to allow students maximum flexibility to custom-design a curriculum to meet their personal and career goals. Such a program of study must assure depth of study as well as breadth. Therefore, it must insure that students take at least 36 upper-division hours in the areas they have chosen for emphasis and that they select a minimum of 12 hours in each of three areas or 18 hours in two. Emphasis areas must be selected from at least two colleges. General education requirements (45 hours) must be met in addition to a general studies core of 15 hours. A total of 122 semester hours is required for graduation, along with an MSU and cumulative GPA of 2.0.

To insure coherence in the program, the student must construct and explain in writing the rationale for the interdisciplinary studies program's direct relationship to the student's personal and career goals. Each student will be required to find advisors in the academic disciplines who will agree to sponsor the student in drawing up the proposed curriculum, formulating the rationale, and presenting the case in writing to the Interdisciplinary Studies Committee. This should be done prior to the senior year.

If approved, the student may proceed with the curriculum. The Committee will meet during the fall, spring and summer semesters, and students must make written application by September 15 or February 1. Application for a degree must be submitted to the Office of the Registrar. For further information, contact Dr. James Kelley, Office 088 of the MSU-Meridian Campus.

## Bachelor of Social Work

**Program Director: Dr. Angela Savage**

The Social Work Program at Mississippi State University Meridian Campus is accredited by the Council on Social Work Education. The purpose of the social work profession is to promote human and community well-being. Guided by a person-in-environment framework, a global perspective, respect for human diversity, and knowledge based on scientific inquiry, the purpose of social work is actualized through its quest for social and economic justice, the prevention of conditions that limit human rights, the elimination of poverty, and the enhancement of the quality of life for all persons, locally and globally. (CSWE, 2015)

The Bachelor of Social Work (BSW) prepares students for entry-level generalist social work practice. Students learn ways to properly assess and develop therapeutic working relationships with diverse populations, utilize varying intervention approaches, identify strengths and enhance

client problem-solving and coping skills, as well as program evaluation, advocacy, research, and community outreach.

The Social Work curriculum is grounded in a liberal arts perspective. This liberal arts perspective enhances the person-in-environment focus of generalist social work practice.

Although students may enroll in social work as their major, there is a formal admission process into the social work program. To be eligible for admission to the social work program students must meet the following criteria for admission into the program:

1. Cumulative GPA of 2.0
2. Completion of the following liberal arts requirements:
  - # English Composition I and II
  - # College Algebra
  - # Introduction to Sociology
  - # American Government
  - # General Psychology
  - # Anatomy & Physiology
  - # Principles of Economics
  - # Fundamentals of Public Speech
  - # Basic Computer Concepts & Applications
  - # Social Work with At-Risk Populations
3. Completion of two of the following social work courses with a minimum grade of C:
  - SW 3003 Social Work with At-Risk Populations
  - SW 2303 Social Welfare Policy I
  - SW 3013 Human Behavior in the Social Environment I
4. Completion of SW 2313 Introduction to Social Work (including 20 hours of service learning experience) with a minimum grade of B.
5. Completion of an Application for Admission to the Social Work Program.
  - Students must provide three reference letters on provided forms
  - Authorize a Background Check, Child Abuse/Neglect and Sex Offender Registries
  - Participate in a personal interview with Social Work Program Admissions Committee.

Before enrolling in any social work classes, it is the responsibility of the student to consult with their social work advisor regarding any prerequisites for social work classes.

The criteria for remaining in the program include:

- Maintain an overall GPA of 2.0, with a 2.75 GPA for all social work courses.
- Must earn a minimum of a "C" in each social work course.
- Continue to demonstrate an aptitude for a social work career.
- Adhere to all academic expectations of the university and the social work program.
- Adhere to the National Association of Social Workers Code of Ethics.

## General Education and College Requirements

### English Composition

EN 1103	English Composition I	3
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or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Foreign Language

2 semesters - one Foreign Language – see advisor	6
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### Humanities

Literature – see General Education courses	3
History – see General Education courses	3

### Philosophy

PHI 1103	Introduction to Philosophy	3
or PHI 1113	Introduction to Logic	

### Humanities Elective <sup>1</sup>

Literature Elective	3
History Elective	3
Humanities Elective	3

### Mathematics

MA 1313	College Algebra	3
ST 2113	Introduction to Statistics	3

### Fine Arts

See Arts & Sciences Core List	3
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### Natural Sciences

BIO 1004	Anatomy and Physiology	4
Physical Sciences w/lab (CH, GG, PH) <sup>2</sup>	3-4	
Natural Science Elective <sup>1</sup>	3-4	

### Social Sciences

SO 1003	Introduction to Sociology	3
PS 1113	American Government	3

### Social Sciences Electives

Required:		
PSY 1013	General Psychology	3
EC 2113	Principles of Macroeconomics	3
AN 1103	Introduction to Anthropology	3
AN 1143	Introduction to Cultural Anthropology	3

### Major Core

Social Work curriculum is completed as sequenced.		
SW 2313	Introduction to Social Work/Social Welfare	3
SW 2303	Social Welfare Policy I	3
SW 3003	Social Work with At-Risk Populations <sup>1</sup>	3
SW 3013	Human Behavior and the Social Environment I	3

Students must successfully complete a formal admissions process prior to taking the following courses:

SW 2323	Social Welfare Policy II <sup>3</sup>	3
SW 3023	Human Behavior and the social Environment II <sup>3</sup>	3
SW 3213	Research Methods in Social Work <sup>3</sup>	3
SW 4613	Child Welfare Services	3
SW 3513	Social Work Practice I <sup>3</sup>	3
SW 3523	Social Work Practice II <sup>3</sup>	3
SW 3533	Social Work with Communities and Organizations <sup>3</sup>	3

Social Work Elective	3
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### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
<b>Writing Requirement</b>		
SW 4713	Social Work Senior Seminar <sup>3</sup>	3
<b>Computer Literacy</b>		
Consult Advisor		
<b>General Electives</b>		
Consult Advisor		
Field Work includes full-time placement for one semester in a supervised agency setting.		
SW 4916	Social Work Field Practicum/Seminar I <sup>3</sup>	6
SW 4926	Social Work Practicum/Seminar II <sup>3</sup>	6
<b>Total Hours</b>		<b>124</b>
32 hours of course work must be A&S 3000/4000		

<sup>1</sup> Consult Advisor.

<sup>2</sup> See General Education courses.

<sup>3</sup> Course has prerequisite. Please check course description in back of catalog or consult advisor.

## Bachelor of Applied Technology

Advisor: Mr. Ben Pace

The Bachelor of Applied Technology (BAT) degree offers students who have completed technical course work the opportunity to apply up to twenty-eight hours of those credits toward completion of a bachelor's degree. This degree will also benefit those who are already working but would like to further their education by earning a bachelor's degree.

The concentration in Healthcare Services is designed for students who have completed technical course work in the health professions and related programs at 2-year colleges. The concentration focuses on courses in health policy, managed care, and other pertinent topics for today's changing healthcare environment.

The concentration in Event and Hospitality Services is designed for students who have completed course work in the hospitality services, marketing, and related programs at 2-year colleges. The concentration focuses on courses in managing, marketing, and administering event and hospitality services in a diverse social and cultural environment.

### English Composition

EN 1103	English Composition I	3-4
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Humanities

See General Education courses 6

### Fine Arts

See General Education courses 3

### Mathematics

MA 1313	College Algebra	3
MA 2113	Introduction to Statistics	3

### Natural Sciences

Select 2 lab-based sciences from General Education courses 7-8

### Math/Science Elective

Math/Science elective (from Gen Ed) - Consult Advisor 3

### Social Sciences

EC 2113	Principles of Macroeconomics	3
PSY 1013	General Psychology	3
<b>Major Core</b>		
EN 3313	Writing for the Workplace	3
PHI 3013	Business Ethics	3
MGT 3513	Introduction to Human Resource Management	3
or MGT 4613	Cross-Cultural Management	
MGT 3323	Entrepreneurship	3
or MGT 3823	Socially Responsible Leadership	
MKT 3013	Principles of Marketing	3
BIS 3233	Management Information Systems	3

### Healthcare Concentration Courses

PSY 3503	Health Psychology	3
PSY 4223	Drug Use and Abuse	3
SW 3003	Social Work with At-Risk Populations	3
SW 4633	Social Work in Health Care	3
SO 3213	Introduction to Social Research	3
HCA 3313	Introduction to the U.S. Healthcare System	3
HCA 3813	Introduction to Healthcare Law and Regulation	3
HCA 4243	Managed Care	3
HCA 4803	Healthcare Policy	3

### Event and Hospitality Services Concentration Courses

CO 3803	Principles of Public Relations	3
SO 4503	Gender and Work	3
AN /SO 2203	Introduction to Race and Ethnicity	3
PSY 4813	Positive Psychology	3
HI 4243	American Life and Thought	3
MKT 4613	Services Marketing	3
MKT 4423	Strategic Brand Management	3
MKT 4513	Resort-Convention Marketing	3
MKT 3513	Marketing Internship (in MS Riley Center, Hotels, Events, etc.)	3

### Oral Communication

CO 1003	Fundamentals of Public Speaking	3
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### Junior/Senior Writing Requirement

Satisfied by successful completion of EN 3313

### Computer Literacy

Satisfied by successful completion of BIS 3233

### Technical Core

**28**

### Arts & Sciences Upper Division Electives

Upper Division Electives - Consult Advisor 3

### General Electives

General Electives - Consult Advisor 3-4

**Total Hours 120**

## Division of Business

Professor: Dr. Kevin Ennis, Dr. William Hill, Dr. Seungjae Shin, and Dr. Carlton Young  
Associate Professors: Dr. Joseph Faello, Dr. Paul Spurlin, and Dr. Yingge Qu

Assistant Professors: Dr. Stacey McNeil

The mission of the College of Business is to be a nationally recognized and respected college of business equipped to focus on dynamic and collaborative learning, innovative and distinctive research, and valued research activities in the state and region.

## Bachelor of Business Administration

(Concentrations in Business Administration and Healthcare Administration)

### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

### Mathematics

MA 1313	College Algebra	3
MA 1613	Calculus for Business and Life Sciences I	3
BQA 2113	Business Statistical Methods I	3

### Science

2 Lab Sciences from General Education courses	6
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### Humanities

See General Education courses	6
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### Fine Arts

See General Education courses	3
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### Social/Behavioral Sciences

PS 1113	American Government	3
Choose from General Education courses excluding: AEC and EC	3	

### College Core

BQA 3123	Business Statistical Methods II	3
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
BL 2413	The Legal Environment of Business	3
BIS 3233	Management Information Systems	3
FIN 3123	Financial Management	3
MGT 3113	Principles of Management	3
MKT 3013	Principles of Marketing	3
MKT 3323	International Logistics	3
BUS 4853	Strategic Management	3

### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	

### Computer Literacy Requirement

BIS 1012	Introduction to Business Information Systems	2
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### Writing Requirement

MGT 3213	Organizational Communications	3
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### Major Core

International Elective (see advisor for options)	3
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Select three areas of concentration from the following prefixes: <sup>1</sup>

ACC, BIS, BL, EC, FIN, IB, INS, MGT, MKT, REF

1st Major Area (12 hours)	
2nd Major Area (6 hours)	
3rd Major Area (6 hours)	
Non-business electives	13
Free electives	3
<b>Total Hours</b>	<b>123</b>

<sup>1</sup> Major elective hours by major: Business Administration (24), Healthcare Administration (18)

<sup>2</sup> Choose enough general electives to bring the total number of hours to 124.

## Division of Education

### Dr. Kimberly Hall, Division Head

Professors: Dr. Kimberly Hall, Dr. Carlen Hennington, and Dr. Darren Wozny

Associate Professors: Dr. Mark Fincher

Assistant Professors: Dr. Jeffrey Leffler and Dr. Ksenia Zhbanova

Clinical Associate Professor: Dr. Roseanna Nunnery

Clinical Assistant Professor: Dr. Tania Hanna, Dr. Rosalind Operton, and Dr. Melissa Windham

Instructors: Brandi Sumrall

The Division of Education in Meridian offers degree programs in areas previously listed. Education programs offered at MSU-Meridian parallel those offered through the College of Education in Starkville. Specific degree program requirements may be obtained by referencing the College of Education section in this Bulletin.

Degree requirements may be found by referencing the corresponding degree program located within this general bulletin.

## Elementary Education Major (ELED)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
MA 1413	Structure of the Real Number System	3
MA 1423	Problem Solving with Real Numbers	3
MA 1433	Informal Geometry and Measurement	3

#### Science

See General Education courses (must be lab-based courses)	6
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#### Humanities

Choose one of the following:	3
HI 1063	Early U.S. History
HI 1163	World History Before 1500
HI 1213	Early Western World

Choose one of the following:	3
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HI 1073	Modern U.S. History
HI 1173	World History Since 1500

HI 1223	Modern Western World	
<b>Fine Arts</b>		
See General Education courses		3
<b>Social Sciences</b>		
GR 1123	Introduction to World Geography	3
PS 1113	American Government	3
or SO 1003	Introduction to Sociology	
or SO 1203	Sociology of Families	
<b>Additional Core</b>		
Natural Science courses		6
English Literature Elective (see General Education courses)		
English Grammar Elective OR English course above EN 1113		
<b>Major Core</b>		
EDE 2521		
RDG 3113	Early Literacy Instruction I <sup>1</sup>	3
RDG 3123	Early Literacy Instruction II <sup>1</sup>	3
EDE 3123	Early Childhood Education <sup>1</sup>	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
RDG 3413	Middle Level Literacy <sup>1</sup>	3
RDG 3423	Middle Level Literacy II <sup>1</sup>	3
EDE 3223	Middle Level Education <sup>1</sup>	3
EDF 3333	Social Foundations of Education	3
EDF 3423	Exploring Diversity Through Writing <sup>1</sup>	3
EDE 3443	<sup>1</sup>	3
EDE 3523	Foundations of Elementary & Middle Level Mathematics Education <sup>1</sup>	3
EDE 4113	Teaching Elementary and Middle Level Science <sup>1</sup>	3
EDE 4123	Teaching Elementary and Middle Level Mathematics <sup>1</sup>	3
RDG 4133	Integrating Literacy Instruction in the Content Areas <sup>1</sup>	3
EDE 4143	Teaching Elementary and Middle Level Social Studies <sup>1</sup>	3
EDE 4883	Managing the Elementary and Middle Level Classroom <sup>1</sup>	3
EDE 4886	Elementary and Middle Level Teaching Internship <sup>1</sup>	6
EDE 4896	Elementary and Middle Level Teaching Internship <sup>1</sup>	6

## Early Childhood Concentration (ECHD)

Leads to K-3 general certification with N-1 (nursery - 1<sup>st</sup> grade) early childhood/special education certification.

HDFS 2803	Prenatal and Infant Development	3
HDFS 2813	Child Development	3
HDFS 3803	Creativity & Play in Young Children	3
EDX 4113	Methods and Materials for Early Childhood Students with Disabilities	3
EDX 4413	Working with Families of Students with Disabilities	3
or HDFS 4803	Parenting	

Students choosing the Early Childhood Education concentration may obtain K-6 certification by taking, in addition to the K-3 requirements, EDE 3223 and any two of the following: 3 hours of English, 3 hours of math, 3 hours of social studies, and/or 3 hours science.

## Middle School Concentration (MDSC)

Leads to K-6 general certification with 4<sup>th</sup>-8<sup>th</sup> grade subject area certification.

EDE 3223	Middle Level Education	3
Twelve hours certification endorsement area electives.		
Two 21-hour endorsement areas required. See Advisor.		
<b>Total Hours</b>		<b>124</b>

Many courses have co-requisites. See catalog or advisor.

<sup>1</sup> Requires admission to Teacher Education.

## Educational Psychology Major (EPY) (Non-teaching Option)

### General Education Requirements

#### English Composition

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

MA 1313	College Algebra	3
Math above College Algebra excluding:		
MA 1413	Structure of the Real Number System	
MA 1423	Problem Solving with Real Numbers	
MA 1433	Informal Geometry and Measurement	

#### Science

BIO 1123	Animal Biology	3
Lab science from General Education courses		

#### Math/Science Elective

Choose one of the following:		
Math above College Algebra excluding		
MA 1413	Structure of the Real Number System	
MA 1423	Problem Solving with Real Numbers	
MA 1433	Informal Geometry and Measurement	
OR		
Science from General Education courses		

#### Humanities

History course		3
Literature course		3

#### Fine Arts

See General Education courses		3
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#### Social Sciences

SO 1003	Introduction to Sociology	3
General Education course excluding EPY prefixes		

#### Major Core

PSY 1013	General Psychology	3
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EPY 2513	Human Growth and Development	3
EPY 3063	Psychology of Individual Differences and Exceptional Ability	3
EPY 3503	Principles of Educational Psychology	3
EPY 3543	Psychology of Adolescence	3
EPY 4033	Application of Learning Theories	3
EPY 4073	Personal and Motivational Factors in Education	3
EPY 4214	Educational and Psychological Statistics	4
EPY 4313	Measurement and Evaluation	3
EPY 4553	Creativity/Innovation	3
EPY 4513	Introduction to Research in Educational Psychology	3
EPY 4683	Advanced Issues in Educational Psychology	3
PSY 3623	Social Psychology	3
PSY or SO elective above 3000		3
<b>Human/Cultural Diversity Elective</b>		
Choose one of the following:		3
SO 2203	Introduction to Race and Ethnicity	
SO 3013	Society and the Individual	
SO 1103	Contemporary Social Problems	
SO 3323	Contemporary Woman	
SO 3333	Society and Religion	
AN 2203	Introduction to Race and Ethnicity	
AN 3113	Societies of the World	
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
<b>Writing Requirement</b>		
EPY 3513	Writing in the Behavioral Sciences	3
<b>Additional Requirements</b>		
<b>Humanities</b>		<b>6</b>
<b>General Electives</b> <sup>1</sup>		<b>12</b>

<sup>1</sup> In addition to the University and Major core courses above, a choice of one special interest area of 18 hours(see below) and 12 hours of electives are required for the degree total to reach 124 hours.

## Selected Interest Areas

Available in counseling/clinical applications, applied behavior analysis, the developing child, kinesiology, human resources and industrial applications, law and order, youth and teen studies, and speech/ language pathology. See advisor for details.

# Reserve Officers' Training Corps

Office: 1<sup>st</sup> Floor, Middleton Hall

Telephone: (662) 325-3503

www.armyrotc.msstate.edu (<http://www.armyrotc.msstate.edu>)

Mailing Address: P.O. Box 5447, Mississippi State, MS 39762

LTC Posey, Maj. Bush, MSG Duran, SFC Proctor, Maj. Acevedo, Mr. Baker

Office: 2<sup>nd</sup> Floor, Middleton Hall

Telephone: (662) 325-3810

www.afrotc.msstate.edu (<http://www.afrotc.msstate.edu>)

Mailing Address: P.O. Box AF, Mississippi State, MS 39762

Lieutenant Colonel Christopher S. Evans  
Professor of Aerospace Studies

The Reserve Officers' Training Corps is under the administrative and academic supervision of the College of Arts and Sciences. Army ROTC (Military Science) courses are indicated by the prefix MS; Air Force ROTC (Aerospace Studies) courses are indicated by the prefix AS. All ROTC courses are bona fide University courses. The total number of ROTC hours allowed as elective credit toward a specific degree varies. Most schools and colleges at the University accept six (6) or more hours of ROTC courses offered toward degrees conferred. The advanced ROTC courses are options for meeting social/behavioral science core requirements. A student should contact the appropriate college, school, or department to determine allowable ROTC course credit toward a particular degree.

## Purposes and Objectives

The general objective of the Reserve Officers' Training Corps is to develop in each student:

- a basic understanding of associated professional knowledge necessary to be an officer in the US Armed Forces;
- a strong sense of personal integrity, individual responsibility and honor; and,
- an appreciation of the requirements of national security.

The Army ROTC Basic Course is designed to give the first and second year ROTC student an introduction to the Army and its career opportunities without incurring any obligation on the part of the student. The Advanced Course (third and fourth years) stresses the military skills and knowledge, and interpersonal skills required of commissioned officers of the Active Army, Army Reserve, or Army National Guard.

The Air Force ROTC General Military Course (GMC) is a two-year course normally taken during the freshman and sophomore years. The course covers two main themes - the development of air power and the contemporary Air Force and Space Force in the context of military organization. A student can enroll in the GMC without military obligation (unless on an AFROTC Scholarship). The Professional Officer Course (POC) is a two-year course of instruction, normally taken during the junior and senior years. The curriculum covers Air Force and Space Force leadership and management and American Defense Policy. A minor

in Aerospace Studies is available to students completing the specified requirements in Air Force ROTC.

## Army Program

### Army Program

MS 1112	Introduction to the Army	2
MS 1122	Foundations of Leadership	2
MS 2113	Leadership and Ethics	3
MS 2123	Army Doctrine and Decision Making	3
MS 3114	Training Management and Warfighting Functions	4
MS 3124	Applied Leadership in Small Unit Operations	4
MS 4114	The Army Officer	4
MS 4124	Company Grade Leadership	4
<b>Total Hours</b>		<b>22</b>

**Professional Military Education (PME).** In addition to the above, each cadet must complete, as a minimum, one university approved course in each of the following subject areas; Written Communication Skills, Human Behavior, American Military History (HI 4233), Computer Literacy, and Math Reasoning. The PME requirement is normally achieved by the cadet as part of a normal course of study. Students should coordinate with a Military Science instructor to determine a course of action to complete the PME requirement.

Requirements for commissioning as a Second Lieutenant in the United States Army include thirty-three days at the Leadership Development Assessment Course (normally between the junior and senior years), completion of the Advanced Course, satisfactory academic progress, and the recommendation of the Professor of Military Science (PMS).

## Entrance Requirements

**Basic Course.** The Army Basic Course is an elective course requiring only that the individual be a full time student and a legal U. S. citizen. ROTC credit hours earned at other universities are transferable.

Entrance into the Advanced Course is on a selective and competitive basis. The primary requirements for entry into the advanced program are satisfactory completion of the basic course or equivalent, good academic standing, demonstrated leadership ability, an approved physical examination and completion of 60 semester hours of college credit.

**Two-Year Program.** Equivalent credit for the basic course may be obtained by students with 54 semester hours of college credit or more for direct enrollment in the advanced course, based on any one of the following.

- Satisfactory completion of the four week Leader's Training Course (LTC). LTC is an intensive introduction to Army life and leadership training of the Reserve Officers' Training Corps, the aim of the course is to motivate and qualify Cadets for entry into the Senior ROTC program. LTC is primarily intended for students who could not obtain the basic ROTC course during the freshman and sophomore years.
- at least 180 days of honorable service or active duty for training with the U.S. Armed Forces or Coast Guard.



- c. Substitute credit, which in varying amounts may be derived from attendance at service academies, junior ROTC courses, and National Defense Cadet Corps training.
- d. Successful completion of Basic Combat Training with the Army Reserve or the National Guard.

Interested students should consult the PMS during their first sophomore semester but not later than their junior year. Graduate students should apply prior to starting graduate work.

Simultaneous Membership program (SMP). Students who are members of a National Guard or Army Reserve unit may qualify for direct entry into the Army ROTC Advanced Course. Consult the PMS for additional information concerning the financial benefits of this program.

## Summer Training

The Army Leader's Training Course can be used by students desiring to enter the Advanced Course who are not eligible for advanced placement under any other process (e.g. Basic Course, veteran, four years of junior ROTC, completion of Basic Training, etc). The course is five weeks long and incurs no military obligation for attendance. The course is a substitute for the two year Basic Course. Students attending may compete for Army scholarships.

MS 3376 Advanced Leadership Course

The five-week Army Advanced Camp is required of all students enrolled in the Advanced Course and is normally attended between the junior and senior year.

## Uniforms and Equipment

Uniforms and textbooks are issued without cost to students. However, all equipment and textbooks must be returned to the ROTC Department upon departure of the student, and any such article lost or damaged other than by fair wear and tear, must be paid for by the students. Each student enrolled in ROTC is responsible for the maintenance of his/her uniform. Students who fail to clear their accounts before leaving the institution will have their university records placed on hold.

## Pay and Allowances

**On Campus.** Each student enrolled in the Army Advanced Course is paid a monthly subsistence allowance by the Federal Government of \$450.00 per month for juniors and \$500.00 per month for seniors.

**Summer Training.** While at the Leadership Training Course, the student receives pay at the rate of \$26.42 per day (approximately \$792.60 per month). Students attending the Leadership Development Assessment Course also receive pay at a rate of \$28.19 per day (approximately \$845.70 per month) less applicable taxes.

## Army ROTC Scholarship Program

The Army awards ROTC scholarships to outstanding students each academic year. Army ROTC scholarships are for periods of two, three, or four years. They pay tuition, fees, books, and laboratory expenses incurred by the cadet and provide up to \$500 per month subsistence allowance to the cadet for the duration of the scholarship (except during the summer). Additionally, 4-year Scholarship Winners and 3-year Designees that attend MSU may receive up to \$2000 for room and board. The amount of the award depends on the number of scholarship winners and designees that attend MSU. All contracted cadets can compete

for a scholarship. Both men and women are eligible to apply for these scholarships.

High school students should consult their guidance counselors early in September or October of their senior year to apply for the four year scholarship. College sophomores with a 2.5 GPA and greater who otherwise qualify may be eligible for a 2-year scholarship.

## Obligations

Accepting a commission as a 2nd Lieutenant in the U.S. Army incurs a service obligation of eight years. This period may be served in a variety of ways to include: Active Duty, Reserves, National Guard, Individual Ready Reserve or a combination of these.

## Air Force Program

Air Force Course Program. The General Military Course (GMC) and the Professional Officer Course (POC) consist of eight semesters as shown below. See the "Description of Courses" section of this catalog for further information. Each course has a mandatory laboratory.

AS 1011 & AS 1102	Heritage and Values of the US Air Force-I and Air Force ROTC General Military Course Leadership Lab (Fall)	3
AS 1021 & AS 1102	Heritage and Values of the US Air Force-II and Air Force ROTC General Military Course Leadership Lab (Spring)	3
AS 2011 & AS 1102	Team and Leadership Fundamentals-I and Air Force ROTC General Military Course Leadership Lab (Fall)	3
AS 2021 & AS 1102	Team & Leadership Fundamentals-II and Air Force ROTC General Military Course Leadership Lab (Spring)	3
AS 3013 & AS 3102	Leading People and Effective Communication-I and Air Force ROTC Professional Officer Course Leadership Lab (Fall)	5
AS 3023 & AS 3102	Leading People and Effective Communication-II and Air Force ROTC Professional Officer Course Leadership Lab (Spring)	5
AS 4013 & AS 3102	National Security and Commissioning Preparations-I and Air Force ROTC Professional Officer Course Leadership Lab (Fall)	5
AS 4023 & AS 3102	National Security and Commissioning Preparation-II and Air Force ROTC Professional Officer Course Leadership Lab (Spring)	5
<b>Total Hours</b>		<b>32</b>

Requirements for commissioning as a US Air Force or US Space Force Second Lieutenant include completion of a degree according to the university's rules and regulations, completion of the Professional Officer Course, completion of AFROTC Field Training, and approval of the Professor of Aerospace Studies.

## Entrance Requirements

**GMC:** To enter the GMC, a student must be full-time, be a U.S. citizen, be in good physical condition, and be of good moral character. Current college students must also possess a minimum 2.0 collegiate GPA.

**POC:** To enter the POC, cadets must have successfully completed the GMC, possess a minimum 2.0 collegiate GPA (2.5 for scholarship cadets), have passed the Air Force Officer Qualifying Test (AFOQT), and have passed the AFROTC Physical Fitness Test. They must be selected by a board of USAF Officers and have completed a two-week field training encampment.

While Aerospace Studies courses are designed to prepare eligible students for commissioning as Second Lieutenants in the US Air Force or US Space Force, the AS academic courses are open to all interested students, even those who do not meet GMC or POC entry requirements. There is no armed forces service obligation for joining the GMC. AFROTC detachment personnel will explain any commitments associated with AFROTC scholarships or POC entry.

**Field Training:** AFROTC cadets who have completed the GMC course work and meet other requirements for POC entry will normally attend the two-week USAF field training encampment between their sophomore and junior years. This is a mentally and physically demanding period of concentrated USAF training.

**Uniforms and Equipment:** AFROTC issues uniforms and textbooks without cost to students. However, all equipment and textbooks remain property of AFROTC and must be returned before departure. Each student is responsible for the maintenance of his/her uniform.

**Pay and Allowances:** Each student enrolled in the POC is paid a monthly subsistence allowance of at least \$450 while enrolled in the POC (maximum of 600 days).

## In-College Scholarship Program

Full-time students are eligible to apply for Air Force ROTC three- or two-year scholarships. The majority of scholarships pay full college tuition, laboratory and incidental fees, book costs, plus at least \$350 per month, depending on academic year. Applicants are selected on the basis of college grade point average, ACT scores, and a recommendation from the Professor of Aerospace Studies. Final selection is made by a Central AFROTC selection board which considers qualified applicants nationwide. There is no maximum number of scholarships for any one school.

Inquiries about AFROTC scholarships may be made directly to the Recruiting Flight Commander, AFROTC Detachment 425 at 662-325-3810 or [afrotc@afrotc.msstate.edu](mailto:afrotc@afrotc.msstate.edu).

**Active Duty Obligations:** Individuals who complete the AFROTC program and are commissioned as a Second Lieutenant incur an active duty service commitment of at least four years.

## ROTC Extracurricular Activities

**Cadet Military Societies.** Arnold Air Society (Air Force) and the Society of American Military Engineers (Army and Air Force) are chartered by appropriate national organizations. Selected GMC cadets with scholarships and POC cadets are eligible for membership in the Arnold Air Society, while the Society of American Military Engineers is open to all ROTC cadets and engineering students.

**Drill Teams.** The Blue Knights is a precision military drill team, composed of selected cadets from Air Force ROTC. The drill team participates in university and community events.

**Ranger Challenge.** The Army ROTC Lee's Rangers is made up of selected volunteers from the Army. This unit participates in extra training in small unit tactics and leadership under simulated combat conditions. Emphasis is placed on maintaining a high level of physical conditioning and developing self-confidence. Participants must be enrolled in Army ROTC. The Lee Ranger Company sponsors the ranger challenge team.

**Silver Wings.** Silver Wings is a nationwide honorary organization of college students dedicated to the interests of the United States Air Force and Air Force ROTC. Silver Wings evolved from the previously all-female auxiliary of the cadet corps, Angel Flight. Silver Wings exists to further the cause of the United States Air Force by promoting the interest of college men and women in the Air Force ROTC program. Members of Silver Wings are considered associated members of Arnold Air Society. Participation in worthwhile projects such as the Red Cross blood drives and orphanage parties, as well as hosting at Air Force ROTC functions makes these students an outstanding asset to the campus. Silver Wings is open to anyone.

**Bulldog Battery.** The Army ROTC's Bulldog Battery exists to support military ceremonies and athletic events.

**Bully Force.** The Air Force ROTC's Bully Force exists to support military ceremonies and athletic events.

**Color Guard.** Both the Air Force and Army Programs have Color Guards. The cadets present the Colors at athletic events and various community events.

# Office of the Graduate School

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**Peter L. Ryan, Dean of the Graduate School**

**W. Brien Henry, Associate Dean of the Graduate School**

Office: 617 Allen Hall

Telephone: (662) 325-7400

P.O. Box G, Mississippi State, MS 39762-5507

## Administration

The mission of the Graduate School is to provide graduate students advanced academic study beyond the baccalaureate; provide graduate students opportunities to develop methods of independent and systematic investigation; and provide graduate students and faculty with an environment conducive to learning and scholarly activities. In fulfilling this mission, the Graduate School promotes, enhances, develops, and monitors graduate education at Mississippi State University, providing students with efficient and courteous assistance in admission, enrollment, academic progress and graduation. The Graduate School is guided by the academic policies recommended by the Graduate Council, the chief oversight body for all graduate programs, and approved by the Provost. For additional information about graduate education at Mississippi State University or the Graduate School, please visit <http://www.grad.msstate.edu/>.

## Graduate Courses

Graduate courses are assigned numbers at the 6000-, 7000-, 8000-, and 9000-level.

## Graduate Catalog

Published annually, the catalog contains a complete list of advanced degrees offered at Mississippi State and the requirements of each, as well as academic policy and procedures administered by the Office of the Graduate School. The catalog is available online by visiting <http://catalog.msstate.edu/graduate>. (<http://catalog.msstate.edu/graduate/>)

# Academic Opportunities

Mississippi State offers a variety of unique academic programs that provide opportunities for scholarship, leadership training, and work experience. See the link at right for more information.

## Cooperative Education Program

The Cooperative Education Program is a special way of going to college. Increasing numbers of students in various fields are taking advantage of the opportunity the program offers for combining practical experience with formal schooling in a five-year program of alternating semesters of study and gainful work with a cooperating employer. For the qualified student, the program can provide an expanded college education and a direct avenue to a career.

The work under this program is in, or closely related to, the student's field of study. Upon completing three semesters of alternating work experience in the program and becoming academically eligible for graduation, a co-op student is designated a Cooperative Education Graduate. Permanent job offers to graduates of the Cooperative Education Program often provide substantially higher starting salaries and more responsible positions than for regular four-year graduates. The co-op student is not obligated for permanent employment with his or her employer, nor is the employer obligated to hire him or her upon graduation.

A high school graduate becomes eligible to begin a work assignment after satisfactorily completing one year at Mississippi State University; during this year he or she must establish at least a 2.50 average (on a 4.00 grading system). The student must be at least 18 years of age to begin the first work semester. Co-op credit hours may not be used to satisfy **University-wide degree requirements**.

A junior-college or senior-college transfer student who has at least a 2.50 overall average (on a 4.00 grading system) is eligible for participation after satisfactorily completing one semester at Mississippi State University. A student interested in the program who plans to transfer in should communicate with the Cooperative Education office for application materials.

Qualified students majoring within the following colleges and schools are eligible to participate:

- Richard C. Adkerson School of Accountancy
- College of Agriculture and Life Sciences
- College of Architecture, Art, and Design
- College of Arts and Sciences
- College of Business and Industry
- College of Education
- James Worth Bagley College of Engineering
- College of Forest Resources

The program requires a semester-to-semester rotation. Once a student has accepted employment with one of the cooperating organizations, he or she is expected to regularly rotate each semester from work—to school—to work, etc., for a minimum of three semesters. Approximate co-op work semester dates begin on January 1, May 15, and August 15.

Co-op students are required to pay a \$25 registration fee for applicable work semesters. Co-op students may optionally elect to pay a Sanderson Center usage fee during scheduled work semesters.

Final approval of all students for the program, specifically with respect to the University, rests solely with the University.

For more information, contact the Cooperative Education Program, 335 McCain Bldg., Box 6046, Mississippi State, Mississippi 39762, call the office at (662) 325-3823, or visit the Co-op Web page at [www.coop.msstate.edu](http://www.coop.msstate.edu) (<http://www.coop.msstate.edu>).

(Related AOP 12.23: <https://www.policies.msstate.edu/policy/1223> (<https://www.policies.msstate.edu/policy/1223/>))

## Montgomery Leadership Program

The Montgomery Leadership Program was established in 2006 as part of the Office of Student Leadership and Community Engagement to provide a select group of students unparalleled access to activities and recognized leaders to help them develop leadership potential. Participants are chosen based on their recognized academic, leadership, and character traits. During their multi-semester study of leadership, students are exposed to local and national leaders and are able to engage in their community in a variety of ways. Program activities encourage participants to grow physically, emotionally, and intellectually so that they can become leaders of character in a rapidly changing world. For interested students who have completed at least one year of college, additional information can be found at [w](http://www.mlp.msstate.edu) (<http://www.mlp.msstate.edu>) (<http://www.MLP.msstate.edu>). Online applications are accepted during the fall semester for spring admission.

## Day One Leadership Program

As part of the Office of Student Leadership and Community Engagement, Day One is designed to help incoming freshmen make a meaningful transition from home to college life and to develop leadership potential.

Day One students enroll in a class that places a focus on practical, applied, "how-to" leadership skills, along with character education and an understanding of social and civic responsibilities through community engagement.

Day One students learn together and lead together. The students bond and make friends through service-learning teams. Additional information can be found at [www.DAYONE.msstate.edu](http://www.DAYONE.msstate.edu) (<http://www.DAYONE.msstate.edu>)

## Community-Engaged Learning Program

The Center for Community-Engaged Learning (CCEL) is a shared endeavor among the Office of the Provost, the Division of Student Affairs, and MSU Extension, designed to create partnerships between the campus and the community to promote community-engaged learning. CCEL staff work with MSU faculty, staff, and students as well as members of MSU Extension including county coordinators, area agents, and research specialists.

The mission of CCEL is to provide opportunities for research, learning, and service for members of the MSU, local, statewide, and international

communities. Community-engaged learning students collaborate with community partners to serve Mississippi, the region, and individuals from across the globe. These efforts enhance academic learning through hands-on experience. More information on CCEL and community-engaged learning at MSU can be found by at [www.ccel.msstate.edu](http://www.ccel.msstate.edu) (<http://www.servicelearning.msstate.edu>) (<http://www.ccel.msstate.edu>).

## CEL Designation

The CEL designation identifies academic courses that will incorporate community-engaged learning. A Community-Engaged Learning Advisory Committee (CELAC) reviews and approves community-engaged learning courses to determine which will be given the CEL designation. Students can find the CEL designation on the class schedule as they register for academic coursework. A comment will be noted on student transcripts indicating that the student participated in a community-engaged learning course.

## National Student Exchange

The National Student Exchange program is a consortium of nearly 200 colleges and universities in the United States and extends beyond the borders of the United States to include some Canadian Provinces. Mississippi State University is a member of this program.

The NSE program provides the opportunity for the eligible student to attend a college or university in another state for up to one calendar year without having to pay for the high cost of out-of-state tuition. Students register, pay tuition and fees at Mississippi State University as they usually do; they do not pay tuition and fees at the host campus, but are responsible for room and board.

Mississippi State University students who participate in the National Student Exchange program remain as degree-seeking, registered students at Mississippi State University. Any financial aid that is normally available can be applied to the exchange obligations. Because NSE is an officially approved program of the university, all courses with their respective credit hours and earned grades will be recorded on the Mississippi State University transcript and will be calculated in the GPA.

For information, contact the NSE Coordinator in the Office of the Provost and Executive Vice President, 3500 Lee Hall or (662) 325-3742 or visit [www.nse.org](http://www.nse.org) (<http://www.nse.org>).

## Study Abroad

The Office of Study Abroad (OSA) currently offers over 1,000 study abroad programs in over 80 countries. Undergraduate and graduate students can earn credit toward their MSU degree through these study abroad programs. Study abroad can be designed to meet any academic major's or minor's requirements. Knowledge of a foreign language is not required. Costs of the different programs vary depending on location and duration. Financial aid and scholarships are available.

## Faculty-Led Study Abroad Programs

Many MSU faculty and staff from all colleges plan and implement their own study abroad programs and students receive MSU credit. These programs are held during summer, winter, and spring break, and are comprised of mostly MSU students. Faculty-led programs change

annually, and updated lists are provided about six months prior to each start date.

## Tuition Exchange Programs

Students who choose to study for a semester or academic year in another country can participate in a semester exchange program where the students register and pay tuition at MSU, but study at a partner university. MSU currently has more than 20 student exchange programs that are open for students in various majors. MSU is also part of the Global Engineering Education Exchange specifically designed for engineering students. Students receive transfer credit for all exchange courses.

## Provider Companies

MSU has agreements with several study abroad provider companies in order to offer a wide variety of short- and long-term study abroad experiences. Students receive transfer credit for all affiliated provider company programs.

For a complete listing of all study abroad opportunities, or for more information, contact the Office of Study Abroad, at [studyabroad@msstate.edu](mailto:studyabroad@msstate.edu), (662) 325-8929, [www.studyabroad.msstate.edu](http://www.studyabroad.msstate.edu) (<http://www.studyabroad.msstate.edu>), or follow us on Instagram @msstatedstudyabroad.

(Related AOP 11.06: <https://www.policies.msstate.edu/policy/1106> (<https://www.policies.msstate.edu/policy/1106/>))

## Scholarships

AOP: <https://www.policies.msstate.edu/policy/1239> (<https://www.policies.msstate.edu/policy/1239/>)

Mississippi State University is committed to the recognition of outstanding students whose academic credentials confirm their potential for success as university students. Outstanding students may be eligible for various scholarships and honors.

Numerous privately funded scholarships support the University Scholarship Program to recognize continued academic success. Information regarding eligibility criteria and the online resume may be obtained from the Office of Admissions and Scholarships at [www.admissions.msstate.edu/scholarships](http://www.admissions.msstate.edu/scholarships) (<http://www.admissions.msstate.edu/scholarships/>) or (662) 325-3076. In addition to general university scholarships, most colleges and departments also have numerous scholarships available to qualified students. Colleges and departments can provide detailed information.

## The Office of Prestigious External Scholarships

The Office of Prestigious External Scholarships identifies and assists well-qualified undergraduate students who would be strong candidates for national and international awards such as the Rhodes Scholarship, the Goldwater Scholarship, the Marshall Scholarship, the Truman Scholarship, the Astronaut Scholarship, and the Fulbright U.S. Student Program.

Prospective applicants are encouraged to investigate the Web sites of the major scholarship programs. For information on the opportunities, contact:

Dr. David M. Hoffman

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P.O. Box EH  
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Mississippi State, MS 39762  
E-mail: [dmh272@msstate.edu](mailto:dmh272@msstate.edu)  
Web: <https://www.honors.msstate.edu/prestigious-external-scholarships/>  
(662) 325-8475

# Academic Policies

Various policies of the University are grouped by category in the list to the right.

## Degrees, Degree Requirements, and Scheduling

### Student Responsibility Disclaimer

Each student is responsible for understanding and completing all requirements established for his or her degree by the University, college and department. A student's advisor or counselor may not assume that responsibility. Any substitution, waiver, or exemption from established degree requirements may be accomplished only with the approval of the student's dean. Exceptions to University requirements, including the General Education requirements, will be authorized only with the approval of the student's dean and the Office of Academic Affairs.

## Degrees, Degree Requirements, and Scheduling

AOP: <https://www.policies.msstate.edu/policy/1208> (<https://www.policies.msstate.edu/policy/1208/>)

### 1. Baccalaureate Degrees.

MSU awards the following baccalaureate degrees: Bachelor of Arts (B.A.), Bachelor of Applied Science (B.A.S.), Bachelor of Business Administration (B.B.A.), Bachelor of Fine Arts (B.F.A.), Bachelor of Science (B.S.), Bachelor of Landscape Architecture (B.L.A.), Bachelor of Music Education (B.M.E.), Bachelor of Music (B.M.), Bachelor of Architecture (B.ARC.), Bachelor of Accountancy (BACC), Bachelor of Social Work (B.S.W.), and Bachelor of University Studies (B.U.S.). Baccalaureate degrees are awarded in the following manner: Multiple programs awarded under the same degree within the same college, at the same time, are awarded as a single degree dual (multiple) major. For example, a student majoring in Sociology and Psychology awarded a Bachelor of Arts degree at the same time will be awarded a single degree (single diploma). The separate majors will be annotated on the official transcript. Degrees awarded by two or more colleges or at different times are considered separate degrees (separate diplomas). (Master's, Specialist, and Doctor's degrees are listed under Office of the Graduate School in this catalog, and in the Graduate Bulletin.)

### 2. University-Wide Requirements.

To complete a baccalaureate degree, a student must (1) satisfactorily complete the degree curriculum requirements, (2) make an overall C average (2.00 GPA) on all hours scheduled and rescheduled at all institutions attended, including Mississippi State University, (3) make a C average (2.00 GPA) on all hours scheduled and rescheduled at Mississippi State University, (4) complete from Mississippi State University no less than 25 percent of his/her degree program in junior and senior subjects (courses numbered 3000 through 5000) approved by the dean of the college or school in which he or she is enrolled, and (5) complete at least the last 25 percent of semester credit hours of course work taken to fulfill degree requirements from Mississippi State University. (Any exception to the 25 percent requirement must be approved in writing by the student's dean prior to taking course work at another institution.) Any course in the student's degree program that

carries academic credit from Mississippi State University will fulfill these requirements. Hours earned at an approved exchange institution will count toward the 25 percent requirement. (6) Not more than 25 percent of any curriculum may be earned by Advanced Placement (AP) course, advanced standing examinations, College-Level Examination Program (CLEP), International Baccalaureate (IB), Cambridge International, evaluated military service credits, tutorial, and extension courses. Evaluated military training courses granted academic credit are classified as MSU (institutional) academic pass/fail credit with a grade of S and annotated as "ACE Guide Military Credit." Military training courses include all branches of the United States Armed Services, except the United States Air Force. The Air Force provides a Community College of the Air Force transcript and credit is entered as transfer courses. (7) Not more than 20 percent of any curriculum may be earned through correspondence courses. Correspondence courses must be approved by the dean before being taken by students in residence. USAFI credits are classified as correspondence work. (8) No more than 12 hours of Directed Individual Study (DIS) may be used to complete degree requirements. The creation of DIS courses must be approved in advance by the department head. (9) Prior job/ work experience alone can not count as academic credit at MSU.

### a. Board of Trustees Core Curriculum.

In order to be awarded a baccalaureate degree, all students who enter Mississippi State University must complete a core curriculum approved by the Board of Trustees, Institutions of Higher Learning of the State of Mississippi. This core curriculum consists of the following:

English Composition	6
College Algebra, Quantitative Reasoning, or higher level mathematics	3
Natural Science	6
Humanities and Fine Arts	9
Social or Behavioral Sciences	6
<b>Total Hours</b>	<b>30</b>

(Note: These requirements are included in the General Education Curriculum which follows.)

### b. General Education Requirements.

All students graduating from Mississippi State University must earn a minimum of 30 semester hours of credit (or equivalency) in courses making up the General Education Curriculum. (Specific courses to satisfy the General Education Curriculum will vary by academic major.)

Students may obtain a list from their advisor or Dean's office of approved courses SELECTED from the following to meet individual degree requirements.

English Composition <sup>1</sup>	6
Quantitative Reasoning <sup>2</sup>	3
Natural Sciences <sup>3</sup>	6-9
Humanities/Fine Art <sup>4</sup>	9
Social/Behavioral Sciences <sup>5</sup>	6
<b>Total Hours</b>	<b>30-33</b>

<sup>1</sup> Refer to General Education Requirements—Numbers and Course Titles for approved choices.

- <sup>2</sup> Quantitative Reasoning: 3 semester hours. Consult an advisor in your major for approved choices.
- <sup>3</sup> Natural Sciences: 6-9 semester hours. Consult an advisor in your major for approved choices.
- <sup>4</sup> Six hours must be humanities and three hours must be fine art. Refer to General Education Requirements—Numbers and Course Titles for approved choices.
- <sup>5</sup> Refer to General Education Requirements—Numbers and Course Titles for approved choices.

## General Education Requirements

### General Education Requirements - Numbers and Course Titles

NOTE: Students must check course descriptions of General Education classes for prerequisites and/or grade requirements.

NOTE: Honors sections may be available in selected courses.

#### English Composition - Freshman level (6 hours)

EN 1103	English Composition I	3
or EN 1104	Expanded English Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

Students with **ACT English sub-scores of 28 or higher** may enroll in EN 1173 Accelerated Composition II. Those students earning a C or higher in EN 1173 will **also receive an “S” (credit) in EN 1103 English Composition I**. Those students who earn less than a C in EN 1173 must complete the EN 1103/EN 1113 sequence.

Similarly, those students who have been admitted to the **Shackouls Honors College** and have an **ACT-E sub-score of 32** or higher may enroll in Honors EN 1113H, **Honors Composition II**. After earning a C or higher in Honors EN 1113H, these students will receive an “S” (credit) in EN 1103 English Composition I. Those students who earn less than a C in Honors EN 1113H must complete the EN 1103/EN 1113 sequence.

#### Quantitative Reasoning (3 hours)

MA 1213	Math in Your World	3
MA 1323	Trigonometry (fulfills second mathematics only with credit for college algebra)	3
MA 1413	Structure of the Real Number System (Designed primarily for special and elementary education majors.)	3
MA 1453	Precalculus	3
MA 1613	Calculus for Business and Life Sciences I	3
MA 1713	Calculus I	3
MA 1723	Calculus II	3
MA 2733	Calculus III	3
MA 2743	Calculus IV	3
MA 2113	Introduction to Statistics	3
MA 3123	Introduction to Statistical Inference	3
ST 2113	Introduction to Statistics	3
ST 3123	Introduction to Statistical Inference	3
BQA 2113	Business Statistical Methods I	3

### Natural Sciences (6-9 hours)

Students must complete two lab-based science courses. Check course descriptions to determine whether or not a course has a lab component.

AN 1344	Biological Anthropology: The Making of Us <sup>1</sup>	4
ARC 2713	Environmental Building Systems I (no lab)	3
BIO 1004	Anatomy and Physiology <sup>1</sup>	4
BIO 1023	Plants and Humans <sup>1</sup>	3
BIO 1123	Animal Biology <sup>1</sup>	3
BIO 1134	Biology I <sup>1</sup>	4
BIO 1144	Biology II <sup>1</sup>	4
BIO 2113	Plant Biology <sup>1</sup>	3
BIO 3103	Genetics I <sup>1</sup>	3
BIO 3304	General Microbiology <sup>1</sup>	4
CH 1043	Survey of Chemistry I	3
CH 1053	Survey of Chemistry II	3
CH 1051	Experimental Chemistry (Stand-alone Lab)	1
CH 1213	Chemistry I	3
CH 1211	Investigations in Chemistry I (Stand-alone Lab)	1
CH 1223	Chemistry II	3
CH 1221	Investigations in Chemistry II (Stand-alone Lab)	1
ENS 2101	Introduction to Environmental Science Laboratory <sup>1</sup>	1
ENS 2103	Introduction to Environmental Science <sup>1</sup>	3
EPP 2213	Introduction to Insects	3
FNH 2293	Individual and Family Nutrition (no lab)	3
GG 1111	Earth Sciences I Laboratory	1
GG 1113	Survey of Earth Sciences I	3
GG 1121	Earth Sciences II Laboratory	1
GG 1123	Survey of Earth Sciences II	3
GNS 3103	Genetics I <sup>1</sup>	3
GR 1114		4
GR 1604		
HON 3163	Honors Seminar in Natural Sciences (no lab)	3
HS 2293	Individual and Family Nutrition (no lab)	3
PH 1013	Physical Science Survey I	3
PH 1011	Physical Science Laboratory I	1
PH 1023	Physical Science Survey 2	3
PH 1021	Physical Science Laboratory 2	1
PH 1063	Descriptive Astronomy (no lab)	3
PH 1113	General Physics I	3
PH 1123	General Physics II	3
PH 1133	General Physics III	3
PH 2213	Physics I (no lab)	3
PH 2223	Physics II	3
PH 2233	Physics III	3
PO 3103	Genetics I <sup>1</sup>	3
PSS 1313	Plant Science <sup>1</sup>	3



PSS 3301	Soils Laboratory	1
PSS 3303	Soils	3

<sup>1</sup> all courses are considered Natural Sciences; the footnote indicates those that are classified as Life Sciences; all other courses are classified as Physical Sciences

### Humanities (at least 6 hours)

AAS 1063	Introduction to African American Studies	3
AAS 2363	Introduction to African American Literature	3
AAS 3013	African American History to 1865	3
AAS 3023	African American History since 1865	3
ARC 2313	History of Architecture I	3
ARC 3313	History of Architecture II	3
ARC 3323	History of Architecture III	3
BCS 2013	Construction and Culture	3
EN 2203	Introduction to Literature	3
EN 2213	English Literature Before 1800	3
EN 2223	English Literature After 1800	3
EN 2243	American Literature Before 1865	3
EN 2253	American Literature After 1865	3
EN 2273	World Literature Before 1600	3
EN 2283	World Literature After 1600	3
FL 1113	Language I <sup>1</sup>	3
FL 1123	Language II <sup>1</sup>	3
FL 2133	Language III <sup>1</sup>	3
FL 2143	Language IV <sup>1</sup>	3
HI 1003	History of Science in Six Ideas	3
HI 1013	History of Technology in Six Objects	3
HI 1063	Early U.S. History	3
HI 1073	Modern U.S. History	3
HI 1163	World History Before 1500	3
HI 1173	World History Since 1500	3
HI 1213	Early Western World	3
HI 1223	Modern Western World	3
HI 1313	East Asian Civilizations to 1300	3
HI 1323	East Asian Civilizations since 1300	3
HI 4683	Europe: The First World War to Hitler	3
HON 1163	The Quest Begins	3
HON 3183	Honors Seminar in the Humanities	3
PHI 1103	Introduction to Philosophy	3
PHI 1113	Introduction to Logic	3
PHI 1123	Introduction to Ethics	3
PHI 3023	History of Western Philosophy I	3
PHI 3033	History of Western Philosophy II	3
PHI 3153	Aesthetics	3
REL 1103	Introduction to Religion	3
REL 3213	World Religions I	3
REL 3223	World Religions II	3

<sup>1</sup> Chinese, French, German, Greek, Italian, Japanese, Latin, Russian, and Spanish

### Fine Arts (3 hours)

AAS 1103	African American Music	3
ARC 1013	Architectural Appreciation	3
ART 1013	Art History I	3
ART 1023	Art History II	3
ART 1113	Art Appreciation	3
ART 2063	Global Contemporary Art	3
ART 2413	History and Appreciation of the Arts	3
CO 1503	Introduction to the Theatre	3
HON 3173	Honors Seminar in Fine Arts	3
ID 3643	History of Interiors I	3
LA 1803	Landscape Architecture Appreciation	3
MU 1103	African American Music	3
MU 1113	History and Appreciation of Music	3
MU 1123	History and Appreciation of American Music	3
MU 1133	The History of Rock and Roll	3
MU 1143	The History of Jazz	3
MU 1163	Introduction to Music in Film	3
MU 1173	Music of the Beatles	3
MU 2173	Women in Music	3
MU 3013	Survey of Western Music History I	3
PE 1323	History and Appreciation of Dance	3
PSS 2343	Floral Design	3

### Social/Behavioral Sciences (6 hours)

ADS 1013	Animal Agriculture & Society: Food for Thought	3
AEC 2713	Introduction to Food and Resource Economics	3
AN 1103	Introduction to Anthropology	3
AN 1143	Introduction to Cultural Anthropology	3
AN 1543	Discovering Archaeology: Past Meets Present	3
AN 2403	Introduction to the Study of Language	3
CO 1223	Introduction to Communication Theory	3
CO 1403	Introduction to the Mass Media	3
DSCI 2013	Data Science Literacy	3
EC 1033	Economics of Social Issues	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
EN 2403	Introduction to the Study of Language	3
EPY 2513	Human Growth and Development	3
EPY 3503	Principles of Educational Psychology	3
EPY 3543	Psychology of Adolescence	3
FO 4113	Forest Resource Economics	3
GR 1123	Introduction to World Geography	3
GR 2013	Human Geography	3
HON 1173	The West and the Wider World	3
HON 3143	Honors Seminar in Social Science	3
HDFS 1813	Individual and Family Development through the Lifespan	3

PO 1013	Animal Agriculture & Society: Food for Thought	3
PS 1113	American Government	3
PS 1313	Introduction to International Relations	3
PS 1513	Comparative Government	3
PSY 1013	General Psychology	3
PSY 3073	Psychology of Interpersonal Relations	3
SO 1003	Introduction to Sociology	3
SO 1103	Contemporary Social Problems	3
SO 1203	Sociology of Families	3

### 3. General Education Learning Outcomes

Upon completion of the General Education core, students will be able to:

- develop and express their ideas in writing for given audiences in a particular rhetorical situation.
- interpret artistic expression and engage with a creative process.
- examine the human condition in different cultures throughout history.
- reason and solve quantitative problems from a wide array of authentic contexts and everyday life situations.
- apply the scientific method and theories to empirical evidence to support scientific models of the universe.
- engage in scientific inquiry of human behavior in the context of value systems, institutions, economic structures, social groups, and/or environments.
- evaluate issues, ideas, artifacts, and events through cross-disciplinary exploration before formulating an opinion or conclusion.
- prepare and deliver purposeful presentations for given audiences in a particular rhetorical situation.
- work cooperatively with others toward a common purpose through shared responsibility and mutual accountability.

### 4. General Education Curriculum Assessment.

All general education courses are assessed using signature assignments and task rubrics to determine students ability to meet the learning outcomes and domain competencies.

### 5. Catalog Terms

Students must meet the graduation requirements stated in the MSU catalog under which they first enrolled or the graduation requirements in a subsequent catalog with approval, providing they graduate within seven years. If a student interrupts his/her enrollment at Mississippi State University for two consecutive years or longer, the graduation requirements stated in the catalog under which the student resumes enrollment apply. Students changing majors or programs must meet the requirements listed in the catalog that is current at the time they make such changes. Students may request fulfilling the requirements outlined in a subsequent catalog after their first enrollment. If this option is selected, then all college and major requirements in the later catalog must be met. The student must complete an approval form to switch to a more current catalog, obtain signatory approval of his/her advisor, and submit it to the office of the appropriate dean for notification of the change. In cases where course work is outdated or requirements have changed, reasonable substitutions may be required.

### 6. Other Degree Requirements.

College and school announcements specify additional requirements, including professional communication skills (oral, written, and computer), for the bachelor's degree in the various departments and programs.

### 7. Second Baccalaureate Degree Requirements.

Students should be advised that when completing a second degree, it will be simpler and easier to complete it concurrently with the first degree. A second degree completed after the awarding of the first degree will require additional hours, probably many more than completing the two degrees concurrently.

If you seek a second degree after the completing of the first degree, requirements for the second degree must be certified by the appropriate dean as having met and must include General Education requirements and 30 hours in courses numbered 3000 or above, in residence beyond requirements for the first. Students and advisors should check with the Registrar's Office before making a decision about a second degree.

### 8. Advisement and Registration.

Every student in the University is provided with an academic advisor. A student who has selected a specific major will find the name of the major advisor for that major listed under the name of the department or the major subject in the appropriate college or school section of this catalog. A student who is uncertain of his or her choice of major may register as Undeclared.

Before registering for any semester, each student is responsible for consulting his or her advisor to work out and secure approval for a specific schedule of courses. With the signed schedule, the student then enters his/her schedule in the computer by using the myState System, resolves conflicts, and the student is officially enrolled in each class on the perfected schedule.

A period for schedule planning and registration for the following semester is provided near the end of each regular term; registration for the summer school terms may also be accomplished in the spring registration period. Prospective new students may be advised and registered during Summer Orientation. Late registration is conducted immediately prior to the beginning of classes.

A student who for any reason has been unable to register during these scheduled registration periods may still do so up to the last day for registration and adding courses as listed in the Academic Calendar on the Web but may find the choices of courses and sections limited.

(AOP 12.38: <https://www.policies.msstate.edu/policy/1238> (<https://www.policies.msstate.edu/policy/1238/>))

### 9. Readmission.

Undergraduate students who have previously attended Mississippi State University and who wish to re-enter must apply for readmission online or in the Registrar's Office and contact his/her advisor to be advised and released for registration. Former students who have attended another college for at least one quarter or semester must be eligible to re-enter that institution, if they desire to return to Mississippi State University. Students who have attended another institution are required to provide the Registrar's Office official transcripts from all other institutions attended prior to receiving a registration permit.

All readmission students must meet the academic standing guidelines outlined in the Academic Standing section of the Bulletin. If their GPA is less than the required average, they may be readmitted only on the recommendation of their dean and with the approval of the Provost.

Students readmitted with an MSU or cumulative average less than 2.0 will be readmitted on academic probation.

(AOP 12.15: <https://www.policies.msstate.edu/policy/1215> (<https://www.policies.msstate.edu/policy/1215/>))

## 10. Student Course Load.

The normal load for an undergraduate student in a regular semester is 15-19 credit hours. Course load limits at Mississippi State University are noted below. (AOP 12.22 (<https://www.policies.msstate.edu/policy/1222/>))

1. A student on academic probation (AOP 12.15 (<https://www.policies.msstate.edu/policy/1215/>)-Academic Probation for Undergraduate Students) should be limited by his or her academic advisor to an enrollment of 16 credit hours (including ensemble and academic support/developmental classes.)
2. Students in good academic standing can take a total of up to 19 credit hours per semester without special permission. Requests to take 20 or 21 credit hours total must be approved at the level of Advisor, Department, and Dean. Requests to take 22 or more credit hours total must be approved at the levels of Advisor, Department, Dean, and Provost.
3. A student in a five week summer session may take one course in addition to the normal maximum load (two courses) if his or her cumulative MSU Grade Point Average is between 3.0 and 4.0 and if he or she secures approval at the levels of Advisor, Department, and Dean.
4. An entering freshman student with low ACT scores or sub-scores is required to take appropriate developmental and/or learning skills courses and should schedule them within the first two semesters of enrollment, and should be limited by his or her academic advisor to an enrollment of 16 credit hours (including ensemble and academic support/developmental classes.)
5. Any exceptions to points 1, 2, 3, and 4 above or special circumstances not covered by points 1, 2, 3, and 4 above would require approval at the levels of Advisor, Department, Dean, and Provost.

Independent study or extension courses will be included in determining the maximum number of hours a student may take on campus, if registration therein overlaps any period of regular enrollment at the University. Such credits earned by either independent study or extension, in excess of the loads specified above must be approved by the student's dean; these hours will count in certifying a student's full time or part time enrollment status for financial aid or other purposes.

For purposes of reporting a student as full-time to the Board of Trustees, Veterans Administration, Social Security or other similar agencies, an undergraduate student must be enrolled in at least twelve (12) semester hours and a graduate student must be enrolled in at least nine (9) or more semester hours at the time the report or certification is submitted. This applies to fall and spring semesters only.

- a. A student's enrollment status is classified according to the following chart:

### Regular Fall-Spring Semester

Status	Undergraduate	Graduate
Full-time	12 + sem. hrs.	9 + sem. hrs.
Half-time	6 to 11 sem. hrs.	5 to 8 sem. hrs.
Less than Half-time	less than 6 sem. hrs.	less than 5 sem.hrs.
"Regular" Load	15-19 sem. hrs.	12-15 sem. hrs.

### b. Summer School term

Status	Undergraduate	Graduate
Full-time	6 + sem. hrs.	6 + sem. hrs.
Half-time	3 to 5 sem. hrs.	3 to 5 sem. hrs.
Less than Half-time	less than 3 sem.hrs.	less than 3 sem.hrs.
"Regular" Load	6 sem. hrs.	6 sem. hrs.

- c. Concurrent enrollment in independent study, off-campus centers and other institutions will be considered as part of a student's load, and must be approved by his or her dean before it may apply toward meeting degree requirements. All MSU course hours will count in certifying a student's full time or part time enrollment status for financial aid or other purposes.

## 11. College/School/Campus Changes.

A student changing from one college, school or campus to another must complete all arrangements for the transfer prior to beginning the new course of study. Before making the change, the student must initiate a change form in the college or school in which the student is currently, or was last, enrolled. Transfer to a new college, school or campus is subject to approval by the new dean.

## 12. Schedule Changes - Fall and Spring Semesters.

A student has through the fifth class day into the semester to drop a course and through the sixth class day to add a course without being assessed a fee or academic penalty. From the fifth class day through the 30th class day, a student who elects to drop a course must receive the approval of his/her advisor, will be assigned a "W" on his/her academic record, and be assessed a fee. After the 30th class day, a student cannot drop courses except in documented cases of serious illness, extreme hardship, or failure of the instructor to provide significant assessment of his/her performance. A request to drop a course after the 30th class period must be approved by the student's advisor and academic dean. A student receiving permission to drop will receive a "W" on his/her academic record and be assessed a fee after the last day to drop a course.

(See AOP 12.01 (<https://www.policies.msstate.edu/policy/1201/>))

### Summer Terms.

A student has through the first class day into a 5-week summer term and through the second class day into a 10-week summer term to drop a course without being assessed a fee or an academic penalty. A student may not add a course after the second class day into a 5-week summer session or after the third class day into a 10-week summer session. After the first class day through the 14th class day in a 5-week summer term and the second class day through the 28th class day in a 10-week summer term, a student who elects to drop a course must receive the approval of his/her advisor, will be assigned a "W" on his/her academic record, and be assessed a fee. After the 14th class day into a 5-week summer term and after the 28th class day into a 10-week summer term, a student cannot drop a course except in documented cases of serious

illness, extreme hardship, or failure of the instructor to provide significant assessment of his/her performance. A request to drop a course during this period must be approved by the student's advisor and academic dean. A student receiving permission to drop will receive a "W" on his/her academic record and be assessed a fee.

### **Shortened Format Classes (Intercessions).**

A student has through the first class day to drop a course and through the second class day to add a course without being assessed a fee or an academic penalty. Note: A student may NOT drop his/her last or only remaining class in a semester or part of term. A student who wishes to drop the last class and add a different class or section must complete an add/drop slip. The Registrar's Office must process this change. To drop a course after the first day through the fifth class day of a term with 10-15 class days, a student must receive approval from his advisor, will be assigned a "W" on the academic record, and will be assessed a fee. For a term with 16-24 class days, students may drop through the ninth day but must receive approval from his advisor and will be assigned a "W" on the academic record and be assessed a fee. After this period, a student cannot drop a course except in documented cases of serious illness, extreme hardship, or failure of the instructor to provide significant assessment of his/her performance. A request to drop a course after this period must be approved by the student's advisor and academic dean. A student receiving permission to drop will receive a "W" on his/her academic record and be assessed a fee after the last day to drop a course.

### **Undergraduate/Graduate Policy.**

Regardless of these and/or other University policies, a student's dean may remove a course (or courses) from a student's schedule at any time during a period of enrollment in case of special circumstances such as accident, illness or scheduling errors. Requests for such changes should be directed to the student's dean. A student will not be permitted to drop a course after the 30th day of classes because of a heavy course load, a change of major, or the likelihood of poor grades. All requests must be documented in writing.

### **13. Auditing.**

Upon recommendation from the relevant course instructor and subject to approval by the appropriate dean and Registrar, a student may enroll to audit a course. The approval to audit must occur prior to the official enrollment count day (10th class day for spring and fall semesters; third class day for summer school sessions). A student may not change from credit to audit or audit to credit status after the official enrollment count day. An audited course counts as part of a student's regular load. Students auditing a class are not required to take tests and/or examinations or to prepare other written assignments. Otherwise, conformity to regular classroom rules including attendance requirements is the same as for students taking the course for credit. At the time the request for audit is approved, the professor will inform the student auditing the class of attendance expectations. Failure to meet any or all of these requirements may result in an auditor being administratively dropped from the class roll. No audited course may be counted as part of the required hours of any degree or program requirement. (See AOP 11.11 (<https://www.policies.msstate.edu/policy/1111/>))

### **14. Pass-Fail Option.**

An undergraduate student who has successfully passed fifteen (15) semester hours may elect, with the approval of his or her academic dean, to schedule courses under the pass-fail option. This program is open to undergraduate students only and is limited to a maximum of four

(4) courses, no more than two (2) of which may have the same course symbol.

A student may register under the pass-fail option for only one course per semester and must meet the prerequisites for the course or have permission of the instructor teaching it. A change from pass-fail enrollment to enrollment for a regular grade, or vice-versa, must be made by the deadline date for adding courses published in the University calendar.

Courses taken to satisfy General Education requirements may not be scheduled under the pass-fail option, nor may courses that are specified by course title in the curriculum in which a student is currently enrolled. In the event that a student changes majors, credit for any courses passed and required in the new major may be allowed with the approval of the student's dean. The instructor shall be informed which students are enrolled in his or her course under the pass-fail option, and he or she shall report a regular grade at the time progress grades are submitted and either S for satisfactory or U for unsatisfactory at the end of a term or semester. A grade of A, B, or C will be considered as satisfactory and a grade of I (incomplete) will be allowed. Other than a grade of I, only a grade of S, U, or W will be recorded on a student's permanent record.

The number of hours passed will be applied toward the hours required for graduation; however, neither a passing nor a failing grade will be considered in the computation of the grade point average.

### **15. Assessment.**

Students may be required to undergo testing for the purpose of assessing institutional effectiveness.

### **16. ROTC Course Credit Toward Academic Degrees.**

All ROTC courses are bona fide University courses. The total number of ROTC hours allowed as elective credit toward a specific degree varies. Most schools and colleges at the University accept six (6) or more hours of ROTC courses offered toward degrees conferred. A student should contact the appropriate college, school, or department to determine allowable ROTC course credit toward a particular degree.

### **17. Military Credit.**

Mississippi State University offers credit for training and experience in the Armed Services for currently enrolled undergraduate students.

#### **Joint Services Transcript for Army, Navy, Marines and Coast Guard**

All veterans and service-members of the Army, Navy, Marines and Coast Guard who are Active Duty, National Guard or Reserve can order an official transcript through the Joint Services Transcript online system at the following link: <https://jst.doded.mil/smart/welcome.do>. Official Transcripts should be mailed to: University Registrar's Office, P.O. Box 5268, Mississippi State, MS 39762. The student's dean will determine applicable credit toward a degree.

#### **Community College of the Air Force (CCAF) for Air Force**

All veterans and service-members of the Air Force who are Active Duty, National Guard or Reserve can order an official transcript through the Community College of the Air Force (CCAF) online system at the following link: <http://www.airuniversity.af.mil/Barnes/CCAF/Transcripts.aspx>. CCAF transcripts are mailed directly to the Office of Admissions, P.O. Box 6305, Mississippi State, MS 39762.

## Academic Records

Information on various University policies, including access to and confidentiality of student records, can be found in the links to the right.

## Confidentiality and Disposal of Student Records

The University recognizes that the maintenance of student information and educational records is necessary and vital to assist the student's education and development and to provide opportunities for University research and policy formulation. The University recognizes its obligation to exercise discretion in recording and disseminating information about students to insure that their rights of privacy are maintained.

The University will furnish annual notification to students of their right to inspect and review their educational records/the right to request amendment of educational records considered by them to be inaccurate or misleading or that violate privacy or other rights; and of their right to a hearing should the University decline to amend such records. The annual notice will be published in the University's bulletin. The University utilizes The Guide for Retention and Disposal of Records as published by the American Association of Collegiate Registrars and Admissions Officers as the policy for disposal of student records.

The following guidelines have been developed to insure the privacy rights of students. For the purposes of the policy statement a student is defined as an individual who has been admitted and has been in attendance in a component unit of the University. Classification as a student in one component unit of the University (e.g., an undergraduate program) does not infer that the person has been accorded the rights outlined below in other component units (i.e. graduate studies, professional schools, and branch campus).

(See AOP 30.02 (<https://www.policies.msstate.edu/policy/3002/>))

## Student Access to Records

Students have the right to be provided a list of the type of educational records maintained by the University which are directly related to the student; the right to inspect and review the contents of these records; the right to a response from the University to reasonable requests for explanation and interpretation of these records; the right to an opportunity for a hearing to challenge the content of these records; and if any material or document in the educational record of a student includes information on more than one student, the right to inspect and review only the part of such material or document as relates to the student.

Students do not have access to: financial records of their parents; confidential letters and statements of recommendation which were placed in the educational record prior to January 1, 1975, provided such letters or statements were solicited or designated as confidential and are not used for purposes other than those for which they were specifically intended; confidential recommendations, if the student signed a waiver of the right of access, respecting admission, application for employment, and the receipt of an honor or honorary recognition. See 20 U.S.C. §1232g.

Students do not have access to: instructional, supervisory, and administrative personnel records which are not accessible or revealed to any other individual except a substitute; Campus Security records which are maintained apart from educational records, which are used

solely for law enforcement purposes, and which are not disclosed to individuals other than law enforcement officials of the same jurisdiction; and employment records except when such employment requires that the person be a student.

Students do not have access to physical or mental health records created by a physician, psychiatrist, psychologist or other recognized professional acting in his or her capacity or to records created in connection with the treatment of the student under these conditions which are not disclosed to anyone other than individuals providing treatment. These records may be reviewed by a physician or appropriate professional of the student's choice. See 20 U.S.C. § 1232g.

(See AOP 30.02 (<https://www.policies.msstate.edu/policy/3002/>))

## Procedures for Access

Students should contact the appropriate office to inspect and review their records. An office may require that a University official be present when a student inspects and reviews his educational records. Any questions concerning a student's access to records should be directed to the Registrar.

(See AOP 30.02 (<https://www.policies.msstate.edu/policy/3002/>))

## Release of Directory Information

The release of student directory information is governed by the University's Education Records Policy (OP 30.02 (<https://www.policies.msstate.edu/policy/3002/>)). Directory information may be released by the University without the student's written consent. Directory information consists of the following items: name; addresses; telephone numbers; email address; NetID; photograph; classification or grade level (freshman, sophomore, graduate student, etc.); fields (programs) of study (includes majors, minors, certificates, degrees); dates of attendance; full- or part-time status; degrees, awards and honors, and dates awarded; and most recent previous institutions attended. Participation in recognized activities and sports, weight and height of members of athletic teams, and other similar information is considered directory information. Student directory information may be made available to non-university organizations upon request.

A student may deny the release of directory information by requesting that the information not be released. A student may restrict the directory information displayed in the electronic student directories on-line via Student Information System on the address update link. This change will be reflected in the on-line directory immediately. A student may request in writing that the Registrar restrict his/her student record so that no information may be released. The student's record will be "flagged" and no information will be released concerning this student to include honors or graduation lists or publications. A student may remove this restriction by notifying the Registrar in writing or by changing their election via Student Information System.

To deny the release of participation in recognized activities, the student must notify the Provost and the Dean of Students in writing. To deny the release of athletic information the student must notify the Director of Athletics in writing. The restrictions a student places on his/her record while a student will remain in place indefinitely. A former student, one who is not in attendance, must contact the appropriate offices above to deny the release of directory information.

## Release of Educational Records

The University will release a student's educational record(s) upon the student's written request. The student must:

- a. 1. Specify the records to be disclosed.
- b. 2. Include the purpose or purposes of the disclosure.
- c. 3. State the party or parties and the address to whom the information is to be disclosed.

The student shall, upon request, receive a copy of the record that is to be disclosed. It is University policy to furnish single copies of a student's record at no charge except for the standard transcript fee, if applicable.

The University may release students' educational records to the following without prior written consent:

1. University officials who have a legitimate educational interest in the records. University officials are defined as teachers, administrative personnel and other employees except personnel of the security or law enforcement unit of Mississippi State University who in the performance of their normal duties require access to student records. If University officials are required in the performance of their duties to review the educational records of a student, this will be considered to be a legitimate educational interest.
2. Officials of another school in which the student seeks or intends to enroll upon request of the transfer school.
3. Government representatives of the Comptroller General of the United States, the Secretary of Education, the U.S. Commissioner of Education, the Director of the National Institute of Education, the Assistant Secretary for Education, State educational authorities, and State officials to whom such information is specifically required to be reported or disclosed by State law adopted prior to November 19, 1974.
4. Appropriate authorities in connection with financial aid with the understanding that only the necessary records will be released.
5. To organizations conducting studies for, or on behalf of, the University or its agencies for the purpose of developing, validating, or administering predictive tests, administering student aid programs, and improving instruction and student life provided that the studies will not permit the personal identification of students and their parents by individuals other than representatives of the organization and provided that the personally identifiable information furnished will be destroyed when no longer needed for the purposes for which the study was conducted.
6. To accrediting organizations to carry out their accrediting functions.
7. To parents of a dependent student as defined in section 152 of the Internal Revenue code of 1986. University officials may release educational records to parents on the basis of written certification from the parent that the student is a dependent as defined under the Code.
8. To comply with a judicial order or lawfully issued subpoena with the understanding that the student will be notified in advance insofar as possible.
9. To appropriate parties to protect the health and safety of the student or other individuals in emergencies with the understanding that only information essential to the emergency situation will be released, that information will only be released to a party who would be in a position to deal with the emergency, and that the student will be notified insofar as possible of the information released, the purpose for the release, and to whom the information was released.

No personal information on a student will be released without a statement from the University to the party receiving the information that no third

party is to have access to such information without the written consent of the student.

This policy is adopted pursuant to the Family Educational Rights and Privacy Act of 1974, as amended (20 U.S.C. §1232g), and is not intended to impose any restrictions or grant any rights not specifically required by this Act.

(See AOP 30.02 (<https://www.policies.msstate.edu/policy/3002/>))

## Disciplinary Suspension and Expulsion

The following information will be recorded on a student's academic record:

1. Permanent Expulsion – a "W" grade will be recorded on the permanent record for each course on the student's schedule at the time of expulsion. "Permanent Expulsion" and the effective date will also be placed on the permanent record. This will remain on the permanent record indefinitely or until an appeal is held by the Dean of Students and the expulsion is approved for removal. In a case of appeal and approval by the Dean of Students to remove the expulsion, the words "Permanent Expulsion" will be replaced by the word "Withdrew."
2. Disciplinary Suspension – a "W" grade will be recorded on the permanent record for each course on the student's schedule at the time of suspension. "Disciplinary Suspension" and the effective date will also be recorded on the permanent record. Students may petition the Dean of Students to have "Disciplinary Suspension" removed from the permanent record. If the Dean of Students approves the request, the words "Disciplinary Suspension" will be replaced by the word "Withdrew."

(See AOP 12.15 (<https://www.policies.msstate.edu/policy/1215/>))

## Credits, Grades, and Standing

All credits earned at Mississippi State University are in semester hours. In most curricula, taking an average load of 16-18 hours for a regular semester will enable a student to make normal progress toward graduation. A semester hour is defined as requiring at least the number of contact minutes as shown:

- Lecture – 750 contact minutes
- Laboratory/Studio – 1500 contact minutes
- Internship – 3000 minutes

Year or quarter hours transferred from another institution are converted into semester hours for purposes of uniformity in determining graduation requirements.

Transfer credits are accepted only from institutions accredited by or in candidate status with a regional accrediting body, such as the Southern Association of Colleges and Schools Commission on Colleges. It is the responsibility of colleges (and schools) to set the standards for transferring "D" grades.

Not more than 25 percent of any curriculum may be earned by advanced standing examinations, College-Level Examination Program (CLEP), evaluated military service credits, tutorial, extension courses, and advanced placement exams (a maximum of 20% of the total degree hours can be correspondence courses). Evaluated military service credits are classified as extension work. Correspondence courses must be

approved by the dean before being taken by students in residence. USAFI credits are classified as correspondence work.

(See AOP 12.12 (<https://www.policies.msstate.edu/policy/1212/>))

## Credit by Examination

Not more than 25 percent of any curriculum may be earned by College-Level Examination Program (CLEP), evaluated military service credits, tutorial, extension courses, and advanced placement exams (a maximum of 20% of the total degree hours can be correspondence courses). Evaluated military service credits are classified as extension work. Correspondence courses must be approved by the dean before being taken by students in residence. Mississippi State University serves as an open testing center for both the General and Subject Examinations. (See AOP 12.26 (<https://www.policies.msstate.edu/policy/1226/>))

### a. Advanced Placement Examinations.

Students entering Mississippi State University for the first time are allowed credit on the advanced placement examination administered by the College Entrance Examination Board. Grades of Satisfactory (S) appear on the transcript for courses in which advanced placement credit is earned. These courses do not affect grade-point averages. Applicability of such credit to a specific degree is to be determined by the appropriate dean. The following table provides the details on how credit is presently assigned in the various subject areas by the deans.

AP Examination	Score	Hours	Related Course
AFRICAN AMERICAN STUDIES	3	3	AAS 1063
ART HISTORY	3	3	ART 1013
BIOLOGICAL SCIENCE (no lab credit)	3	3	BIO 1023
	4	6 or 7	BIO 1123 and BIO 1134
	5	8	BIO 1134 and BIO 1144
CHEMISTRY	3	3	CH 1213
	4 or 5	6	CH 1213 and CH 1223
COMPUTER SCIENCE			
A Exam	3, 4, or 5	4	CSE 1284
COMPUTER SCIENCE PRINCIPLES	3, 4, or 5	3	CSE 2990
ECONOMICS			
Macroeconomics	3	3	EC 2113
Microeconomics	3	3	EC 2123
ENGLISH			
Language & Comp.	3	3	EN 1103
Language & Comp.	4 or 5	6	EN 1103 and EN 1113
Literature & Comp.	3	3	EN 1103

Literature & Comp.	4 or 5	6	EN 1103 and EN 1113
ENVIRONMENTAL SCIENCE		3	ENS 2103
FRENCH			
Language and Culture	3	3	FLF 1113
Language and Culture	4	6	FLF 1113 and FLF 1123
Language	5	9	FLF 1113, FLF 1123, and FLF 2133
Culture	5	9	FLF 1113, FLF 1123, and FLF 2133
GERMAN			
Language and Culture	3	3	FLG 1113
Language and Culture	4	6	FLG 1113 and FLG 1123
Language	5	9	FLG 1113, FLG 1123, and FLG 2133
Culture	5	9	FLG 1113, FLG 1123, and FLG 2133
GOVERNMENT and POLITICS			
Comparative	3	3	PS 1513
United States	3	3	PS 1113
HISTORY			
American	3	3	HI 1063
	4 or 5	6	HI 1063 and HI 1073
European	3	3	HI 1213
	4 or 5	6	HI 1213 and HI 1223
World	3	3	HI 1163
	4 or 5	6	HI 1163 and HI 1173
HUMAN GEOGRAPHY	3	3	GR 2013
LATIN	3	6	FLL 1113 and FLL 1123
	4	6	FLL 1123 and FLL 2133
	5	6	FLL 2133 and FLL 2143
MATHEMATICS			
AB Exam	3, 4 or 5	3	MA 1713
BC Exam	3	3	MA 1713
	4 or 5	6	MA 1713 and MA 1723
MUSIC	3	3	MU 1213
STATISTICS	3	3	ST 2113

PHYSICS (no lab credit)			
CI Exam - MECH	3	3	PH 1113
	4 or 5	3	PH 2213
CII Exam - E & M	3	3	PH 1133
	4 or 5	3	PH 1133 or PH 2223
PHYSICS I	3, 4, or 5	3	PH 1113
PHYSICS II	3, 4, or 5	3	PH 1123
PRECALCULUS	3	3	MA 1453
PSYCHOLOGY	3	3	PSY 1013
SPANISH			
Language and Culture	3	3	FLS 1113
Language and Culture	4	6	FLS 1113 and FLS 1123
Language and Culture	5	9	FLS 1113, FLS 1123, and FLS 2133
Literature and Culture	5	9	FLS 1113, FLS 1123, and FLS 2133
2-D DESIGN PORTFOLIO	3	3	ART 1113
3-D DESIGN PORTFOLIO	3	3	ART 1113
DRAWING PORTFOLIO	3	3	ART 1113

As more high schools develop Advanced Placement courses, Mississippi State University will consider their inclusion in this listing for credit.

## b. College-Level Examination Program (CLEP).

Academic credit on the Subject Examinations is awarded to students who are enrolled at the University and who make a scaled score of 50 or above (see exceptions below). Credit is neither awarded nor accepted for transfer credit for the General Examinations. Credit is considered the same as extension credit and is subject to the same limitations. The applicability of credit toward degree requirements is determined by the dean and/or department head concerned. At present, the only courses for which credit may be obtained through the CLEP Program are these:

ACC 2013	Principles of Financial Accounting	3
BIS 1012	Introduction to Business Information Systems	2
BIO 1023	Plants and Humans (requires score of 50-59)	3
BIO 1123 & BIO 1134	Animal Biology and Biology I (requires score of 60-69)	7
BIO 1134 & BIO 1144	Biology I and Biology II (requires score of 70-80)	8
CH 1213	Chemistry I	3
CH 1223	Chemistry II	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
EPY 2513	Human Growth and Development	3
EPY 3503	Principles of Educational Psychology	3

FLF 1113	French I (score of 53 or above)	3
FLF 1123	French II (score of 53 or above)	3
FLG 1113	German I (score of 53 or above)	3
FLG 1123	German II (score of 53 or above)	3
FLS 1113	Spanish I (score of 53 or above)	3
FLS 1123	Spanish II (score of 53 or above)	3
HI 1063	Early U.S. History	3
HI 1073	Modern U.S. History	3
HI 1213	Early Western World	3
HI 1223	Modern Western World	3
MA 1313	College Algebra	3
MA 1453	Precalculus	3
MA 1713 & MA 1723	Calculus I and Calculus II	6
PS 1113	American Government	3
PSY 1013	General Psychology	3
SO 1003	Introduction to Sociology	3

For further information about CLEP and a form for application to take the tests, please write to: Computer Based Testing, P.O. Box 9747, Mississippi State, MS 39762, or call (662) 325-6610.

## c. The International Baccalaureate.

The International Baccalaureate program is a comprehensive and rigorous two-year curriculum, leading to examinations, for students between sixteen and nineteen years of age. To accommodate differences among cultures regarding academic standards, it is a deliberate compromise between the specialization required in some national systems and the breadth preferred in others. The general objectives of the IB are to provide students with a balanced education; to facilitate geographic and cultural mobility; and to promote international understanding through a shared academic experience. The student who satisfies its demands demonstrates a strong commitment to learning, both in terms of the mastery of subject content and in the development of the skills and discipline necessary for success in a competitive world.

All IB Diplomas candidates are required to offer one subject from each of the groups. At least three and not more than four of the six subjects are taken at the Higher level, the others at the Subsidiary level. Each examined subject is graded on a scale of 1 (minimum) to 7 (maximum). The award of the Diploma requires a minimum total of 24 points and the satisfactory completion of three additional requirements: the Extended Essay of some 4000 words, which provides the first experience of the independent research paper; a course entitled Theory of Knowledge (ToK), which explores the relationships among the various disciplines and ensures that students engage in critical reflection and analysis of the knowledge acquired within and beyond the classroom; the compulsory participation in Creativity, Action, and Service (CAS) extracurricular and community-service activities. Bonus points may be awarded for the exceptional essay or performance in Theory of Knowledge.

Mississippi State University recognizes the IB Program. Credit will be considered for the higher level subject examinations with scores of 5, 6 or 7 pending approval of the various colleges, schools and major departments of the university. Some subject areas may consider a score of 4.

Mississippi State University awards credit in the following areas:



IB Credit	Score/Level Required	Credit to Award
ENGLISH	5, 6, or 7 HIGHER LEVEL	EN 1103 and EN 1113
CHEMISTRY	5, 6, or 7 HIGHER LEVEL	CH 1213 and CH 1223
HISTORY		
American	6 STANDARD LEVEL 4 HIGHER LEVEL 5 or 6 HIGHER LEVEL	HI 1063 HI 1063 HI 1063 and HI 1073
Asian	6 STANDARD LEVEL 4 HIGHER LEVEL 5 or 6 HIGHER LEVEL	HI 1313 HI 1313 HI 1313 and HI 1323
European	6 STANDARD LEVEL 4 HIGHER LEVEL 5 or 6 HIGHER LEVEL	HI 1213 HI 1213 HI 1213 and HI 1223
Islamic	4 HIGHER LEVEL 5 OR 6 HIGHER LEVEL	HI 1163 HI 1163 and HI 1173
BIOLOGY	4 STANDARD LEVEL 5, 6, or 7 STANDARD LEVEL 6 HIGHER LEVEL 7 HIGHER LEVEL	BIO 1023 or BIO 1123 BIO 1023 and BIO 1123 BIO 1134 BIO 1134 and BIO 1144
PHYSICS	5 HIGHER LEVEL 6 HIGHER LEVEL 7 HIGHER LEVEL	PH 1113 PH 1113 and PH 1123 or PH 2213 waiver for PH 1113 and credit for PH 1123 and PH 1133 or PH 2213 and PH 2223
ECONOMICS	5, 6, or 7 HIGHER LEVEL	EC 2113 and EC 2123
PSYCHOLOGY	5, 6, or 7 HIGHER LEVEL	PSY 1013
SPANISH	4 HIGHER LEVEL 5, 6, or 7 HIGHER LEVEL	FLS 1113 and FLS 1123 FLS 2133 and FLS 2143
LATIN	4 HIGHER LEVEL 5, 6, or 7 HIGHER LEVEL	FLL 1113 and FLL 1123 FLL 2133 and FLL 2143
FRENCH	4 HIGHER LEVEL 5, 6, or 7 HIGHER LEVEL	FLF 1113 and FLF 1123 FLF 2133 and FLF 2143
GERMAN	4 HIGHER LEVEL 5, 6, or 7 HIGHER LEVEL	FLG 1113 and FLG 1123 FLG 2133 and FLG 2143

A final official IB transcript will be sent by the International Baccalaureate North America (IBNA) regional office following the grade awarding and upon the request of the student. The document will indicate the level of the subjects, the grade awarded in each, the total point score and the

completion of the additional Diploma requirements. Results are available in late July for May session candidates.

## d. Cambridge International

Students entering Mississippi State University for the first time may be granted credit for examinations administered by Cambridge International. Courses taken as part of the AS level or A level curricula will be considered. Grades of Satisfactory (S) appear on the transcript for courses in which Cambridge credit is earned. These courses do not affect grade-point averages. Applicability of such credit to a specific degree is to be determined by the appropriate dean. Contact the Office of the Registrar for details on how credit is presently assigned in the various subject areas.

Cambridge International Course	Cambridge Curriculum	Grade Required	Credit to Award
Biology	AS Level A Level	E or Better E or Better	BIO 1023 and BIO 1123 BIO 1134 and BIO 1144
Computer Science	A Level	E or Better	CSE 1011
English Language	AS Level A Level	E or Better E or Better	EN 1103 EN 1103 and EN 1113
English Literature	A Level and AS Level	E or Better	EN 2223
English Lit and Language	AS Level	E or Better	EN 1103
History (American)	A Level and AS Level	E or Better	HI 1063
History (European)	A Level and AS Level	E or Better	HI 1213
Math	AS Level A Level	E or Better E or Better	MA 1713 MA 1723
Physics	A Level	E or Better	PH 1113
Psychology	A Level	E or Better	PSY 1013
German	AS Level A Level	E or Better E or Better	FLG 1113 FLG 1113 and FLG 1123
French	AS Level A Level	E or Better E or Better	FLF 1113 FLF 1113 and FLF 1123
Spanish	AS Level A Level	E or Better E or Better	FLS 1113 FLS 1113 and FLS 1123
Spanish Literature	AS Level	E or Better	FLS 2133
Spanish Language and Literature	A Level	E or Better	FLS 2133 and FLS 2143

## Grades and Quality Points

AOP 12.21 (<https://www.policies.msstate.edu/policy/1212/>)

The class work of the student will be evaluated according to the following pattern of values:

Grade	Quality Points Per Credit Hour
A Excellent	4
B Good	3
C Satisfactory	2
D Poor	1
F Failure	0
XF Failure - Honor Code	0
GDP Grade Determination Pending	0
I Incomplete	0
S Satisfactory	—
U Unsatisfactory	—
W Withdrawn Without Penalty	—
WI Permanent Incomplete	—
*S Retakes	—
*R Repeats	—
AU Audits	—

The quality-point average shall be determined on the basis of semester hours scheduled and rescheduled in which grades of “A,” “B,” “C,” “D,” and “F” or the “XF” disciplinary sanction are recorded. However, a student may not earn credits or quality points for a course or its equivalent in which he or she has already earned a grade of “A”.

### Incomplete Policy.

A grade of “I” (Incomplete) may be submitted in lieu of a final grade when the student, because of illness, death in his or her immediate family, or similar circumstances beyond his or her control, is unable to complete the course requirements or to take final examinations. A grade of “I” will not be submitted for reasons other than previously described. Except for circumstances noted above, an “I” grade will not be given to extend the semester so that a student may complete a required assignment(s).

Undergraduate students who receive an “I” grade must complete all work within thirty (30) calendar days from the date of the student’s next enrollment. A student who receives an “I” grade may make up only that part of course work not completed because of the emergency. If a grade of “I” is not resolved into a passing grade within the allotted time, the grade becomes an “F.” Once a grade of “I” has been converted to an “F” because of the student’s failure to complete the necessary course work or a lapse of the allowable time, no additional grade change will be allowed except under extreme circumstance(s) as recommended by the deans and approved by the Provost and Executive Vice President.

If an undergraduate student has not enrolled in the university within a year of receiving a grade of “I,” the “I” will be converted to a permanent grade of “WI” and the student will not have the opportunity to change that grade.

Graduate students who receive a grade of “I” must complete all work no later than the last day of class of the next semester (excluding summer) whether the student is enrolled or not. Failure of graduate students to remove an “I” grade during the specified time will result in an automatic grade of “F”. Once a grade of “I” has been converted to an “F” because of a student’s failure to complete the necessary course work or a lapse of the allowable time, no additional grade change will be allowed except under extreme circumstance(s) as recommended by the relevant deans

and approved by the Provost and Executive Vice President. “I” grades are not permitted for thesis and dissertation research credits.

## Academic Standing

### a. Undergraduate.

The University prescribes minimum standards of scholarship for determining whether a student is to be continued or discontinued. This determination is made at the end of the fall and spring semesters, at the end of the summer session, or any part of a semester in which the student has been enrolled. While the academic standing of a student is determined by the MSU Cumulative Grade Point Average (GPA), students must earn a 2.0 GPA on both the MSU and overall cumulative GPA’s to earn a degree.

- Students with a semester GPA of less than 2.0 who have coursework at Mississippi State University AND who fail to meet the following MSU Cumulative GPA requirements will be suspended.

MSU GPA Hours	MSU Cumulative GPA
67+	2.0
37-66	1.8
19-36	1.6
0-18	not subject to suspension

- No student will be suspended for failing to achieve the required grade point average without first having had at least one semester of probationary notice (not necessarily the immediately preceding semester).
- Students whose cumulative MSU GPA is less than 2.00 at the end of any term will enter the next term on academic probation and will remain on probation until the GPA reaches 2.00 or higher. The course load for students on academic probation is restricted to a total of 16 credit hours; a student on academic probation who enrolls concurrently in excess of this limit in correspondence courses or at another institution will not receive credit at Mississippi State University for such courses. (AOP 12.15 applies)

After being notified of probationary status, a student must schedule an appointment with his/her academic advisor or with the departmental probationary advisor (if the department has a probationary advisor) to devise a plan to improve their academic performance.

- Academic suspension shall be for at least one regular (fall or spring) semester. For students suspended at the end of a spring semester, the suspension precludes enrollment in any summer school session as well as the following fall semester. The student will be readmitted on academic probation following the expiration of the first suspension. A student who attends another university during a suspension from MSU must maintain a 2.0 GPA (calculated by MSU standards) on any transfer work. Students who fail to meet these criteria may be readmitted only on the recommendation of their dean and with the approval of the Provost. A student may continue in school during the second term of summer session, irrespective of his or her record during the first term.
- A student who has already received an academic suspension who fails to earn a current GPA of 2.0 or higher, and who has less than

the required MSU Cumulative GPA, will be placed on academic dismissal. A student who receives an academic dismissal will not be automatically or routinely readmitted. In addition, readmission will not normally be considered until the student has been absent from the University for one calendar year. The Provost/Executive Vice President may approve the readmission of an academically dismissed student only upon the recommendation of the student's academic dean based on a written petition by the student. Application for readmission should be filed with the student's Department Head no later than fifteen days prior to the first day of classes.

- g. Appeal for a waiver of suspension or dismissal, because of unusual circumstances, should be made through the student's academic dean to the Executive Vice President or Provost for Academic Affairs. No additional appeal beyond the Executive Vice President is possible.

## b. Veterans' Academic Status.

Students receiving U.S. Department of Veterans Affairs educational benefits will be governed by AOP 12.21 (<https://www.policies.msstate.edu/policy/1221/>) in addition to those above.

- a. A student's continued entitlement to the Department of Veterans Affairs educational benefits is determined as follows: If a student's cumulative average falls below the acceptable level, he/she will be placed on "first probation to receive VA benefits." If during the first probation semester, a student does not improve his or her cumulative GPA, VA benefits will be suspended at the end of the semester. If a student's cumulative GPA improves but an acceptable level is still not achieved, a "second probation to receive VA benefits" semester will be allowed. If the standards of progress are not achieved at the end of the second probation semester, VA benefits will be suspended. Students may not receive further benefits until approved by the VA.
- b. Based on VA rules and regulations, students receiving VA educational benefits will receive benefits only for courses that apply toward a degree program. NOTE: Any change in student status, such as drops/adds, major changes or withdrawals from the University, must be reported to the Veterans Administration Supervisor.

## c. Academic Amnesty.

Students who have not been enrolled in any post-secondary institution for five years may apply for admission or readmission under the academic amnesty policy through their academic dean's offices. Academic Amnesty may be applied to a student's record only once, and the new grade point average will be noted on the transcript at the end of the semester during which the request was approved. Students admitted under this policy must complete current curriculum requirements in residence to earn a degree. (AOP 12.19 (<https://www.policies.msstate.edu/policy/1219/>) applies.)

## d. Academic Fresh Start.

Students who have not been enrolled in any post-secondary institution at any time for at least 24 consecutive months may petition for admission or readmission through their academic dean's offices under the academic fresh-start policy. All college credits earned prior to being granted academic fresh start will be eliminated from the computation of the student's grade point average and may never be used toward graduation at Mississippi State University. (AOP 12.17 (<https://www.policies.msstate.edu/policy/1217/>) applies.)

The student's transcript will reflect the complete academic record but will contain the notation at the appropriate point that all academic work prior to the consecutive twenty-four months absence would be declared void

for the purposes of academic standing and graduation. The notation will be made upon the successful completion of at least 12 credit hours at Mississippi State University.

Students admitted under this policy must complete current curriculum requirements in residency to earn a degree. This policy may not be honored in other institutions of higher learning.

## e. Academic Forgiveness (Course Retake) Policy. (AOP 12.20 (<https://www.policies.msstate.edu/policy/1220/>))

Effective fall semester 2007, for courses taken during or after fall semester 2003, an undergraduate student will be permitted to retake up to two (2) courses, not to exceed eight (8) credit undergraduate semester hours, or one (1) course not to exceed nine (9) credit undergraduate semester hours, in which he or she made a B, C, D, or F with the original grade remaining on the transcript but not counted towards the student's GPA. The following rules apply:

- a. 1. This policy will be applied only to courses that have been taken at Mississippi State University.
- b. 2. After the retake, the original grade is left on the student's record but is not counted in the grade point totals. Only the second grade earned will be used in computing the GPA (in the cumulative totals), regardless of which of the two grades is the higher.
- c. 3. The original grade will be used to compute the GPA until the final second grade is issued.
- d. 4. Effective fall semester 2007, only courses in which a B, C, D or F grade was earned after fall 2003 are eligible for retaking.

## Class Attendance

Upon registration, the student accepts the responsibility of attending all classes and completing all in class and out of class work the instructor formally assigns. When absence from class is essential, the student should inform the instructor through an official means of communication or provide satisfactory documentation of the impending absence unless prescribed otherwise in the syllabus. If possible, the instructor should be notified prior to the absence. The student should discuss and document the scope and time frame for completion of missed work with the instructor in an agreed upon timely manner. Last the student should be informed that failure to comply with a documented agreed upon procedure could result in a grade penalty.

An attendance policy is the purview of an individual instructor. A policy should include, but is not limited to, how the instructor defines class attendance, particularly as it pertains to in-class responsibilities that go beyond the student's mere presence in the classroom, the extent of credit or penalty, how excused and unexcused absences are measured, and how all absences are recorded. More information can be found in the complete Academic Operating policy 12.09. (<https://www.policies.msstate.edu/policy/1209/>)

## Withdrawal

Any student leaving the University prior to the end of the period of enrollment, except for temporary absences, should initiate withdrawal procedures at his/her Academic Dean's office. By completing this procedure, the student may prevent future difficulties in obtaining

transcripts or in re-entering the University, and will avoid having F's automatically recorded for all courses taken during the semester.

A student who withdraws after the 10th day of classes will receive grades of W for each course scheduled. No withdrawals will be allowed during the last two weeks before the beginning of final examinations for the fall and spring semesters, and during the last week prior to the beginning of examinations for each five-week/ten-week summer term.

The withdrawal of any student shall not be effective on a date prior to the last day of class attendance.

In highly unusual circumstances resulting from extreme hardship, a student may petition to withdraw retroactively from a semester within one calendar year. The request for withdrawal will be considered only when accompanied by appropriate documentation of the situation (e.g., medical emergency or administrative error) which was related to the student's recorded academic performance for the semester in question. Such requests must be approved by the student's advisor, department head, dean, and the Provost. For cases other than administrative error in which final grades were recorded, the student's instructors should be consulted before a final decision is rendered and should be notified after the decision is made. In no case will more than one semester's work be retroactively withdrawn during a student's matriculation at Mississippi State University.

AOP 12.02 (<https://www.policies.msstate.edu/policy/1202/>)

## Classification of Students

Students are classified according to the total hours earned:

Year	Semester Hours
Freshman	29 or fewer semester hours
Sophomore	30-59 semester hours
Junior	60-89 semester hours
Senior	90 or more semester hours

## Undergraduate Enrollment in Graduate Courses

Accelerated programs (combined B.S./M.S.) are offered by a number of departments. These programs permit highly qualified undergraduate students who have completed 60 hours of undergraduate coursework to earn graduate credit. Upon completion of the graduate credits, the students also earn undergraduate credit for the same course(s). Interested undergraduates should check with their department to see if the accelerated program is available and to inquire about the application and registration process. Information can also be found in the catalog pages pertaining to the participating departments.

An undergraduate student at Mississippi State University not in an accelerated program and who lacks 12 or fewer credit hours to complete the undergraduate degree requirements may seek approval to enroll in courses for graduate credit in the final undergraduate semester or term. The student should meet the grade point average requirement for regular admission to the particular graduate program and may take up to 9 graduate credit hours; the combination of undergraduate and graduate credit hours may not exceed 15. Any exception to the stated criteria must be approved by the Provost (per Graduate Council, May 2004). In order to register for the course(s), the MSU student must submit the Undergraduate Request to Enroll in Graduate Courses form (<http://www.grad.msstate.edu/students/forms>) signed by the student's undergraduate department head, dean of the student's college, and instructor(s) of the graduate course(s). The department electronically submits the completed form to the Office of the Graduate School for processing.

[www.grad.msstate.edu/students/forms](http://www.grad.msstate.edu/students/forms) (<http://www.grad.msstate.edu/students/forms/>) signed by the student's undergraduate department head, dean of the student's college, and instructor(s) of the graduate course(s). The department electronically submits the completed form to the Office of the Graduate School for processing.

## Recognition of Academic Achievement

### Recognition of Academic Achievement

AOP 12.10 (<https://www.policies.msstate.edu/policy/1210/>)

Recognition for outstanding academic achievement is accorded to full-time students each regular semester (does not apply to students in College of Veterinary Medicine). For these purposes, a student must complete at least twelve (12) semester hours of course work toward graduation, with no incomplete grades nor grades lower than C. The levels of recognition are as follows:

#### President's Scholars.

Students who achieve a 3.80 average or above.

#### Dean's Scholars.

Students who achieve a 3.5 to a 3.79 average.

## Graduation and Commencement

### 1. Commencement.

Candidates should submit formal application for degrees during the semester in which they expect to complete their degree requirements, but not later than the last day to apply, as published in the Academic Calendar. Payment of debts to the University is a requirement for the granting of degrees and awarding of diplomas. All University holds must be cleared before a student can graduate.

### 2. Graduation with Honors.

Students completing the requirements for baccalaureate degrees with exceptional scholastic averages and who have completed at least 60 of the total hours for their degrees at MSU and earned high grade point averages both on their cumulative and MSU coursework will receive special recognition. The levels of recognition will be recorded on the students' diplomas and permanent records.

In determining eligibility for recognition, the grade point average will be figured on the basis of all hours attempted. If a student's last period of enrollment raises his or her average to the level required for honors, or to a higher level of honors, this notation will be made on the diploma and transcript. The hours may include, not only residence credit, but also correspondence and extension credit to the extent permitted by the University regulations for graduation.

Transfer students must achieve the specified grade point average in two senses: (1) on all hours attempted at all institutions attended and (2) on all hours attempted at Mississippi State University. The level of attainment will be determined by either the overall average or the Mississippi State University average, whichever is lower. The grade point values currently in use at Mississippi State University will be used to calculate the quality point average on all transfer credits.

Students receiving a second baccalaureate degree from MSU will be recognized in the same manner for outstanding academic achievement. In such cases, all coursework (from the first and second degree) will comprise the GPA.

The levels of recognition and the grade point averages required for each are as follows: Summa Cum Laude—3.80, Magna Cum Laude—3.60, and Cum Laude—3.40.

### 3. S.D. Lee Scholars

Students completing the requirements for the baccalaureate degree who have earned the grade of A in all courses attempted through the end of the semester before graduation may be recognized as a S.D. Lee Scholar at the University's Commencement Exercise. Courses taken at Mississippi State University and all transfer courses will be used to determine eligibility for recognition. In order to qualify as a S. D. Lee Scholar, the student cannot invoke the following policies: academic amnesty, academic forgiveness, or academic fresh-start. Students attempting courses which are not assigned a letter grade and receive the grade of U will not be eligible.

## Conduct and Discipline

### Student Conduct

[www.students.msstate.edu/studentconduct/](http://www.students.msstate.edu/studentconduct/) (<http://www.students.msstate.edu/studentconduct/>)

AOP 91.1 (<https://www.policies.msstate.edu/policy/91100/>)

Two objectives of higher education are to develop self-reliance and to form desirable and acceptable habits of conduct among students.

Instead of designing numerous regulations to cover in detail matters of student conduct, Mississippi State University recognizes students as adults who are expected to obey the law, rules and regulations of the University, to take personal responsibility for their conduct, to respect the rights of others, and to have regard for the preservation of State and University property as well as the private property of others. Mississippi State University will not police the personal lives of students on or off campus or invade their privacy by spying or intrusive searches; however, students whose conduct threatens to cause disorder, public disturbances, danger to themselves and others, or property damage will be disciplined.

A listing of acts of misconduct which are unacceptable and may require disciplinary action is provided online at <http://www.msstate.edu/web/security/> together with a detailed explanation of disciplinary processes for students in the University. Those apprehended and proven guilty of violating the law or rules and regulations of the University may receive a maximum penalty of expulsion from the University.

### MSU Honor Code

AOP 12.07 (<https://www.policies.msstate.edu/policy/1207/>)

Academic dishonesty is a corrosive force in the academic life of a university. It jeopardizes the quality of education and depreciates the genuine achievements of others. It is, without reservation, a responsibility of all members of the Mississippi State University community to actively deter it.

All students who are admitted to MSU agree to abide by the Honor Code which states, "As a Mississippi State University student I will conduct

myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Those individuals who are reported for MSU Honor code violations will be subject to the procedures and sanctions as found at: [www.students.msstate.edu/honorcode](http://www.students.msstate.edu/honorcode) (<http://www.students.msstate.edu/honorcode/>).

### Behavioral Intervention Team (BIT)

[www.students.msstate.edu/bit/](http://www.students.msstate.edu/bit/) (<http://www.students.msstate.edu/bit/>)

The BIT is made up of university representatives who work to connect the dots of problematic actions involving students that may be known to the various faculty, staff and administrators. Departments represented on the BIT include (but are not limited to): Dean of Students Office, Office of the Provost, Faculty, Housing and Residence Life, Student Health Services, Student Counseling Services, Disability Support Services, and the MSU Police Department. The goal of the BIT is to successfully engage, support, and minimize the concerns associated with students in distress. Accomplishing these goals requires a coordinated institutional response that includes all members of the MSU community.

### Maroon Alert System

[www.emergency.msstate.edu](http://www.emergency.msstate.edu) (<http://www.emergency.msstate.edu>)

Mississippi State University encourages all students, faculty and staff to sign up for the Maroon Alert System. In case of a campus emergency, administration will activate the Maroon Alert system and begin to communicate with the university community using appropriate media including:

- The Web page at [www.emergency.msstate.edu](http://www.emergency.msstate.edu) (<http://www.emergency.msstate.edu>) (yellow banner on the home page)
- Groupwise Instant messaging for students and employees
- Text messaging on participating cell phones
- E-mail using the students or employees official e-mail address
- Campus radio station WMSV 91.1-FM
- Mobile loudspeaker announcements by campus speakers system and police vehicles
- The HOT LINE 325-5555 (activated only during emergency)

# Student Life

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Student life is a very important part of the university experience. The services and activities provided by Student Affairs to promote student life are critical to helping students adjust to being away from home and to finding their place in the campus community. Many of these services and opportunities are detailed under the Student Life links to the right.

## Student Housing

Mississippi State University (MSU) is committed to providing students with a comprehensive educational experience. The university has determined students living on campus have numerous educational and social benefits. In recognition of the living-learning experience associated with on-campus living, MSU requires first-time freshmen to live in on-campus residence halls. Students must first apply and be admitted to the university. Once a student is admitted, they will be able to apply for housing. Students can apply and continue to access their housing application via [my.housing.msstate.edu](http://my.housing.msstate.edu) (<http://my.housing.msstate.edu>). There is a \$100 non-refundable application fee to apply for housing. Once an assignment is offered to a student, they will be able to sign their MSU Housing Contract. An MSU Housing Contract is a legally binding academic year contract.

**Roommate Selection:** Students wishing to request one another as roommates should do so via [my.housing.msstate.edu](http://my.housing.msstate.edu) (<http://my.housing.msstate.edu>) prior to April 1. Students who do not have a roommate in mind are able to search for a roommate using the Roommate Preference portion of the housing application beginning in December. Students who cannot submit their roommate request prior to April 1 can still submit the request via [my.housing.msstate.edu](http://my.housing.msstate.edu) (<http://my.housing.msstate.edu>), but requests submitted prior to April 1 are given priority consideration.

**Returning Resident Contract Renewal (Room Selection Verification Process: RSVP):** Residents currently living on campus can apply to renew their housing contract for the next academic year through Room Selection Verification Process (RSVP). RSVP allows students to reapply and select their residence hall room online for the upcoming academic year. RSVP begins in January. To apply residents can visit: [my.housing.msstate.edu](http://my.housing.msstate.edu) (<http://my.housing.msstate.edu>)

**Transfer and Currently Enrolled Off-Campus Students:** Transfer students and currently enrolled off-campus students will not be assigned a bed space until returning residents and first-time freshman assignments are completed.

**MSU Housing Contacts:** MSU students cannot cancel their housing contract and/or room assignment after July 1. The MSU Housing Contract is for the academic year. The student is legally bound to the terms and conditions of this document if the student is enrolled at MSU. For additional information regarding cancellations and contracts for students who are no longer enrolled, residence hall opening dates, and more please visit [housing.msstate.edu](http://housing.msstate.edu) (<http://housing.msstate.edu>).

**Private Rooms:** First-Time Freshmen are not eligible to receive a private room unless there is special permission granted by the Department of Housing and Residence Life. Requests for private rooms will only be considered if space is available.

**Disability and Medical Needs:** Students requesting specific accommodations based on a disability must register with MSU's Disability

Resource Center (DRC). DRC will review the needs of the student and work with the Department of Housing and Residence Life to assign students. Accommodation requests must be received prior to April 1 to receive priority consideration.

**Room Change Requests** (for students currently living in on-campus housing): Room changes must be approved by the Community or Graduate Residence Director. A student who makes an unauthorized room change will be charged a penalty and be required to move back to their assigned space. The assigned occupants are financially responsible for the room's condition. Room reassignments are based on availability after the first week of classes each term. Room Reassignment Requests will be considered for incoming students prior to Fall move-in. Please contact the Department of Housing and Residence Life for more information regarding these processes.

**Reassignments and Right of Entry:** The university reserves the right to inspect rooms and/or to move any student to another assignment for reasons of space management or for the maintenance of order.

Please contact the Department of Housing and Residence Life for any additional information.

Department of Housing and Residence Life  
[housing@saffairs.msstate.edu](mailto:housing@saffairs.msstate.edu)  
 662-325-3555  
 P.O. Box 9502  
 Dogwood Hall - Ground Floor  
 Mississippi State, MS 39762

Visit our website: [housing.msstate.edu](http://housing.msstate.edu) (<http://housing.msstate.edu>).

## Services

Mississippi State University provides many various services for its students. Information on everything from textbooks to dining to student support services can be found in the links listed to the right.

## Libraries

With creative discovery as a bold tradition and ever-evolving centerpiece of Mississippi State University's existence, MSU Libraries have an innovation-driven presence as part of the state's leading research institution. World-class research collections, technology-infused learning labs, and user-driven centers and services make the MSU Libraries (<http://library.msstate.edu>) an inviting and exciting place for those who are hungry for knowledge and solutions that can make a difference and positively impact lives.

The MSU Libraries are composed of the Mitchell Memorial Library (Main Library), the Old Main Academic Center (<https://www.library.msstate.edu/oldmain/>), the Bob and Kathy Luke Library (<https://www.library.msstate.edu/bob-and-kathy-luke-architecture-art-and-design-library/>) (College of Architecture, Art, and Design), the College of Veterinary Medicine Library (<https://www.library.msstate.edu/college-veterinary-medicine-library/>), the Gertrude C. Ford Foundation Library (<https://www.library.msstate.edu/gertrude-c-ford-foundation-library-jackson-design-center/>) (Jackson Design Center) and the Phil Hardin Foundation Libraries (<https://www.meridian.msstate.edu/campus-services/library-services/>) (MSU – Meridian College Park Campus and the Riley Campus). The libraries maintain a collection of more than 2.3 million volumes, 211,000 electronic journals and more than 530 research databases and offer over 100 workshops (<https://www.library.msstate.edu/>)

[www.library.msstate.edu/workshops/](http://www.library.msstate.edu/workshops/)) focusing on information and digital literacy skills, citation management, copyright, using primary resources, as well as emerging technologies and software such as the Microsoft Office suite and Adobe Creative Suite.

Mitchell Memorial Library, located on the iconic MSU Drill Field, includes a 90-seat computer lab, a digital media center, electronic classrooms, presentation rooms, a 90-seat auditorium, reservable technology equipped collaboration rooms, areas for students to study individually or in groups, and Einstein Brother's Bagel shop (<https://locations.einsteinbros.com/us/ms/starkville/85-old-main-st/>).

The libraries' MaxxSouth Digital Media Center (<https://www.library.msstate.edu/dmc/>) is a multi-media collaborative space equipped with technology designed to propel teaching, learning, creation, exploration, and research. The center provides students and faculty with high-end computers equipped with the latest software needed for digital design and production. The center features a state-of-the-art TV Studio; an AV Studio; Mixed Reality Lab and a makerspace which includes high-end color printing, wide-format printing, laminating, 3D printers, laser and die-cutting, heat press, and sewing machines.

Archives & Special Collections (<https://www.library.msstate.edu/specialcollections/>) contains manuscripts, rare books, and other unique historical materials documenting the history of Mississippi State University, Mississippi, the South, and beyond. The Manuscripts Division includes many significant collections in the areas of journalism, civil rights, and agricultural and architectural history. The Mississippiana and Rare Books Collection contains significant works about Mississippi and by Mississippi authors, as well as a large collection of unique and valuable publications. University Archives documents the history of Mississippi State University through official records, university memorabilia, and photographs. The Mississippi Political Collections (<https://www.library.msstate.edu/mpc/>) house the papers of prominent local, state, and national politicians, activists, and judges.

Mitchell Memorial Library is also the home of the Ulysses S. Grant Association and the Ulysses S. Grant Presidential Library (<https://www.usgrantlibrary.org/>) and the Frank and Virginia Williams Collection of Lincolniana (<https://www.library.msstate.edu/williamscollection/>). These collections contain rare and valuable memorabilia, priceless artifacts, signed documents, and other original and one-of-a-kind items. Materials from these collections are on display in the Grant Museum and Williams Gallery. While visiting the library, be sure to visit the Charles H. Templeton, Sr., Music Museum (<https://www.library.msstate.edu/templeton/>), John Grisham Room (<https://www.library.msstate.edu/grisham/>), and the Stennis/Montgomery Room (<https://www.library.msstate.edu/stennis-montgomery-room/>) to learn more about these significant MSU alumni and collections.

Above all, the libraries' exceptional faculty and staff provide the university with a variety of information resources, collections and services required of a comprehensive, research intensive institution of higher learning. They provide a comprehensive range of individualized research services including customized instruction sessions, one-on-one consultations, e-mail research assistance, and online chat. (<https://www.library.msstate.edu/help/>)

## Books and Supplies

The MSU Bookstore is operated on behalf of the University by **Barnes & Noble**. The store's primary function is to provide students, faculty and staff with textbooks, general reading and reference books, related

supplies, and MSU clothing and gifts. It also has parking available for community and visitor use.

**Barnes & Noble at MSU** is a 30,000 sq. ft. academic superstore located in the **Cullis Wade Depot**. The first floor features MSU clothing and gifts, a large selection of general reading books, and a full service Barnes and Noble Café that proudly serves Starbucks coffee and Cheesecake Factory desserts. The second floor stocks all course-required textbooks, trade and Reference books, and a variety of school supplies. The bookstore also carries electronics and accessories in the store and online software packages are available at substantial educational discounts. The bookstore also offers a vast array of eco-friendly merchandise that includes socks, notebooks, filler paper, and totes among others.

Students have the ability to purchase or rent new, used or digital textbooks. Students can visit the bookstore web site at ShopMissState.com (<http://ShopMissState.com>) to purchase textbooks and imprinted merchandise for delivery or take advantage of our convenient in-store pickup. Students may also access their book list from the MyState portal using the order or reserve textbooks option. The bookstore also offers cash back for textbooks all year long.

The bookstore is open Monday through Friday from 8:00 a.m. to 5:00 p.m., Saturday 10:00 a.m. to 5:00 p.m., and Sunday 11:00 a.m. to 5:00 p.m. The bookstore extends its hours of operation concurrent with campus activities such as home football games. Please call (662) 325-8361 or visit ShopMissState.com (<http://ShopMissState.com>) for more information.

## University Dining Services

From coffee shops to dining halls, we've got you covered. The variety of choices includes popular brands such as Steak 'n Shake, Subway, Pizza Hut, Panda Express, Einstein Brothers Bagels, Starbucks, Chick-fil-A, and Moe's Southwest Grill, as well as local favorites like State Fountain Bakery, Newk's Eatery, and Juva. Another dining option, McArthur Café, which is considered hidden gems on campus, offers an entree plus two sides for lunch.

The Fresh Food Company and Marketplace at Perry, our all-you-care-to-eat Residential Dining Halls, offer the most innovative dining with authentic flavors and unique menus that are meticulously crafted to satisfy everyone's appetite. Our dining team works hard to ensure we serve only the freshest ingredients and quality products, along with incorporating seasonal trends, themed meals, and events throughout the semester. The popular Fresh Food Company features several unique cooking stations of made-to-order meals prepared in view of customers. The Marketplace at Perry houses Planted, a vegan/vegetarian station, and the True Balance station which provides a complete menu excluding 8 of the top 8 most common food allergens!

In a hurry? No problem! P.O.D. Markets & P.O.D. Expresses, located around campus, offer items such as grab-n-go sandwiches, cereal, Mississippi State University milk and ice cream, fresh fruit, frozen entrees, medicine, phone chargers, batteries, paper towels and much more – all available without ever needing to leave campus.

In addition to the 20 dining locations, MSU Dining also provides a full range of exceptional, customizable Catering service options for any event on or off campus – including tailgate season.

For more information visit our website d ([http://secure-web.cisco.com/1hIO2aMeNxcCaMGcnFPeDImLgU2VQyHDJxyo9PI6-5y\\_eQLNe8j](http://secure-web.cisco.com/1hIO2aMeNxcCaMGcnFPeDImLgU2VQyHDJxyo9PI6-5y_eQLNe8j))

eatnLkeulqLkz0lQU0uVtT9zja6N4scGjsjkSBF3xUDDSmF9m-61mwe1NoyhdUAA002uBignrftSto enter the United States. International advisors inform students about maintenance of lawful status, work authorization, enrollment requirements, extension of stay, and other immigration issues. Semi-annual orientation programs for new students along with additional immigration workshops are conducted by this office as well as annual international student services including orientation sessions, cultural programming for visiting scholars, and offering an international tax software program.

The International Services office is located in 116 Allen Hall and can be contacted by telephone at 662-325-8929. Additional information can be found at <http://international.msstate.edu>.

## John C. Longest Student Health Center

The Longest Student Health Center is designed to provide comprehensive, accessible, high-quality and cost effective healthcare to students during college years. The Center is open during regular school sessions to all Mississippi State University students who are assessed the student health fee.

It is recommended that all students use the Longest Student Health Center as their preferred provider of care while at Mississippi State. The Center is staffed with well-qualified physicians, nurse practitioners, and nurses to provide primary medical care for students. Ancillary services include pharmacy, laboratory, and x-ray. Other services offered include nutrition counseling and health education. The health fee covers the provider's professional charge for an unlimited number of clinic visits. Ancillary services are provided on a fee-for-service basis. Those who need more specialized care than the Center can provide will be referred to the appropriate resource.

Clinic hours: 8 a.m. to 5 p.m., Monday-Wednesday and Friday; 9 a.m. to 5 p.m. on Thursday. The Center is closed on Saturday and Sunday and during regularly scheduled student holidays.

Health records are to be sent directly to the Longest Student Health Center, where they are kept confidential.

The Student Health Center does accept insurance assignments from health insurance companies recognizing the Center as an authorized provider of health care. A Student Accident and Sickness Insurance Plan has been developed specifically for Mississippi State University students and is intended as a supplement to the care provided by the Student Health Center. Sponsored by the Student Association, it is a voluntary plan for students and their dependents. International students are required by the University to subscribe to this policy unless they provide proof of equal coverage.

Information on student health services and student health insurance is available by writing to Director, John C. Longest Student Health Center, P.O. Box 6338, Mississippi State, MS 39762; telephoning (662) 325-2431; or emailing [health@saffairs.msstate.edu](mailto:health@saffairs.msstate.edu). Visit [www.health.msstate.edu](http://www.health.msstate.edu) (<http://www.health.msstate.edu>).

## International Services

International Services, a unit of the International Institute within the Division of Academic Affairs, advises and provides information to students, research scholars, visiting professors, and MSU faculty and administrators about rules and regulations of immigration. International Services serves as the University liaison between the U.S. Citizenship and Immigration Services (USCIS), the U.S. Department of State, and the Mississippi State University international community holding F and J visas. By administering both the F-1 Student and J-1 Exchange Visitor Programs, International Services provides documents for qualified

to enter the United States. International advisors inform students about maintenance of lawful status, work authorization, enrollment requirements, extension of stay, and other immigration issues.

Semi-annual orientation programs for new students along with additional immigration workshops are conducted by this office as well as annual international student services including orientation sessions, cultural programming for visiting scholars, and offering an international tax software program.

The International Services office is located in 116 Allen Hall and can be contacted by telephone at 662-325-8929. Additional information can be found at <http://international.msstate.edu>.

## Student Counseling Services

Student Counseling Services offers students the option of seeing a clinician in-person or virtual through the Doxy.me video meeting platform, Monday – Friday 9:00 am – 4:00 pm. To make an initial appointment for services, please visit our website at [www.counseling.msstate.edu](http://www.counseling.msstate.edu) (<http://www.counseling.msstate.edu>) to access a link for the virtual waiting room. A clinician will assess and discuss your needs to determine the appropriate service for you. Should you be unable to utilize this platform or have additional questions about our services, please walk-in or call our office at (662) 325-2091 during normal business hours.

For after-hours support, call (662) 325-2091 to speak with a professional, on-call therapist. To obtain confidential assistance for sexual assault or harassment, call the MSU Safe Line at (662) 325-3333.

The Office of Survivor Support offers confidential, comprehensive support and advocacy services for students who have experienced sexual harassment, sexual assault, sexual exploitation, stalking, dating/domestic violence, and other crimes. The number for OSS is 325-1823. ([www.survivorsupport.msstate.edu](http://www.survivorsupport.msstate.edu) (<http://www.survivorsupport.msstate.edu>))

AOP 3.04 (<https://www.policies.msstate.edu/policy/0304/>)

## Computer-Based Testing Services

[www.cbt.msstate.edu](http://www.cbt.msstate.edu) (<http://www.cbt.msstate.edu>)

The Computer-Based Testing Services, located at 375 Collegeview Street, Suite 12, serves as the University's testing center for national standardized computer-based and paper/pencil tests such as ACT, CLEP, GMAT, GRE, Praxis, LSAT, MAT, and TOEFL. Registration information can be obtained from test program web sites listed on our web site at [www.cbt.msstate.edu](http://www.cbt.msstate.edu) (<http://www.cbt.msstate.edu>). Please email [testing@saffairs.msstate.edu](mailto:testing@saffairs.msstate.edu), or call (662) 325-6610 for more information.

## Center for Academic Excellence

<http://cae.msstate.edu>

The major purpose of the Center for Academic Excellence (CAE) is to help Mississippi State University students improve their academic performance. CAE offers both credit courses and non-credit services to graduate and undergraduate students. For more information, contact the CAE office at (662) 325-2957 or come to the first floor of the YMCA Building.



**Credit Classes.** The primary focus of the credit classes of the Center for Academic Excellence is to assist in retention of students by strengthening their reading and studying efficiency. LSK 1023 College Reading and Study Skills emphasizes development of time management, vocabulary, note taking, test preparation and other study skills. CAE offers a one-hour study skills course, LSK 1011. In addition, the center offers LSK 1001 Freshman Seminar, a one hour course designed to orient incoming freshmen to the university.

**Non-credit Laboratory Services.** CAE offers tutoring in all subject areas. Special assistance is available in all areas of English, mathematics and statistics, chemistry, physics, and preparation for professional examinations. These services are free to all MSU students.

## The Career Center

[www.career.msstate.edu](http://www.career.msstate.edu) (<http://www.career.msstate.edu>)

The MSU Career Center, through quality programs, events and services, empowers individuals to develop skills that will enhance career readiness and success. The Career Center strives to support students, employers, faculty, and alumni by facilitating opportunities for experiential learning, networking, and on-campus recruiting. Assistance is provided that complements the career decision/preparation process in the form of personality and interest inventories, career counseling, resume writing, resume critiques and mock interviewing. In addition, special events are hosted by the Career Center that provide students and alumni with enhancements related to the job search process. Major events held on a regular basis each semester include a two-day Career Expo, Graduate and Professional School Fair, Education Career Fair, Building Construction Science Fair, PGM Interview Days, and Cooperative Education Interview Days. Special emphasis workshops including dining etiquette, networking, evaluating job offer, interviewing tips, and more are held regularly.

Types of employment resources available for job seekers through the Career Center include:

- Full-time employment for graduating seniors and alumni via Connections (<https://msstate-csm.symplicity.com/>)
- Cooperative Education (see section on Cooperative Education Program)
- Internship and Professional Practice Internships
- Summer Employment
- Part-time employment during school semesters

Details on all events, programs and services of the Career Center may be found at <http://www.career.msstate.edu> or by contacting the Career Center, 300 Montgomery Hall, 662-325-3344.

## The Holmes Cultural Diversity Center

Colvard Student Union, Suite 220  
[hcdc.msstate.edu](http://hcdc.msstate.edu) (<http://hcdc.msstate.edu>)  
 662-325-2033

In 1991, the Holmes Cultural Diversity Center (HCDC) was dedicated to Dr. Richard Holmes, the first African American to enroll at Mississippi State University. HCDC strives to enhance the college experience of students and is committed to cultivating a welcoming and inclusive environment that supports underrepresented student populations as a

“home away from home”. HCDC is dedicated to aligning retention factors by creating opportunities to implement holistic approaches to student success and degree attainment. Additionally, we support students by connecting them to resources and opportunities that assist them to grow intellectually, develop personally and professionally, and improve their overall wellbeing. Our aim is to cultivate equitable pathways that empower students to learn, live, and lead in a global and ever-changing world.

Through its many programs and services, the Center strives to:

- Promote student success by increasing the recruitment and retention of underrepresented students.
- Develop communities of support, involvement, and advocacy for underrepresented students.
- Provide educational opportunities for the university to foster a culture of access, diversity, inclusion, and equity.
- Implement and develop a structure to holistically assess experiences of students and outcomes of the center’s programs.

HCDC organizations include:

- Black Student Association
- Black Voices Gospel Choir
- FLARE (Fostering LGBTQ+ Advocacy, Resources, and Environments)
- HCDC Visionary
- I.D.E.A.L. Woman Program
- Indigenous Students and Allies Association
- International Student Advisory Board
- Latino Student Association
- Linking International Students in the Community (LINC) Program
- Men of Excellence Program
- NAACP (National Association for the Advancement of Colored People)
- Safe Zone

## Information Technology Services

117 Allen Hall. (662) 325-9311. [www.its.msstate.edu](http://www.its.msstate.edu) (<http://www.its.msstate.edu>)

The mission of Information Technology Services (ITS) is to enable learning, service, and research through an advanced information technology environment. In fulfillment of this mission, ITS makes available a broad array of information technology resources and services to the students, faculty, and staff of MSU.

User Services operates the Help Desk, which serves as the primary point of contact for the campus community when requesting services or reporting problems to ITS. User Services offers training workshops and seminars on relevant information technology topics, and it provides personal computer support to departments across campus. Additionally, User services operates the Campus Card Office, which produces the MSU ID Card, and it administers MoneyMate, the university’s declining-balance spending account system.

Information Technology Infrastructure (ITI) is responsible for the design, deployment, and support of the University’s information technology infrastructure. This infrastructure includes the voice network, central and departmental server resources, the Campus Card system, and

wired and wireless data networks encompassing over 220 buildings on the Starkville and Meridian campuses as well as Research and Extension Centers and Extension Offices in all 82 Mississippi Counties.

ITI provides connections to the Mississippi Optical Network, MissiON, as well as the commodity Internet and Internet2 via dual 10 Gbps wide-area connections. Additionally, ITI installs and supports instructional technology in over 135 classrooms, open-access computer labs in Griffis Hall, Allen Hall, and the Library Computer Commons, and departmental computer labs across campus.

Enterprise Information Systems (EIS) is responsible for development, maintenance, and support of a large and growing portfolio of information systems used throughout the university. Systems range from departmental web applications to the comprehensive, integrated Enterprise Resource Planning system (BANNER) for financial, human resources, student, financial aid, and advancement administration. In addition, EIS supports the myState portal, the myCourses learning management system, and the eForms electronic document routing and approval system. Primary operating systems include Linux and Windows, while primary database platforms include Oracle and Microsoft SQL server. General responsibilities include software design, development, and testing, system implementation, database administration, and ongoing maintenance and support.

## Student Support Services

The department of Student Support Services (SSS) is a federally-funded program through the U.S. Department of Education. It is a TRIO program designed to assist eligible low income college students, first generation college students, and college students with disabilities to succeed in completing their college education. A limited number of students can be served under the federal grant program. The primary mission of SSS is to enhance educational opportunities for eligible students to improve their academic and social skills, increase their retention toward graduation and as appropriate, facilitate their entrance into graduate and/or professional schools. For information or services, visit Student Support Services in the Henry F. Meyer Building, 100 Lee Blvd, call (662) 325-7250, or visit [www.sss.msstate.edu](http://www.sss.msstate.edu) (<http://www.sss.msstate.edu>).

## Disability Resource Center

Students with disabilities who wish to receive academic accommodations can visit the Disability Resource Center (DRC) website at <http://drc.msstate.edu> (<http://drc.msstate.edu/>) for information and an online application. DRC coordinators work closely with students to formulate plans for academic and other accommodations, based upon documentation of disability. DRC is located on the ground floor of Montgomery Hall, telephone (662) 325-3335. A student may appeal to the Provost and Executive Vice President if they disagree with a determination regarding an academic accommodation or modification.

## Student and Campus Life

There are a number of non-academic activities available that are of interest to many students. Information on opportunities such as recreational sports and religious, musical or Greek organizations can be found in the links listed to the right.

## Colvard Student Union

[www.union.msstate.edu](http://www.union.msstate.edu) (<http://www.union.msstate.edu>)

The Colvard Student Union was built in 1964 under the leadership of its namesake, Dr. Dean W. Colvard, the President of the University who called it the "Living Room of the University." In response to steady growth in the student body and the number of student organizations, a major renovation and expansion of the Colvard Student Union began in July 2006. The newly renovated building opened in early 2008 with eight large multi-purpose meeting rooms, 4 conference style rooms, the Fowlkes Auditorium, Art Gallery, as well as the Bill R. Foster Ballroom.

You will also find multiple dining options (including a convenience store), a full service Starbucks and a hair salon in the Colvard Student Union. The Holmes Cultural Diversity Center is located on the 2<sup>nd</sup> floor of the Colvard Student Union. Other offices located in the Colvard Student Union include, the Union Director and Business office (Suite 331), Fraternity and Sorority Life (Suite 300) and the Center for Student Activities (Suite 314).

Rooms in the Colvard Student Union, Bettersworth Auditorium, the Amphitheatre, and many other campus facilities may be reserved through the Event Services office located on the 1<sup>st</sup> floor of the Colvard Student Union (Suite 117) and by calling 662-325-3228.

## The Student Association

[www.sa.msstate.edu](http://www.sa.msstate.edu)

The Student Association (SA) at Mississippi State University is the largest student organization at MSU. The SA also serves as the governing body and voice for the students.

The SA Executive Council and Cabinet members are responsible for providing opportunities for students to engage in fun, imaginative, diverse, educational, and entertaining events and programs at Mississippi State. From casual to cultural, serious to witty, committees capture the diversity of the campus and produce a wide variety of events and initiatives to benefit the students, campus, and surrounding community. Some of the more popular annual events include Bulldog Bash, Costume Carnival, as well as the Global Lecture Series, Homecoming and the Block by Block initiatives. In addition, some Cabinet positions oversee all matters regarding academic policies and other areas of student concerns.

The Vice President of the SA presides over the legislative arm of the Student Association. The SA Senate is made up of representatives from academic colleges and At-Large members. The purpose of the SA Senate is to consider and pass legislation on any and all matters concerning students and or activities on campus.

## Student Publication

<http://www.reflector-online.com/>

*The Reflector*, the campus newspaper, appears twice weekly during the regular term and is edited and managed by students. *The Reflector* provides a wide range of news, features, and commentary of interest to the campus community. *The Reflector* office is located in the Meyer Student Media Center.

## Student Organizations

[www.one.msstate.edu](http://www.one.msstate.edu)

While it's true that Mississippi State is composed of classrooms, offices and residence halls, there's a lot more to our campus. MSU boasts over

300 student organizations which provide ample ways for students to get involved, meet other people, and make the most of their college experience. The best way to view these student organizations is by visiting the Difference of One website at [www.one.msstate.edu](http://www.one.msstate.edu) and log into Cowbell Connect with your NetID and password. This website allows you to search organizations by the things you are interested in and automatically connect to students in each of those organizations. You can also meet with the staff of the Center for Student Activities who can directly connect you to groups and student organizations in which you have shown an interest. Stop by and visit the office in Suite 314 of the Colvard Student Union or give them a call at 662-325-2930 to see what is available to make your time at MSU worthwhile.

All student organizations are housed within the Center for Student Activities, along with Music Maker Productions, New Maroon Camp, the Lyceum Series, the MSU Student Association, MSU Dance Marathon, the Miss Mississippi State University and Miss Maroon and White pageants, and the Involvement Ambassadors.

## Fraternity and Sorority Life

[www.greeks.msstate.edu](http://www.greeks.msstate.edu) (<http://www.greeks.msstate.edu>)

Mississippi State is home to 34 fraternity and sorority chapters that are all nationally recognized organizations. Fraternities and sororities at MSU promote a balance of scholarship, leadership, service, and friendship. Members of Fraternities and Sororities are expected to maintain high grades, volunteer in the local community, and get involved and be leaders in other campus organizations. Members also donate thousands of dollars annually to local and national charities and perform thousands of hours of community service. The majority of the members and leaders in the MSU student organizations are involved in one of these communities. Membership is a lifetime commitment and in return, members can expect to make lasting memories and lifelong brothers and sisters. For more information, call 662-325-3917 or visit [www.greeks.msstate.edu](http://www.greeks.msstate.edu) (<http://www.greeks.msstate.edu>).

## Musical Organizations

All MSU students, regardless of academic major, are enthusiastically invited to participate in one or more of the musical ensembles offered through the University Band, Choir, and Orchestra programs in the Department of Music. These ensembles offer diverse performance opportunities both on and off-campus. Membership is available through audition. Scholarships are available in each of the programs based on talent and experience as demonstrated through audition.

Founded in 1902, the Maroon Band Program is one of the oldest and best-known bands in the Southeast. The Famous Maroon Band is at the center of game-day spirit, is one of the most visible groups on campus, and serves as musical ambassadors for the university. The band appears at all home football games and travels to championship and bowl games. Interested members of the Maroon Band audition for placement in two Basketball Pep Bands to continue supporting the Bulldogs during basketball season.

The Wind Ensemble, Symphonic, Concert, and Campus Bands offer opportunities for students of all ability levels to pursue the study of the instruments through the performance of advanced ensemble literature, with the Wind Ensemble serving as the premiere instrumental concert ensemble. The Wind Ensemble conducts a regional performance tour annually and has been the featured university band at the Mississippi Bandmaster's Convention and for the Mississippi All-State Concert Band.

In addition to regular performances in the Mid-South, the Wind Ensemble frequently travels internationally and has recently performed in the British Isles (2008), Germany and Austria (2011), and Italy (2014).

The Jazz Bands are offered for those with an interest in jazz, and numerous chamber ensembles for winds and percussion are offered through the Department of Music.

Mississippi State Singers. Designed to represent the choral area as the premiere vocal ensemble, State Singers study and perform complex repertoire from all stylistic genres, accompanied and a cappella. In addition to performing and touring, the daily curriculum challenges singers to hone their personal musicianship skills, apply and synthesize musical facts and concepts presented in their course work, and develop a professional work ethic. Comprised of 50 – 60 singers, State Singers perform full-length concerts, both on and off campus, numerous collaborative projects, and for a variety of University functions. Touring with the ensemble is mandatory.

The Women of State is a diverse group of talented women hailing from a number of different majors and departments on campus. The choir performs a wide variety of repertoire representing all historical periods and styles. This group is comprised of 50 talented young ladies. Podium opportunities are afforded to qualified undergraduates.

Men of State. The most popular of ensembles on the MSU campus, Men of State offers opportunities for a brotherhood of singing and performance through the university community and beyond. Ranging from 75 – 100 members, the students in this ensemble represent nearly a century of history and music at MSU.

Schola Cantorum is an advanced treble ensemble. This popular group performs concerts on campus and in the surrounding area. The ensemble also performs large major works with orchestra, and presents two major concerts per semester. Members in this ensemble are expected to have above average musicianship skills. Touring with this ensemble is optional.

The Philharmonia is the MSU string orchestra and offers opportunities for students to pursue performance of string orchestral repertoire. The ensemble rehearses twice weekly and performs campus concerts each semester. Participation scholarships are available through audition, and students are encouraged to audition for the local professional ensemble, the Starkville – MSU Symphony Orchestra.

All musical ensembles are offered for academic credit and do not constitute an overload fee.

Contact information: Band – (662) 325-2713, Choir (662) 325-3490, Orchestra (662) 325-3070.

## Religion

Since Mississippi State University is a non-sectarian institution, it seeks to provide a climate of freedom in which the private and corporate religious life of the students can be expressed. Students and others within the campus community are free to worship or not to worship, in accord with their convictions and beliefs.

The Chapel of Memories, with its George D. Perry Carillon Tower, in the center of the campus, is open to individual students for meditation and prayer throughout the day and evening. It may also be reserved through the Event Services Office for weddings, funerals, initiations, and group religious activities. Student religious groups are registered through the Center for Student Involvement in the Colvard Student Union to provide

the co-curricular involvement of students in programs of study, worship, fellowship and service. Four of these groups, the Baptist, Methodist, Catholic, and Church of Christ, have off-campus facilities. In those cases where a minister or faculty advisor is not provided by the preferred group, every effort will be made to put the student in touch with someone of his or her faith in the area.

The University Common Ministry, composed of ministers engaged in campus ministry at the University, has been serving the needs of students since December 20, 1978. In addition, more than 30 active student religious groups are registered with the Center for Student Involvement.

The University realizes that for some students their spiritual growth is as important to them as their academic growth. The Dean of Students' office serves as a liaison between the university and this conglomerate of various campus ministry organizations. The University Common Ministry serves in a support and referral capacity for those students who find themselves in the need of spiritual counseling or guidance. If you have questions, please do not hesitate to contact our office at: [dos@msstate.edu](mailto:dos@msstate.edu)

In addition to the practice of religion within the student religious groups, an opportunity to learn about religions of the world is provided through credit courses in the Department of Philosophy and Religion, as well as non-credit courses offered through the church-related groups.

## University Recreation

University Recreation conducts a comprehensive program of leisure services. The program consists of men's, women's, and co-recreational sports; fitness programs and activities; racquetball court reservations, equipment check-out services; informal recreation programming; outdoor adventures; sport club opportunities; and special events.

The Joe Frank Sanderson Center opened in 1998 and offers a wide range of recreational opportunities for Mississippi State students, faculty, and staff. The facility includes six basketball/volleyball courts; four racquetball courts; a fitness room complete with weight and cardiovascular work-out equipment; jogging track; and an indoor swimming pool. The department also operates the RecPlex, a sports field complex with playing areas for softball, flag football, soccer, and tennis.

The Intramural Sports program offers competition for men and women in a variety of activities including badminton, basketball, flag football, racquetball, soccer, softball, tennis, table tennis, and volleyball. For more information, go to <http://www.urec.msstate.edu>

## Intercollegiate Athletics

Mississippi State University is a member of the Southeastern Conference, which includes in its membership 14 of the leading universities of the South. Regulations regarding participation in athletics are subject to the action of the National Collegiate Athletic Association and the Southeastern Conference. Intercollegiate sports for men include football, basketball, baseball, track, tennis and golf. Intercollegiate sports for women include basketball, volleyball, tennis, golf, cross-country, track and field, soccer and softball. Overall supervision of intercollegiate athletics is provided by Director of Athletics.

# Course Descriptions

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## African American Studies Courses

### **AAS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

### **AAS 1063 Introduction to African American Studies: 3 hours.**

Three hours lecture. An interdisciplinary examination of African-American history and culture, including the Diaspora, literature, music, reform movements, and black liberation in the U.S

### **AAS 1103 African American Music: 3 hours.**

Three hours lecture. A study of African musical and cultural traditions with focus on the impact of these traditions on the development and advancement of African American Music. (Same as MU 1103)

### **AAS 2203 Introduction to Race and Ethnicity: 3 hours.**

(Prerequisite: Three hours in an introductory social science). Three hours lecture. Introduction to the sociological examination of race and ethnicity; overview of theories and methods; exploration of how race and ethnicity impact individual and group identity and social institutions and structures. (Same as SO 2203 and AN 2203)

### **AAS 2363 Introduction to African American Literature: 3 hours.**

Three hour lecture. (Prerequisites: EN 1103 or 1113 or their equivalent). An introductory course that examines the major authors and texts of the African American Literary Tradition. (Same as EN 2363)

### **AAS 2990 Special Topics in African American Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

### **AAS 3013 African American History to 1865: 3 hours.**

Three hours lecture. An historical examination of the life and culture of African Americans in the United States from European colonization to the end of the Civil War. (Same as HI 3013)

### **AAS 3023 African American History since 1865: 3 hours.**

Three hours lecture. An historical examination of the life and culture of African Americans in the United States from the beginning of Reconstruction to the present. (Same as HI 3023)

### **AAS 3043 Modern Civil Rights Law: 3 hours.**

Prerequisite: Sophomore standing or higher. Three hours lecture. An analysis of American law as a tool for social change in education, employment, public accommodations, and voting rights. (Same as PS 3043)

### **AAS 3153 African Art and Culture: 3 hours.**

(Prerequisite: AN 1103 or consent of instructor). Three hours lecture. An examination of the role of traditional art in the beliefs and customs of representative African cultures. (Same as AN 3153 and ART 3153)

### **AAS 3193 African Cultures: 3 hours.**

(Prerequisite: AN 1103 or AN 1143 or consent of instructor). Three hours lecture. Course provides a study of sub-Saharan African cultures, including diverse social, political organization, gender roles, and culture change. (Same as AN 3193)

### **AAS 3353 Race, Crime and Justice: 3 hours.**

(Prerequisites CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Racial differences in criminal behavior, victimization, and criminal processing, emphasizing the unique experiences of racial minorities in these areas (same as CRM 3353 and SO 3353)

### **AAS 3713 History of African American Women: 3 hours.**

Three hours lecture. Examination of black women from their African origins to the present; emphasizes the social, economic and political engagement of women in American society, including reform movements, family life, business, and the arts. (Same as HI 3713/GS 3713)

### **AAS 4000 Directed Individual Study in African American Studies: 1-6 hours.**

Hours and credits to be arranged

### **AAS 4093 The African Diaspora: 3 hours.**

Prerequisite: Sophomore standing or higher ) .Three hours lecture. An interdisciplinary and comparative analysis of the dispersal of Africans throughout the world by examining the cultural, philosophical, literacy, and historical development of the Diaspora

### **AAS 4143 Gender, Race, and Social Movements: 3 hours.**

Three hours lecture. This course examines theories and research on social movements, gender and race in the United States. (Same as SO 4143/6143 and GS 4143/6143)

### **AAS 4273 African American Politics: 3 hours.**

(Prerequisite: PS 1113). Three hours lecture. The nature, processes, structures, and functions of African American politics in the domestic arena and international arena. (Same as PS 4273)

### **AAS 4343 Studies in African American Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of selected authors and/or topics in African American literature. (Same as EN 4343)

### **AAS 4363 African-American History and Culture: 3 hours.**

(Prerequisite: Completion of any 1000-level history course) African-Americans from their African origins to the present, emphasizing black-white relations in the making of America. (Same as HI 4363)

### **AAS 4373 History of Modern Civil Rights Movement: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A history of the Black struggle for equality in the United States between 1930 and 1970. (Same as HI 4373 )

### **AAS 4383 African American Leadership in the Twentieth Century: 3 hours.**

Prerequisite: Sophomore standing or higher ). Three hours lecture. An interdisciplinary course that examines the evolution and sociopolitical impact of African American leadership during the late nineteenth and twentieth centuries

### **AAS 4393 Postcolonial Literature and Theory: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A critical introduction to postcolonial studies, examining the literatures of colonized or previously colonized peoples and their diasporas. (Same as EN 4393 )

### **AAS 4543 African Politics: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. Contemporary sub-Saharan Black Africa; prospects for political development or decay. Role of parties, bureaucracy and military and their relation to elite formation and political integration. (Same as PS 4543 )

**AAS 4643 Race and the Media: 3 hours.**

(Prerequisites: SO/AAS 2203, or CO 1403, or AAS 1063 or equivalent). Three hours lecture. Examines the relationship between society, race, and the media. An examination of the social influence of how racial representations are produced, distributed, and consumed. (Same as SO 4643 and CO 4643)

**AAS 4783 African Civilization to 1880: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This is a survey course which traces the major developments in Africa to 1880. (Same as HI 4783)

**AAS 4793 Modern Africa: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This course traces Africa's history from 1880 to the present. It discusses how Africa lost and regained its sovereignty and the dilemma of independence. (Same as HI 4793)

**AAS 4983 African Americans and the Law: 3 hours.**

Prerequisite Sophomore standing or higher). Three hours lecture. Analysis of the legal and constitutional history of African Americans from the codification of slavery and discrimination in the North to the rise of segregation. (Same as HI 4983)

**AAS 4990 Special Topics in African American Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**AAS 6143 Gender, Race, and Social Movements: 3 hours.**

Three hours lecture. This course examines theories and research on social movements, gender and race in the United States. (Same as SO 4143/6143 and GS 4143/6143)

**AAS 6990 Special Topics in African American Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**AAS 8543 Diversity and Discrimination Law: 3 hours.**

Three hours lecture. Analysis of federal and state laws and regulations on diversity in the workplace, emphasizing race and national origin, sex, physical disability, religion, and age. (This course is available to students enrolled in the Graduate Online Diversity Certificate Program. It is not open to students seeking to complete degree requirements.) (Same as HI 8543 )

**AAS 8603 Racism and the Color Line: 3 hours.**

(Prerequisite: Graduate Standing and enrollment in the Diversity Certificate Program ). Three hours lecture. An analysis of race relations and racial inequality in the United States. Designed for online Diversity Certificate program students. ( Same as HI 8603)

**AAS 8793 Race and Cultural Diversity in the Workplace: 3 hours.**

(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program). Three hours lecture. An analysis of concepts, issues, and laws relating to race and cultural diversity in public and private organizations. Designed for online Diversity Certificate Program students. (Same as HI 8793)

**Ag. and Bio. Engineering Courses****ABE 1001 First Year Seminar: 1 hour.**

One hour lecture. First year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**ABE 1073 Technology Design I: 3 hours.**

(Prerequisite: For AETB majors or Consent of Instructor). One hour lecture. Four hours laboratory. Introduction to design process and parametric solid modeling. Standards for materials, processes and parametric solid modeling. Standards for materials, processes, and documentation. Experimental learning of manufacturing processes within precision measurement, joining, machining, forming

**ABE 1083 Technology Design II: 3 hours.**

(Prerequisite: ABE 1073 or Consent of Instructor). One hour lecture. Four hours laboratory. Teams work on design prototypes to meet real-world constraints (manufacturability, economics, safety). Intermediate parametric solid modeling. Emphasis on project planning, scheduling, oral/written communication

**ABE 1863 Engineering Technology in Agriculture: 3 hours.**

Three hours lecture. Introductory course emphasizing use of fundamentals for solving problems related to soil and water management, electrical power and control, agricultural machinery, and environmental control

**ABE 1911 Engineering in the Life Sciences: 1 hour.**

(Open to freshmen and sophomores or first-semester transfer students only). One hour lecture. Introduction to agricultural and biological engineering; survey of the engineering profession; elementary analysis of biological systems; creative engineering and design and synthesis

**ABE 1912 Computer Based Problem Solving in Biosystems Engineering: 2 hours.**

(Open to freshmen and sophomores or first-semester transfer students only). One hour lecture, two hours laboratory. Introduction to computer-based problem-solving techniques in Biosystems Engineering. Emphasis on the concepts and hands on implementation of computer programming to solve problems in distinct disciplines of biosystems engineering

**ABE 1922 Introduction to Engineering Design: 2 hours.**

(Prerequisite: ABE 1912). One hour lecture. Two hours laboratory. Introduction to the process of engineering design, including project management, computer-aided design, fabrication methods, technical writing and oral presentation

**ABE 2173 Principles of Agricultural and Off-Road Machines: 3 hours.**

Two hours lecture. Three hours laboratory. Operational principles and construction of agricultural and off-road vehicles. Engine, electrical, and fluid power systems. Mechanical power transmission, traction performance, and human factors

**ABE 2543 Precision Agriculture I: 3 hours.**

(Prerequisite: Sophomore standing and MA 1313). Two hours lecture. Two hours lab. This introductory course highlights site-specific crop management techniques. Topics include: Best Management Practices, economic and physical farm production models, and measurement of variability (same as PSS 2543)

**ABE 2873 Land Surveying: 3 hours.**

(Prerequisite: MA 1323 or equivalent). Two hours lecture . Three hours laboratory. Fundamentals of measurements and traverse computations. Public land surveys. Surveying practice in traverse and topographic surveys

**ABE 2990 Special Topics in Agricultural and Biological Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ABE 3303 Transport in Biological Engineering: 3 hours.**

(Prerequisite: PH 2233 and CS 1213 or CS 1233 or equivalent). Three hours lecture. Principles of steady state and unsteady state energy and mass transfer as applied to biological systems

**ABE 3413 Bioinstrumentation I: 3 hours.**

(Prerequisite: PH 2223 or equivalent). Two hours lecture. Two hours laboratory. Applied circuit analysis, electrodes and transducers, stress and strain, temperature measurements, human physiology, digital and programmable instrumentation

**ABE 3513 The Global Positional System and Geographic Information Systems in Agriculture and Engineering: 3 hours.**

(Prerequisite: MA 1313 and MA 1323, or equivalent). Two hours lecture. Four hours laboratory. Basic theory and hands-on application of global positioning system (GPS) technology/hardware, and geographic information systems (GIS) software, for precise positioning in agriculture and engineering

**ABE 3700 Internship in Gin Management and Technology: 1-6 hours.**

(Prerequisite: Minimum of junior standing or permission of instructor). Credits to be arranged. Work experience in approved cotton gins for Agricultural Engineering Technology and Business majors with an emphasis in Gin Management and Technology

**ABE 3773 Current Topics in Biomedical Engineering: 3 hours.**

Three hours lecture. This course offers an introduction to Biomedical Engineering for sophomore and junior level Biological and Biomedical Engineering students. This course will introduce students to current areas of research to advance the field of Biomedical Engineering. The course will also cover ethics related to Biomedical Engineering

**ABE 3813 Biophysical Properties of Materials: 3 hours.**

(Prerequisite: PH 2213). Two hours lecture. Two hours laboratory. Physical properties of biological products and materials. Primary emphasis on measurement and evaluation of dimensional, mechanical, rheological, transport, thermal, electrical, and optical properties

**ABE 4000 Directed Individual Study in Agricultural and Biological Engineering: 1-6 hours.**

Hours and credits to be arranged

**ABE 4163 Agricultural and Off-Road Machinery Management: 3 hours.**

(Prerequisites: ABE 2173 or consent of instructor). Two hours lecture. Two hours laboratory. Selection, sizing and operation machine systems using cost analysis and systems techniques. Emphasis on agricultural machines used in farming; tillage, planting, harvesting, and conveying agricultural materials

**ABE 4263 Soil and Water Management: 3 hours.**

(Prerequisite: ABE 2873 or Consent of Instructor). Two hours lecture. Two hours laboratory. Introduction to soil and water management principles; elementary hydrology, erosion control, irrigation, best management practices, and water quality

**ABE 4313 Biological Treatment of Nonpoint Source Pollutants: 3 hours.**

Three hours lecture. Fundamental principles and design of biologically based treatment systems used to remove pollutants and protect receiving waters from agricultural and urban/suburban storm water runoff

**ABE 4323 Physiological Systems in Biomedical Engineering: 3 hours.**

(Prerequisites: BIO 1504 or equivalent; EM 3313 or equivalent; ABE 3813; ABE 4803 or equivalent). Three hours lecture. Mathematical description and modeling of the behavior of physiological systems significant to biomedical engineers

**ABE 4383 Building Construction: 3 hours.**

(Prerequisites: EG 1143, junior standing.) Three hours lecture. An introduction to building terms, construction materials, structural components, construction methods, and mechanical systems pertaining to residential and commercial structures

**ABE 4423 Bioinstrumentation II: 3 hours.**

(Prerequisite: ABE 3413 or graduate standing). Two hours lecture. Two hours laboratory. Theory; application of automated measuring and control systems in biological sciences. Includes design/use of transducer interfaces; electronic signal conditioning; data logging; microprocessor based systems

**ABE 4443 Spectroscopic Sensing in Biosystems: 3 hours.**

(Prerequisite: Junior or graduate standing or consent of instructor). Three hours lecture. A comprehensive introduction to spectroscopic techniques and analysis in biosystems. Discuss the electromagnetic spectrum and its interaction with matter, UV-Vis-IR spectroscopy, other spectroscopic techniques, Agricultural and Biomedical applications of spectroscopy, and spectroscopic data analysis

**ABE 4463 Introduction to Imaging in Biological Systems: 3 hours.**

(Prerequisites: senior or graduate standing in an engineering discipline, or consent of instructor). Three hours lecture. Comprehensive introduction to imaging modalities and image processing and analysis methods in biosystems contexts. Imaging applications in precision agriculture, plant phenotyping, postharvest food inspection, and biomedical diagnosis

**ABE 4473 Electrical Applications for Agriculture: 3 hours.**

Two hours lecture. Two hours laboratory. Fundamental electricity, wiring, and control of agricultural operations. Includes use of computer tools, instruments, safety, and hardware

**ABE 4483 Introduction to Remote Sensing Technologies: 3 hours.**

(Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR Lidar, digital image processing, natural resource applications. (Same as ECE 4423/6423 and PSS 4483/6483)

**ABE 4523 Biomedical Materials: 3 hours.**

(Prerequisites: One of the following: ABE 3813, CHE 3413, or ME 3403). Three hours lecture. Emphasis is on applications, composition, testing, and biocompatibility of biomedical materials used in implant devices. This course may be used for honors credit

**ABE 4533 Rehabilitation Engineering: 3 hours.**

(Prerequisite: Senior standing in College of Engineering). Three hours lecture. An introduction to rehabilitation engineering emphasizing applications of technology in prosthetics, orthotics, mobility, and sensory augmentation. This course may be used for honors credit

**ABE 4543 Precision Agriculture II: 3 hours.**

(Prerequisites: PSS/ABE 2543 and Junior Standing). Two hours lecture. Two hours lab. Site-specific management techniques are examined. Continuous decision-making processes of farm production are integrated using a whole-system, geospatial approach. (Same as PSS 4543/6543)

**ABE 4613 Biomechanics: 3 hours.**

(Prerequisites: EM 2413 and EM 2433). Three hours lecture. Force, motion, and deformation analysis of organisms and biological structures. Mechanical modeling techniques unique to biological materials

**ABE 4624 Experimental Methods in Materials Research: 4 hours.**  
(Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or permission of instructors). Three hours lecture. Three hours laboratory. An introduction to research methodologies commonly used in the evaluation of treatments, and mechanical testing. ( Same as CHE 4624/6624 and ME 4624/6624)

**ABE 4723 Tissue Engineering and Regeneration: 3 hours.**  
(Prerequisite: ABE 3813) . Three hours lecture. A comprehensive course covering the fundamental concepts, multidisciplinary approaches, and clinical applications of tissue engineering/regeneration

**ABE 4800 Undergraduate Research in Ag & Bio Engineering: 13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**ABE 4803 Biosystems Simulation: 3 hours.**  
Three hours lecture. Spring semester. Application of engineering analysis, modeling and simulation to biological systems

**ABE 4813 Principles of Engineering Design: 3 hours.**  
(Prerequisite: senior standing in engineering) Two hours lecture. Two hours laboratory. First semester of the senior capstone design sequence. Students learn the fundamentals of the design process, select a design project, and complete a preliminary design

**ABE 4833 Practices of Engineering Design: 3 hours.**  
(Prerequisite: ABE 4813). One hour lecture. Two hours laboratory. Second semester of the senior design sequence. Students continue learning about engineering design as they complete, construct, and test the design began in ABE 4813

**ABE 4843 Sustainable Communities: 3 hours.**  
Three hours lecture. Theory and practices that minimize resource use and pollutant production in the human landscape (same as LA 4843/6843)

**ABE 4911 Engineering Seminar: 1 hour.**  
(Prerequisite: Consent of instructor). One hour lecture. Discussion of current engineering developments, professional developments, ethics and their relation to agriculture and the life sciences

**ABE 4961 Seminar: 1 hour.**  
(Prerequisite: Consent of instructor). One hour lecture. Review of current literature dealing with the technical problems in the agricultural industry

**ABE 4990 Special Topics in Agricultural and Biological Engineering: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ABE 6163 Machinery Management for Agro-Ecosystems: 3 hours.**  
(Prerequisites: ABE 2173 or consent of instructor). Two hours lecture. Two hours laboratory. Selection, sizing and operation machine systems using cost analysis and systems techniques. Emphasis on agricultural machines used in farming; tillage, planting, harvesting, and conveying agricultural materials

**ABE 6263 Soil and Water Management: 3 hours.**  
(Prerequisite: ABE 2873 or Consent of Instructor). Two hours lecture. Two hours laboratory. Introduction to soil and water management principles; elementary hydrology, erosion control, irrigation, best management practices, and water quality

**ABE 6383 Building Construction: 3 hours.**  
(Prerequisites: EG 1143, junior standing.) Three hours lecture. An introduction to building terms, construction materials, structural components, construction methods, and mechanical systems pertaining to residential and commercial structures

**ABE 6423 Bioinstrumentation II: 3 hours.**  
(Prerequisite: ABE 3413 or graduate standing). Two hours lecture. Two hours laboratory. Theory; application of automated measuring and control systems in biological sciences. Includes design/use of transducer interfaces; electronic signal conditioning; data logging; microprocessor based systems

**ABE 6443 Spectroscopic Sensing in Biosystems: 3 hours.**  
(Prerequisite: Junior or graduate standing or consent of instructor). Three hours lecture. A comprehensive introduction to spectroscopic techniques and analysis in biosystems. Discuss the electromagnetic spectrum and its interaction with matter, UV-Vis-IR spectroscopy, other spectroscopic techniques, Agricultural and Biomedical applications of spectroscopy, and spectroscopic data analysis

**ABE 6463 Introduction to Imaging in Biological Systems: 3 hours.**  
(Prerequisites: senior or graduate standing in an engineering discipline, or consent of instructor). Three hours lecture. Comprehensive introduction to imaging modalities and image processing and analysis methods in biosystems contexts. Imaging applications in precision agriculture, plant phenotyping, postharvest food inspection, and biomedical diagnosis

**ABE 6473 Electrical Applications for Agriculture: 3 hours.**  
Two hours lecture. Two hours laboratory. Fundamental electricity, wiring, and control of agricultural operations. Includes use of computer tools, instruments, safety, and hardware

**ABE 6483 Introduction to Remote Sensing Technologies: 3 hours.**  
(Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR Lidar, digital image processing, natural resource applications. (Same as ECE 4423/6423 and PSS 4483/6483)

**ABE 6523 Biomedical Materials: 3 hours.**  
(Prerequisites: One of the following: ABE 3813, CHE 3413, or ME 3403). Three hours lecture. Emphasis is on applications, composition, testing, and biocompatibility of biomedical materials used in implant devices. This course may be used for honors credit

**ABE 6543 Precision Agriculture II: 3 hours.**  
(Prerequisites: PSS/ABE 2543 and Junior Standing). Two hours lecture. Two hours lab. Site-specific management techniques are examined. Continuous decision-making processes of farm production are integrated using a whole-system, geospatial approach. (Same as PSS 4543/6543)

**ABE 6613 Biomechanics: 3 hours.**  
(Prerequisites: EM 2413 and EM 2433). Three hours lecture. Force, motion, and deformation analysis of organisms and biological structures. Mechanical modeling techniques unique to biological materials



**ABE 6624 Experimental Methods in Materials Research: 4 hours.**  
(Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or permission of instructors). Three hours lecture. Three hours laboratory. An introduction to research methodologies commonly used in the evaluation of treatments, and mechanical testing. ( Same as CHE 4624/6624 and ME 4624/6624)

**ABE 6723 Tissue Engineering and Regeneration: 3 hours.**  
(Prerequisite: ABE 3813) . Three hours lecture. A comprehensive course covering the fundamental concepts, multidisciplinary approaches, and clinical applications of tissue engineering/regeneration

**ABE 6803 Biosystems Simulation: 3 hours.**  
Three hours lecture. Spring semester. Application of engineering analysis, modeling and simulation to biological systems

**ABE 6843 Sustainable Communities: 3 hours.**  
Three hours lecture. Theory and practices that minimize resource use and pollutant production in the human landscape (same as LA 4843/6843)

**ABE 6990 Special Topics in Agricultural and Biological Engineering: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ABE 7000 Directed Individual Study in Agricultural and Biological Engineering: 1-6 hours.**  
Hours and credits to be arranged

**ABE 8511 Journal Reviews in Biomedical Engineering: 1 hour.**  
One hour lecture. Current journal articles relevant to Biomedical Engineering topics are read and reviewed

**ABE 8621 Methods of Biomedical Engineering Research: 1 hour.**  
One hour lecture. No prerequisites. Introduction to biomedical engineering research including literature review, experimental design, laboratory practices, presentation, and ethics

**ABE 8723 Cellular and Tissue Biomechanics: 3 hours.**  
Three hours lecture. Fundamental concepts, experimental and theoretical approaches of biomechanics and their applications in modern biomedical engineering (e.g. mechanotransduction, tissue engineering/regeneration, surgical intervention)

**ABE 8801 Clinical Experience for Biomedical Engineering: 1 hour.**  
Prerequisites: Graduate standing in the Biomedical Program and permission of the instructor. Three hours experiential learning. This course will provide graduate students with exposure, understanding, and insight into the clinical environment and/or treatment modalities of clinical (human and/or animal) patients

**ABE 8911 Agricultural and Biological Engineering Seminar I: 1 hour.**  
One hour lecture. Discussion of research needs, review of literature, and development of research work plans

**ABE 8921 Agricultural and Biological Engineering Seminar II: 1 hour.**  
One hour lecture. Discussion of research needs, review of literature, and development of research work plans

**ABE 8990 Special Topics in Agricultural and Biological Engineering: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ABE 9000 Research in Agricultural and Biological Engineering: 1-13 hours.**

Hours and credits to be arranged

## Accounting Courses

**ACC 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**ACC 2013 Principles of Financial Accounting: 3 hours.**

Three hours lecture. Financial accounting fundamentals including accounting cycle, accounting systems, cash flow, assets, liabilities, equity, and forms of business organizations. Honors section available

**ACC 2023 Principles of Managerial Accounting: 3 hours.**

(Prerequisite: ACC 2013; ACC majors must have a grade of B or better in ACC 2013). Three hours lecture. Managerial accounting fundamentals including interpretation and use of management reports, cost behavior, cost accumulation, budgeting, financial statement analysis, responsibility organizations. Honors section available

**ACC 2203 Survey of Accounting: 3 hours.**

Fundamentals of financial, managerial, and cost accounting for interpreting accounting reports. Primarily for engineering and pre-MBA students. (Not open to undergrad accounting or business majors)

**ACC 2990 Special Topics in Accounting: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ACC 3002 Running the Numbers: Fundamentals of Financial and Managerial Accounting: 2 hours.**

(Prerequisite: Admission to MVP). Introduction to financial and managerial accounting concepts essential for interpreting accounting reports produced and analyzed with new entrepreneurial opportunities

**ACC 3003 Accounting Information Systems I: 3 hours.**

(Prerequisite: Grade of B or better in ACC 2013 and ACC 2023). Three hours lecture. The course will help the conceptualization (design), development, implementation, documentation, and use of accounting information systems. Also, the course will leverage the power of dynamic spreadsheets to facilitate dynamic financial analysis

**ACC 3013 Cost Accounting: 3 hours.**

(Prerequisites: Grade of B or better in ACC 2013 and ACC 2023). Three hours lecture. The course focuses on using accounting information to make management decisions; including measurement and behavior of product costs, cost-volume-profit analysis, budgeting issues and cost reports

**ACC 3023 Intermediate Accounting I: 3 hours.**

(Prerequisites: Grade of B or better in ACC 2013 and ACC 2023). Three hours lecture. Students will gain in-depth knowledge of financial accounting and reporting related to the development of accounting standards, financial statements, income measurement, cash, receivables, inventory, property, plant, and equipment, intangibles, and other financial topics

**ACC 3033 Intermediate Accounting II: 3 hours.**

(Prerequisite: Grade of C or better in ACC 3023). Three hours lecture. Financial accounting and reporting related to liabilities, leases, pensions, income taxes, stockholder's equity, accounting changes, errors, cash flows, and earnings per share

**ACC 3053 Accounting Information Systems II: 3 hours.**

(Prerequisites: Grade of C or better in ACC 3003). Three hours lecture. AIS II introduces the basic concepts needed to complete common data analytic tasks in accountancy. The focus is on basic concepts that will have direct, practical benefit to problems in accountancy

**ACC 3203 Financial Statement Analysis: 3 hours.**

(Prerequisite: ACC 2023) . Three hours lecture. For non-accounting majors. A study of financial statements from an external users perspective; an analysis of statements for purposes of determining loan and investment potential. (Same as FIN 3203 )

**ACC 4000 Directed Individual Study in Accounting: 1-6 hours.**

(Prerequisites: ACC 2023 and consent of Director of School of Accountancy). Hours and credits to be arranged

**ACC 4013 Income Tax I: 3 hours.**

(Prerequisites: Grade of B or better in ACC 2013). Three hours lecture. This course provides an introduction to the U.S. Federal Income Tax System by introducing the fundamental structure of the Federal Income Tax System and examining the tax impact on personal and business decisions

**ACC 4023 Advanced Accounting: 3 hours.**

(Prerequisite: Grade of C or better in ACC 3033). Three hours lecture. Financial accounting and reporting related to consolidations and partnerships

**ACC 4033 Auditing: 3 hours.**

(Prerequisites: Grade of C or better in ACC 3003 and ACC 3023). Three hours lecture. Fundamentals of auditing, including evaluating controls, assessing risk, designing audit programs, statistical sampling, professional ethics, and collecting evidence for financial, internal, operational, and compliance audits

**ACC 4043 Municipal and Governmental Accounting: 3 hours.**

(Prerequisites: Undergraduate-Grade of C or better in ACC 3023; Graduate-ACC 3023 and Graduate Standing). Three hours lecture. The course covers the classification and use of fund accounting, budgetary accounting, and financial statements for governmental entities and not-for-profits

**ACC 4063 Income Tax II: 3 hours.**

(Prerequisites: Undergraduate-Grade of C or better in ACC 4013; Graduate-ACC 4013 and Graduate Standing). Three hours lecture. Students will be exposed to an overview of Corporate taxation, Partnership taxation, and Estate and Gift taxation

**ACC 4200 Accounting Internship: 6 hours.**

(Prerequisite: Senior Standing and approval by the internship director prior to the internship). Credit to be arranged based on time and circumstances of the internship providing professional experience in audit, tax and other accounting related areas

**ACC 4990 Special Topics in Accounting: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ACC 6023 Advanced Accounting: 3 hours.**

(Prerequisite: Grade of C or better in ACC 3033). Three hours lecture. Financial accounting and reporting related to consolidations and partnerships

**ACC 6043 Municipal and Governmental Accounting: 3 hours.**

(Prerequisites: Undergraduate-Grade of C or better in ACC 3023; Graduate-ACC 3023 and Graduate Standing). Three hours lecture. The course covers the classification and use of fund accounting, budgetary accounting, and financial statements for governmental entities and not-for-profits

**ACC 6063 Income Tax II: 3 hours.**

(Prerequisites: Undergraduate-Grade of C or better in ACC 4013; Graduate-ACC 4013 and Graduate Standing). Three hours lecture. Students will be exposed to an overview of Corporate taxation, Partnership taxation, and Estate and Gift taxation

**ACC 6200 Accounting Internship: 6 hours.**

(Prerequisite: Senior Standing and approval by the internship director prior to the internship). Credit to be arranged based on time and circumstances of the internship providing professional experience in audit, tax and other accounting related areas

**ACC 6990 Special Topics in Accounting: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ACC 7000 Directed Individual Study in Accounting: 1-6 hours.**

Hours and credits to be arranged

**ACC 8013 Seminar in Financial Accounting Theory: 3 hours.**

(Prerequisites: Graduate Standing; ACC 3033). Three hours lecture. Examination of the theoretical concepts, definitions, and models espoused in the accounting literature and relevant to analyzing various contemporary issues in financial accounting and reporting

**ACC 8023 Advanced Managerial Accounting: 3 hours.**

(Prerequisites: ACC 3013 and Graduate Standing). Three hours lecture. Course presents business concepts and significance of the professional duties of accountants and responsibilities within the larger context of the business environment. Emphasis is placed on developing an advanced understanding of fundamental and current issues facing the managerial accountant

**ACC 8033 Assurance and Audit Data Analysis: 3 hours.**

(Prerequisites: ACC 4033 and Graduate Standing). Three hours lecture. Students gain in-depth knowledge of professional auditing standards, financial statement auditing procedures, and audit reporting requirements. Students develop data analysis skills applicable to auditing. Students gain exposure to theoretical arguments surrounding professional rules of conduct and audit quality indicators

**ACC 8043 Fraud Examination and Data Analysis: 3 hours.**

(Prerequisites: ACC 2013 and Graduate Standing). Three hours lecture. The course covers the nature of fraud, fraud examination, and the communication of the findings from a fraud examination. Emphasis will be placed on the use of advanced data analysis techniques and procedures to detect errors and frauds

**ACC 8053 Financial Accounting Policy: 3 hours.**

(Prerequisites: ACC 3033 and Graduate Standing). Three hours lecture. This is an integrative course examining recent trends and developments in public accounting. It includes various problems and cases in accounting and related business issues, ethics, and other topics

**ACC 8063 Research in Tax Practice and Procedures: 3 hours.**

(Prerequisites: ACC 4013 and Graduate Standing). Three hours lecture. Students will gain an in-depth knowledge of the sources of tax authority. Emphasis will be placed on the using tax law to prepare tax strategy and identify planning opportunities

**ACC 8073 Taxation of Corporations and Shareholders: 3 hours.**  
(Prerequisites: ACC 4013 and Graduate Standing). Three hours lecture. Students will gain an in-depth knowledge of corporate taxation

**ACC 8093 Taxation of Partnerships, S Corporations, Trusts, and Estates: 3 hours.**  
(Prerequisites: ACC 4013 and Graduate Standing). Three hours lecture. The course introduces students to federal taxation of partnerships and S Corporations. The course uses both cases and problems to identify and provide solutions to tax problems and issues

**ACC 8101 Analysis Accounting Data: 1 hour.**  
One hour lecture. The analysis of accounting data extracted from an enterprise resource planning system to monitor business activities and support managerial decision making

**ACC 8113 Advanced Individual Taxation and Wealth Management: 3 hours.**  
(Prerequisites: ACC 4013 and Graduate Standing). Three hours lecture. This course is designed to provide an enhanced understanding of the U.S. Federal Income Tax System. Emphasis will be placed on complex tax issues encountered by individual taxpayers

**ACC 8123 Tax Topics: 3 hours.**  
(Prerequisites: ACC 4013 and Graduate Standing). Three hours lecture. The course exposes students to tax topics that are not covered in the other MTX courses. Specialized topics include individual taxation, entity taxation, estate and gift taxation, state tax issues, and ethics

**ACC 8143 Accounting Data Analytics: 3 hours.**  
(Prerequisite: ACC 3003 and Graduate Standing). Three hours lecture. This course will build a practical foundation for machine learning by teaching students basic tools and techniques that can scale to large computational systems and massive data sets. This course introduces machine learning with a focus on business applications

**ACC 8153 Ethics in Accounting: 3 hours.**  
(Prerequisites: ACC 3033 and Graduate Standing). Examination and discussion of moral and ethical issues within the accounting profession and the broader business environment. In addition to a broad study of ethical behavior and decision making, various professional codes of conduct within the accounting profession will be examined

**ACC 8163 Multijurisdictional Tax: 3 hours.**  
(Prerequisites: ACC 4013 and graduate standing). This course introduces taxation of business entities and individuals earning income in multiple jurisdictions. The course focuses on state taxation including nexus, allocation, and apportionment issues for income tax and sales and use tax as well as international tax issues

**ACC 8183 International Accounting: 3 hours.**  
(Prerequisites: ACC 3033 and Graduate Standing). Three hours lecture. A study of the international dimension of accounting as it relates to multinational corporations and the international environment. Some specific topics include: international financial reporting; financial reporting outside the USA; foreign exchange; accounting harmonization; international financial disclosure issues

**ACC 8203 Advanced Accounting Analysis for Decision Making: 3 hours.**  
(Prerequisite: ACC 2023). Three hours lecture. Application of accounting principles and concepts to alternative business possibilities as an aid to management decision making

**ACC 8213 Financial Statement and Management Accounting Report Analysis for Decision Making: 3 hours.**  
(Prerequisites: ACC 2203 or equivalent). Three hours lecture. Analysis of financial statements and internal accounting reports to help management make decisions

**ACC 8990 Special Topics in Accounting: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ACC 9000 Research in Accounting: 1-13 hours.**  
Hours and credits to be arranged

**ACC 9013 Seminar in Financial Accounting: 3 hours.**  
(Prerequisite: ACC 8013) . Review and analysis of historical and current research in financial accounting theory. Emphasis on developing critical analytical skills for evaluating financial accounting research

**ACC 9033 Seminar in Accounting Research: 3 hours.**  
(Prerequisite: Consent of the instructor) Evaluation and analysis of academic research strategies and methodologies, emphasis on (1) understanding and evaluating empirical research results and (2) formulating and writing research proposals

## Animal Science Dairy Science Courses

**ADS 1001 First Year Seminar: 1 hour.**  
One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**ADS 1013 Animal Agriculture & Society: Food for Thought: 3 hours.**  
Three hours lecture. Exploration of connections between animal agriculture and society including animal production systems, food and fiber production, consumer perceptions and addressing concerns regarding the growing world population. (Same as PO 1013)

**ADS 1111 Orientation in Animal Science: 1 hour.**  
One hour lecture. Introduction to career choices within the animal science industry

**ADS 1113 Animal Science: 3 hours.**  
Three hours lecture. Fundamental principles of livestock, dairy, and poultry science. (ADS majors must earn a C or better to graduate)

**ADS 1121 Animal Science Laboratory: 1 hour.**  
(Prerequisite: Prior credit or concurrent enrollment in ADS 1113). Two hours laboratory. Practical application of essential knowledge and skills needed in the livestock, dairy and poultry science

**ADS 1132 Introduction to Horsemanship: 2 hours.**  
One hour lecture. Two hours laboratory. Principles of riding, managing, and training pleasure horses

**ADS 2102 Equine Conformation and Performance Evaluation: 2 hours.**  
Spring Semester. Four hours laboratory. Individual evaluation of horses with an in-depth study of anatomy and its relationship to function, plus methods used in evaluating performance classes

**ADS 2111 Animal Science Career Planning: 1 hour.**  
(Prerequisites: ADS 1111). One hour lecture. Development of life skills with focus on career preparation for animal and dairy sciences' industries

**ADS 2122 Advanced Equine Evaluation: 2 hours.**

Fall Semester. (Prerequisite: ADS 2102 or consent of instructor). Four hours laboratory. Advanced evaluations of equine conformation and performance classes. Develop more extensive oral reason presentations to defend conformation and performance placings

**ADS 2202 Companion Animal Evaluation: 2 hours.**

Four hours laboratory. Individual evaluation of companion animals with an in-depth study of anatomy and its relationship to function, plus methods used in evaluating companion animals in competition

**ADS 2312 Advanced Horsemanship: 2 hours.**

One hour lecture. Two hours laboratory. Advanced equine training and riding. Developing and implementing a training regiment using upper level riding skills to produce an advanced performance horse for competition

**ADS 2313 Animal Behavior & Training: 3 hours.**

Two hours lecture and two hours laboratory. Animal behavior and application of psychology principles for training animals. Systematic approaches to training emphasizing learning principles and training methods for specific animal activities

**ADS 2990 Special Topics in Animal and Dairy Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ADS 3003 Performance Horse Training and Preparation for Sale: 3 hours.**

Six hours laboratory. Preparation and management of young horses to maximize potential profitability through sales. Emphasis placed on requirements for the initiation for riding the 2-year-old horse. Includes how training techniques affect responses in the young horse and how proper horsemanship elicits effective communication between horse and rider

**ADS 3013 Anatomy and Physiology: 3 hours.**

Three hours lecture. A survey of structure and function of animal body systems and a study of their relationships

**ADS 3031 Anatomy and Physiology Laboratory: 1 hour.**

(Prerequisite: Prior credit or concurrent enrollment in ADS 3013). Two hours laboratory. Practical application of essential knowledge of anatomy and physiology of domestic species

**ADS 3142 Meats Judging I: 2 hours.**

Four hours laboratory. To provide students with knowledge and skills in carcass grading, meat evaluation, and safe handling of meat. (Same as FNH 3142)

**ADS 3212 Livestock Evaluation: 2 hours.**

Four hours laboratory. Evaluation of individuals and representative groups of livestock from the standpoint of the breeder, the market, and the consumer

**ADS 3214 Livestock Growth and Development: 4 hours.**

(Prerequisites: ADS 1113 and ADS 1121 or ADS 1114 and ADS/VS 3014 or equivalent). Three hours lecture. Two hours laboratory. Particular emphasis will be placed on the development of bone, muscle, and adipose tissues as these are the predominant tissues of physiological and economic importance in livestock production

**ADS 3233 Equine Assisted Therapy: 3 hours.**

Two hours lecture. Two hours laboratory. Introductions to equine assisted therapy discussing the equine activities team, facilities and equipment, standards and accreditation, and special needs of the rider

**ADS 3311 Meat Processing Laboratory: 1 hour.**

(Prerequisites: At least sophomore standing and concurrent enrollment or completion of ADS/FNH 3313). Two hours laboratory. To provide the students with practical knowledge and skills of meat processing and meat products. (Same as FNH 3311)

**ADS 3312 Livestock Management Practices: 2 hours.**

(Prerequisites: ADS 1113 and ADS 1121 or ADS 1114). Four hours laboratory. Modern techniques used in proper vocational management of beef cattle, dairy cattle, sheep, swine and horses

**ADS 3313 Introduction to Meat Science: 3 hours.**

(Prerequisites: at least sophomore standing). Three hours lecture. To provide students with general principles of meat science and the muscle food industry (Same as FNH 3313)

**ADS 3413 Companion Animal Nutrition: 3 hours.**

Three hours lecture. Discovery of fundamental principles of companion animal nutrition through applied learning

**ADS 3812 Dairy Cattle Appraisal: 2 hours.**

Four hours laboratory. Phenotypic appraisal; breed programs; performance record systems

**ADS 4000 Directed Individual Study in Animal and Dairy Sciences: 1-6 hours.**

Hours and credits to be arranged. Approval by Department Head only

**ADS 4111 Swine Production and Management Laboratory: 1 hour.**

(Prerequisite or Co-requisite: ADS 4113). Two hours laboratory. Operational and management practices for further understanding of and skills for modern swine production industry

**ADS 4112 Equine Reproduction: 2 hours.**

One hour lecture. Two hours laboratory. A study of equine reproductive activities and the principles for managing the mare, stallion and foal. (Same as PHY 6112)

**ADS 4113 Swine Science: 3 hours.**

Three hours lecture. (Prerequisites: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Feeding, management, breeding, production, and marketing of swine

**ADS 4114 Animal Nutrition: 4 hours.**

(Prerequisites: CH 2503 and CH 2501 or CH 4513 and CH 4511). Four hours lecture. Nutrition of monogastric and ruminant species. Anatomy, physiology, digestion, and absorption pertaining to monogastric and ruminants. Description, functions, sources, deficiency symptoms

**ADS 4124 Animal Breeding: 4 hours.**

(Prerequisite: PO/BIO 3103 and ST/MA/BQA 2113). Three hours lecture and two hours laboratory. The basis for genetic improvement of livestock, including the study of variation, heritable characteristics, mating systems and methods of estimating breeding values

**ADS 4211 Goat and Sheep Production Lab: 1 hour.**

(Prerequisite or Co-requisite: Goat and Sheep Production ADS 4223/6223). Two hours laboratory. Practical application of management strategies in goat and sheep production

**ADS 4213 Feeds and Feeding: 3 hours.**

(Prerequisites: ADS 4114/6114). Two hours lecture; two hours laboratory. Application of knowledge of feedstuffs and nutrient requirements in ration formulation for all classes of livestock

**ADS 4221 Capstone in Animal and Dairy Science: 1 hour.**

One hour lecture. (Prerequisite: Senior Standing). Review and oral presentation of animal science research and related production problems

**ADS 4223 Goat and Sheep Production: 3 hours.**

(Prerequisite: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Three hours lecture. Management and marketing of goats and sheep in production enterprises

**ADS 4231 Practices in Horse Care & Management: 1 hour.**

(Prerequisite or Co-requisite: ADS 4233/6233). Two hours laboratory. Management practices for horses. The handling and care practices applied during various stages in a horse's life

**ADS 4232 Advanced Livestock Evaluation: 2 hours.**

Four hours laboratory. Advanced study of animal evaluation in functional efficiency

**ADS 4233 Horse Management: 3 hours.**

(Prerequisites: ADS 1113 and ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124 and ADS 4613/6613/PHY 6613). Three hours lecture. Breeding, feeding, management, and training of the horse

**ADS 4243 Composition and Chemical Reactions of Foods: 3 hours.**

(Prerequisites: Grade of "C" or better in CH 1213, and CH 2503 or equivalent, and Junior or Senior Standing). Three hours lecture. Nature and chemical behavior of food constituents including proteins, lipids, carbohydrates, minerals, water, enzymes and pigments; properties of food systems as related to commercial preparation. (Same as FNH 4243/6243)

**ADS 4313 Advanced Science of Muscle Foods: 3 hours.**

(Prerequisite: Junior standing or greater, ADS /FNH 3314, CH 1223 and/or consent of instructor). Three hours lecture. Exploration of the ultra-structure of muscle, (pre and post harvest), and the microbiology, inspection and safety, nutritional properties, and sensory characteristics of muscle. (Same as FNH 4313/6313)

**ADS 4321 Beef Cattle Laboratory: 1 hour.**

(Prerequisite or Co-requisite: ADS 4323/6323). Two hours laboratory. Management practices for beef cattle operations

**ADS 4323 Beef Cattle Science: 3 hours.**

(Prerequisites: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Three hours lecture. Breeding, feeding, management, and marketing of beef cattle

**ADS 4333 Equine Exercise Physiology: 3 hours.**

Three hours lecture. Evaluation of research in equine exercise science. Physical, physiologic, metabolic, behavioral and locomotive adaptations of the equine athlete to athletic training

**ADS 4412 Managing Livestock Sales I: 2 hours.**

(Prerequisites: Instructor approval). Four hours laboratory. Course in preparation, structure and management of livestock sales. Emphasis will be on livestock sales. Students will prepare for and conduct sale

**ADS 4420 Animal and Dairy Science Internship: 1-3 hours.**

(Prerequisite: Consent of instructor). One to three credit hours. Experience in production, management, or product promotion as it relates to the livestock, companion animal, or laboratory animal species under faculty and supervision of industry/commodity representative. Repeatable up to 6 total credit hours

**ADS 4423 Animal and Dairy Sciences Internship: 3 hours.**

(Prerequisites: Consent of instructor). Individual work experience with the farm animal species either in animal production, meat production or product promotion with an industry commodity representative under faculty supervision

**ADS 4433 Advanced Beef Cattle Production: 3 hours.**

(Prerequisites: ADS 4323 and ADS 4321.) Two hours lecture, two hours lab. Management, marketing, and utilization of beef animals with cow-calf and stocker cattle production in the U.S

**ADS 4440 Research Experience Practicum: 1-6 hours.**

(1-6 hours). (Prerequisite: consent of instructor). One to six hours practicum. Supervised research experience to gain an understanding of experimental design and planning, data collection, handling and analysis, and interpretation and presentation of results. Repeatable up to 6 hours

**ADS 4511 Companion Animal Management Laboratory: 1 hour.**

(Prerequisite or Corequisite: ADS 4513/6513). Two hours laboratory. Management practices for companion animals. The selection, handling, and care techniques for various types of companion animals

**ADS 4513 Companion Animal Management: 3 hours.**

Three hours lecture. Focus on various aspects of companion animal management including breed selection, nutrition, reproduction, and marketing

**ADS 4520 Livestock Extension Experience: 1-3 hours.**

(Prerequisite: ADS 1113 and consent of instructor). One to three hours directed experiential study. Individual work experience with Extension programs related to the animal agriculture industries. Repeatable

**ADS 4523 Internet-Based Management in Livestock Industries: 3 hours.**

(Prerequisite: Junior, senior or graduate standing). Three hours lecture. Use of the internet in making management decisions in livestock industries, with emphasis on use in livestock production enterprises

**ADS 4543 Applied Animal Biotechnology: 3 hours.**

(Prerequisites: Junior Standing or Instructor Approval). Two hours lecture and two hours laboratory. Exploring the use of livestock species as dual-purpose models to improve food animal production and to advance biomedicine through biotechnology. Topics include functional genomics, transgenic livestock production, and nanotechnology

**ADS 4553 Current Literature in Animal and Dairy Sciences: 3 hours.**

(Prerequisite: Junior, Senior or graduate standing). Three hours lecture. Evaluation of current research in animal and dairy sciences and its application to production and management

**ADS 4611 Practices in Physiology of Reproduction: 1 hour.**

(Prerequisite or Co-Requisite: ADS 4613/6613/PHY 6613). Three hours laboratory. Artificial insemination and rectal palpation of reproductive organs of cattle; semen collection, evaluation, processing and handling. (Same as PHY 6611)

**ADS 4613 Physiology of Reproduction: 3 hours.**

(Prerequisite: BIO 1134 or BIO 1144 and ADS 3013 or equivalent). Three hours lecture. Anatomy and physiology; reproductive cycles; production, evaluation and preservation of gametes; gestation; endocrine regulation; managed reproduction. (Same as PHY 6613)

**ADS 4623 Physiology of Lactation: 3 hours.**

(Prerequisite: BIO 1134 or BIO 1144 and ADS/VS 3014 or equivalent). Two hours lecture. Two hours laboratory. Anatomy, physiology, and pathology of the mammary gland; nervous and hormonal control of lactation, theories of milk secretion, modern methods of milking, factors affecting lactation. (Same as PHY 6623)

**ADS 4633 Immunology and Disease in Large Livestock Species: 3 hours.**

(Prerequisite: ADS/VS 3014). Three hours lecture. This course will cover common diseases in dairy cattle, beef cattle, and horses. Curriculum will include immunology, disease transfer, prevention methods, detection techniques, treatment options, and potential impacts on the animal, producer, and industry

**ADS 4713 Human-Animal Bond/Shelter Management: 3 hours.**

Three hours lecture. Overview of the social, physical and emotional benefits to humans through the human-animal bond with a closer look into the therapeutic roles of animals. Learn practical concepts for animal shelter management

**ADS 4772 Equine Training and Clinic Development: 2 hours.**

(Prerequisite: Consent of instructor). Four hours laboratory. Proper training and behavior modification practices to promote confidence in the riding and the training of horses. Importance is placed on the student's development of teaching ability to conduct riding clinics

**ADS 4811 Dairy Farm Management Laboratory: 1 hour.**

(Prerequisite or Co-requisite: ADS 4813/6813 Dairy Farm Management). Three hours laboratory. Practical application of management strategies in dairy production enterprises

**ADS 4813 Dairy Farm Management: 3 hours.**

(Prerequisites: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Three hours lecture. Planning and integrating dairy farm operations; management principles applied to dairy herd operations

**ADS 4823 Advanced Dairy Farm Management: 3 hours.**

(Prerequisite: ADS 4814). Two hours lecture. Four hours lab. Advanced principle of dairy science as applied to the whole farm. Management of specific groups of cattle including nutrition, breeding, and milking management

**ADS 4883 Contemporary Issues in Meat Processing and Consumption: 3 hours.**

Three hours lecture. Basic and applied information on meat production and community engaged learning on contemporary issues of meat processing and consumption

**ADS 4990 Special Topics in Animal and Dairy Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ADS 6111 Swine Production and Management Laboratory: 1 hour.**

(Prerequisite or Co-requisite: ADS 4113). Two hours laboratory. Operational and management practices for further understanding of and skills for modern swine production industry

**ADS 6112 Equine Reproduction: 2 hours.**

One hour lecture. Two hours laboratory. A study of equine reproductive activities and the principles for managing the mare, stallion and foal. (Same as PHY 6112)

**ADS 6113 Swine Science: 3 hours.**

Three hours lecture. (Prerequisites: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Feeding, management, breeding, production, and marketing of swine

**ADS 6114 Animal Nutrition: 4 hours.**

(Prerequisites: CH 2503 and CH 2501 or CH 4513 and CH 4511). Four hours lecture. Nutrition of monogastric and ruminant species. Anatomy, physiology, digestion, and absorption pertaining to monogastric and ruminants. Description, functions, sources, deficiency symptoms

**ADS 6124 Animal Breeding: 4 hours.**

(Prerequisite: PO/BIO 3103 and ST/MA/BQA 2113). Three hours lecture and two hours laboratory. The basis for genetic improvement of livestock, including the study of variation, heritable characteristics, mating systems and methods of estimating breeding values

**ADS 6211 Goat and Sheep Production Lab: 1 hour.**

(Prerequisite or Co-requisite: Goat and Sheep Production ADS 4223/6223). Two hours laboratory. Practical application of management strategies in goat and sheep production

**ADS 6213 Feeds and Feeding: 3 hours.**

(Prerequisites: ADS 4114/6114). Two hours lecture; two hours laboratory. Application of knowledge of feedstuffs and nutrient requirements in ration formulation for all classes of livestock

**ADS 6223 Goat and Sheep Production: 3 hours.**

(Prerequisite: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Three hours lecture. Management and marketing of goats and sheep in production enterprises

**ADS 6231 Practices in Horse Care & Management: 1 hour.**

(Prerequisite or Co-requisite: ADS 4233/6233). Two hours laboratory. Management practices for horses. The handling and care practices applied during various stages in a horse's life

**ADS 6233 Horse Management: 3 hours.**

(Prerequisites: ADS 1113 and ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124 and ADS 4613/6613/PHY 6613). Three hours lecture. Breeding, feeding, management, and training of the horse

**ADS 6243 Composition and Chemical Reactions of Foods: 3 hours.**

(Prerequisites: Grade of "C" or better in CH 1213, and CH 2503 or equivalent, and Junior or Senior Standing). Three hours lecture. Nature and chemical behavior of food constituents including proteins, lipids, carbohydrates, minerals, water, enzymes and pigments; properties of food systems as related to commercial preparation. (Same as FNH 4243/6243)

**ADS 6313 Advanced Science of Muscle Foods: 3 hours.**

(Prerequisite: Junior standing or greater, ADS /FNH 3314, CH 1223 and/or consent of instructor). Three hours lecture. Exploration of the ultra-structure of muscle, (pre and post harvest), and the microbiology, inspection and safety, nutritional properties, and sensory characteristics of muscle. (Same as FNH 4313/6313)

**ADS 6321 Beef Cattle Laboratory: 1 hour.**

(Prerequisite or Co-requisite: ADS 4323/6323). Two hours laboratory. Management practices for beef cattle operations

**ADS 6323 Beef Cattle Science: 3 hours.**

(Prerequisites: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Three hours lecture. Breeding, feeding, management, and marketing of beef cattle

**ADS 6333 Equine Exercise Physiology: 3 hours.**

Three hours lecture. Evaluation of research in equine exercise science. Physical, physiologic, metabolic, behavioral and locomotive adaptations of the equine athlete to athletic training

**ADS 6433 Advanced Beef Cattle Production: 3 hours.**

(Prerequisites: ADS 4323 and ADS 4321.) Two hours lecture, two hours lab. Management, marketing, and utilization of beef animals with cow-calf and stocker cattle production in the U.S

**ADS 6511 Companion Animal Management Laboratory: 1 hour.**

(Prerequisite or Corequisite: ADS 4513/6513). Two hours laboratory. Management practices for companion animals. The selection, handling, and care techniques for various types of companion animals

**ADS 6513 Companion Animal Management: 3 hours.**

Three hours lecture. Focus on various aspects of companion animal management including breed selection, nutrition, reproduction, and marketing

**ADS 6523 Internet-Based Management in Livestock Industries: 3 hours.**

(Prerequisite: Junior, senior or graduate standing). Three hours lecture. Use of the internet in making management decisions in livestock industries, with emphasis on use in livestock production enterprises

**ADS 6543 Applied Animal Biotechnology: 3 hours.**

(Prerequisites: Junior Standing or Instructor Approval). Two hours lecture and two hours laboratory. Exploring the use of livestock species as dual-purpose models to improve food animal production and to advance biomedicine through biotechnology. Topics include functional genomics, transgenic livestock production, and nanotechnology

**ADS 6553 Current Literature in Animal and Dairy Sciences: 3 hours.**

(Prerequisite: Junior, Senior or graduate standing). Three hours lecture. Evaluation of current research in animal and dairy sciences and its application to production and management

**ADS 6611 Practices in Physiology of Reproduction: 1 hour.**

(Prerequisite or Co-Requisite: ADS 4613/6613/PHY 6613). Three hours laboratory. Artificial insemination and rectal palpation of reproductive organs of cattle; semen collection, evaluation, processing and handling. (Same as PHY 6611)

**ADS 6613 Physiology of Reproduction: 3 hours.**

(Prerequisite: BIO 1134 or BIO 1144 and ADS 3013 or equivalent). Three hours lecture. Anatomy and physiology; reproductive cycles; production, evaluation and preservation of gametes; gestation; endocrine regulation; managed reproduction. (Same as PHY 6613)

**ADS 6623 Physiology of Lactation: 3 hours.**

(Prerequisite: BIO 1134 or BIO 1144 and ADS/VS 3014 or equivalent). Two hours lecture. Two hours laboratory. Anatomy, physiology, and pathology of the mammary gland; nervous and hormonal control of lactation, theories of milk secretion, modern methods of milking, factors affecting lactation. (Same as PHY 6623)

**ADS 6633 Immunology and Disease in Large Livestock Species: 3 hours.**

(Prerequisite: ADS/VS 3014). Three hours lecture. This course will cover common diseases in dairy cattle, beef cattle, and horses. Curriculum will include immunology, disease transfer, prevention methods, detection techniques, treatment options, and potential impacts on the animal, producer, and industry

**ADS 6713 Human-Animal Bond/Shelter Management: 3 hours.**

Three hours lecture. Overview of the social, physical and emotional benefits to humans through the human-animal bond with a closer look into the therapeutic roles of animals. Learn practical concepts for animal shelter management

**ADS 6772 Equine Training and Clinic Development: 2 hours.**

(Prerequisite: Consent of instructor). Four hours laboratory. Proper training and behavior modification practices to promote confidence in the riding and the training of horses. Importance is placed on the student's development of teaching ability to conduct riding clinics

**ADS 6811 Dairy Farm Management Laboratory: 1 hour.**

(Prerequisite or Co-requisite: ADS 4813/6813 Dairy Farm Management). Three hours laboratory. Practical application of management strategies in dairy production enterprises

**ADS 6813 Dairy Farm Management: 3 hours.**

(Prerequisites: ADS 1113, ADS 1121 or ADS 1114 and ADS 4114/6114, ADS 4124/6124, and ADS 4613/6613/PHY 6613). Three hours lecture. Planning and integrating dairy farm operations; management principles applied to dairy herd operations

**ADS 6814 Dairy Farm Management: 4 hours.**

(Prerequisites: ADS 1114). Three hours lecture. Two hours laboratory. Planning and integrating dairy farm operations; management principles applied to dairy herd operations

**ADS 6823 Advanced Dairy Farm Management: 3 hours.**

(Prerequisite: ADS 4814). Two hours lecture. Four hours lab. Advanced principle of dairy science as applied to the whole farm. Management of specific groups of cattle including nutrition, breeding, and milking management

**ADS 6883 Contemporary Issues in Meat Processing and Consumption: 3 hours.**

Three hours lecture. Basic and applied information on meat production and community engaged learning on contemporary issues of meat processing and consumption

**ADS 6990 Special Topics in Animal and Dairy Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ADS 7000 Directed Individual Study in Animal and Dairy Science: 1-6 hours.**

Hours and credits to be arranged

**ADS 8004 Method Application and Data Analyses in Animal Sciences: 4 hours.**

(Prerequisite: ST 8114 or equivalent). Three hours lecture and two hours laboratory. Data analyses and experimental design principles used commonly in the field of animal science. Data management and practical applications using statistical software. Assessment of validity in differing methods of analysis

**ADS 8013 Analytical Techniques for Biological Samples: 3 hours.**

Sample handling and analytical techniques with an emphasis on chromatography and mass spectrometry of small biological compounds. CAMPUS-5 STUDENTS: To enroll in the online option, students need to secure access to an operable chromatography system

**ADS 8111 Animal and Dairy Sciences Seminar: 1 hour.**

Survey of current literature; preparation, organization, and presentation of papers on selected topics in animal and dairy sciences. (Course is repeatable and may be taken 6 times)

**ADS 8133 Endocrine Secretions: 3 hours.**

(Prerequisite: BCH 4013/6013 or BCH 4603/6603 or ADS 8333 or equivalent). Three hours lecture. Study of factors by which cells communicate: the traditional endocrine system, autocrine, paracrine and neurocrine secretion. Physiological and genetic control of synthesis and secretion. (Same as PHY 8133)

**ADS 8153 Ruminant Nutrition: 3 hours.**

(Prerequisite: ADS 4114/6114 or equivalent). Three hours lecture. In-depth treatment of rumen function and recent concepts in ruminant nutrition

**ADS 8162 Monogastric Nutrition: 2 hours.**

(Prerequisite: ADS 4114/6114 or equivalent). Two hours lecture. Monogastric nutritional relationships with special emphasis on swine nutrition. Metabolic functions, dietary requirements, deficiency symptoms and distribution of nutrients in feedstuffs

**ADS 8233 Advanced Breeding: 3 hours.**

(Prerequisites: ADS 4123/6123 or PO 4303/6303, ST 8114). Three hours lecture. Describing, measuring and partitioning phenotypic variances and covariances. Estimating parameters, predicting response, systems of breeding, and methods of selection

**ADS 8243 Advanced Physiology of Reproduction: 3 hours.**

(Prerequisite: ADS 4613/6613 or its equivalent). Three hours lecture. An advanced study of the reproductive process with emphasis on reproductive endocrinology and the physiology of fertility. (Same as PHY 8243.)

**ADS 8333 Nutritional Biochemistry of Livestock Species: 3 hours.**

Three hours lecture. The biochemical aspects of post-absorptive nutrient utilization, intermediary metabolism, and tissue-level accretion in livestock species will be discussed. Particular emphasis will be placed on the contribution of nutrients to the metabolic disposition of economically important tissues including muscle and adipose

**ADS 8423 Meat Science: 3 hours.**

Three hours lecture. Basic study of the value of meat and how this information is applied to the evaluation, processing and preservation of meat, meat products and meat by-products. (Same as FNH 8423)

**ADS 8441 Journal Club: Evaluation of Current Published Work in Animal and Dairy Sciences: 1 hour.**

One hour lecture. Publication process, critical evaluation of scientific writing and published works in animal and dairy sciences, assessment of quality and proper presentation of results, and support of conclusions presented

**ADS 8463 Advanced Animal Nutrition: 3 hours.**

(Prerequisite: ADS 4114/6114 or prior approval from instructor). Three hours lecture. Develop an understanding of nutritional physiology, metabolism, and utilization of nutrients by animal species

**ADS 8473 Micro-Nutrient Nutrition: 3 hours.**

Three hours lecture. Detailed study of functions, deficiency, symptoms, dietary considerations necessary to the nutrition of fish, dogs, cats, horses, mink, rabbits, and laboratory animals

**ADS 8533 Beef Cattle Production Systems Management: 3 hours.**

(Prerequisite: ADS 4323/6323 or consent of instructor). Three hours lecture. Systems management approaches to profitable and sustainable beef cattle production including cow-calf, stocker, and feedlot industry segments

**ADS 8633 Homeostatic Regulation and Physiological Stress: 3 hours.**

(Prerequisites: PHY 6514 and PHY 8131, 8133 or consent of instructor). Three hours lecture. An integration of the physiological mechanisms involved in the control of homeostasis in mammals is emphasized with discussion of the effect of specific stressors on these mechanisms. (Same as PHY 8633.)

**ADS 8973 Scientific Writing: 3 hours.**

(Prerequisite: Graduate standing and consent of instructor). Three hours lecture. The course provides advanced training in research proposal, grant proposal, and manuscript writing. (Same as FO 8973 and CVM 8973)

**ADS 8990 Special Topics in Animal and Dairy Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ADS 9000 Research in Animal and Dairy Science: 1-13 hours.**

Hours and credits to be arranged

## Agricultural Economics Courses

**AEC 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**AEC 1223 Computer Applications for Agriculturists and Life Scientists: 3 hours.**

Two hours lecture. Two hours laboratory. Basic agricultural microcomputer applications and computing logic; creating reports using word processors; developing presentations on agricultural subjects using multimedia software; and agricultural calculations using spreadsheets

**AEC 2223 Introduction to Sustainability Economics: 3 hours.**

Three hours lecture on sustainability in economics. Sustainability related to production (including weather extremes and climate change), supply and distribution chains, and consumption

**AEC 2611 Seminar I: 1 hour.**

One hour lecture. Planning and preparing for careers in agricultural economics and agribusiness

**AEC 2631 Environmental Economics & Sustainability Seminar: 1 hour.**

One hour lecture. Planning and preparing for careers in environmental economics and sustainability. Developing economic thinking and analytical skills in applications to real world environmental and sustainability issues. (May be repeated four times)

**AEC 2713 Introduction to Food and Resource Economics: 3 hours.**

Three hours lecture. Each semester. Prerequisite to other Agricultural Economics courses. Economic principles applied to production, value, prices, credit, taxation, land tenure, marketing, international trade, and related problems affecting agriculture

**AEC 2990 Special Topics in Agricultural Economics and Agribusiness: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)



**AEC 3113 Introduction to Quantitative Economics: 3 hours.**

(Prerequisites: AEC 2713 or EC 2123; and MA 1613 or MA 1713).

Three hours lecture. Each semester. Introduction to techniques and procedures for the quantitative analysis of economic problems related to the production and distribution of agricultural products

**AEC 3133 Introductory Agribusiness Management: 3 hours.**

Three hours lecture. Study of marketing, production, risk, and financial management in agribusiness firms. Emphasis on application of economic principles to management of agri- marketing and farm supply firms

**AEC 3213 International Trade in Agriculture: 3 hours.**

(Prerequisites: EC 3113 or consent of instructor). Three hours lecture.

Examination of the importance of international agricultural trade, the economic basis of trade, and the policies affecting agricultural trade

**AEC 3233 Introduction to Environmental Economics and Policy: 3 hours.**

(Prerequisites: AEC 2713 or EC 2123). Examines how economic forces, in concert with other processes, influence environmental quality through private markets and public policy

**AEC 3413 Introduction to Food Marketing: 3 hours.**

(Prerequisites: AEC 2713 or EC 2123). Three hours lecture. Describes the principles, functions, agencies, and methods of farm and food product and input marketing

**AEC 3513 Economics of Food and Fiber Production: 3 hours.**

(Prerequisite: AEC 3113). Three hours lecture. Economic principles applied to food and fiber production situations with emphasis on firm-level decision analysis

**AEC 4000 Directed Individual Study in Agricultural Economics and Agribusiness: 1-6 hours.**

Hours and credits to be arranged

**AEC 4113 Agribusiness Firm Management: 3 hours.**

(Prerequisites: EC 3123 or consent of instructor). Three hours lecture. Examination and study of the organization, management, and operation of agricultural business with special reference to the application of managerial principles for effective decision-making

**AEC 4123 Financial and Commodity Futures Marketing: 3 hours.**

(Prerequisites: Junior standing). Three hours lecture. Discussion of the purpose, function, mechanics, analysis, and application of commodity and financial futures markets in pricing and hedging opportunities. (Same as FIN 4123/6123)

**AEC 4133 Analysis of Food Markets and Prices: 3 hours.**

(Prerequisites: AEC 3113 and EC 3123). Three hours lecture. Application of economic theory to agricultural prices and agricultural markets in price estimation, discovery, and determination. Emphasis on marketing management and pricing in agricultural firms

**AEC 4213 Ag Finance I: 3 hours.**

(Prerequisites: AEC 3113 and ACC 2023 or consent of instructor). Three hours lecture. Farm financial structure analysis; capital budgeting and long-term decision making; financial markets for agriculture; farm entry, growth, and transfer

**AEC 4223 Applied Quantitative Analysis in Agricultural Economics: 3 hours.**

(Prerequisite: AEC 3113; and BQA 2113 or ST 2113 or ST 3123; or consent of instructor). Three hours lecture. Emphasizes the intuitive understanding and practical application of basic quantitative, statistical, econometric, and optimization techniques as they relate to problem solving in agricultural economics

**AEC 4233 Environmental Economics: 3 hours.**

(Prerequisites: AEC 3233, EC 3123, and either MA 1613 or MA 1713.)

Identifies topics lying on the frontier of environmental economics; demonstrates contribution that economics can make in understanding the problems and in providing guidance on solutions

**AEC 4243 Natural Resource Economics: 3 hours.**

(Prerequisite: AEC 3233, EC 3123, either MA 1613 or 1713, or consent of instructor.) Three hours lecture. Study of economics of renewable and nonrenewable natural resource use. Emphasis on applying microeconomic concepts to land use, water, fisheries, minerals and forest

**AEC 4343 Advanced Farm Management: 3 hours.**

(Prerequisites: Senior standing, EC 3123, and AEC 4213 ). Three hours lecture. Techniques and procedures for decision making in farm business as related to determination of optimum enterprise choice and resource combination in both static and dynamic frameworks

**AEC 4363 Economics of Precision Agriculture: 3 hours.**

(Prerequisite: EC 3123) Three hours lecture. Economic profitability of precision agriculture technologies, precision farming data management, QGIS operation, economic optimal decision making in site-specific management, precision agriculture impacts on environment and agribusiness, and technology adoption

**AEC 4413 Public Problems of Agriculture: 3 hours.**

(Prerequisite: Senior standing, EC 3123 and AEC 3113). Three hours lecture. Major public and private problems of agriculture policies and action programs of government and individuals to deal with them; limitations encountered; appraisal of results

**AEC 4511 Agricultural and Resource Legislative Policy: 1 hour.**

(Prerequisites: AEC 2713 or consent of instructor). One hour lecture. Discusses agricultural policy history and development, roles of consumer, producer, and environmental groups in policy development, and congressional organization and procedures in the policy process

**AEC 4530 Agribusiness Management Internship: 1-6 hours.**

(Prerequisite: Consent of instructor). Individual work experience with approved agribusiness companies for environmental economics and management students or agribusiness students. (May be repeated for up to a total of 6 hours of credit)

**AEC 4623 Global Marketing of Agricultural Product: 3 hours.**

(Prerequisites: A marketing course is preferred or consent of instructor). This course examines marketing concepts, decisions and strategies that are involved in international marketing and trade of agricultural products. Export market analysis and planning, as well as issues that impact international agricultural trade

**AEC 4711 Agri-Marketing Practicum: 1 hour.**

Two hours laboratory. Design and preparation of marketing plan for presentation at National Agri-Marketing Association meeting. Development of plan includes market research, budgeting, and advertising layouts

**AEC 4713 Quantitative Economics: 3 hours.**

(Prerequisites: AEC 3113, EC 3113, and EC 3123). Three hours lecture. Investigation of the basic mathematical methods and techniques currently used to analyze economic problems

**AEC 4733 Econometric Analysis in Agriculture Economics: 3 hours.**

(Prerequisite: MA 1613 or MA 1713, EC 3123 and ST 2113 or BQA 2113). Three hours lecture. Applications of single-equation estimation techniques to problems in agriculture

**AEC 4803 Applied Quantitative Research: 3 hours.**

(Prerequisites: EC 3123, AEC 4223, and AELC 3203, or consent of instructor). Three hours lecture. Produce an original research paper. Quantitative research methods and their applications. Writing for academic and professional audiences

**AEC 4990 Special Topics in Agricultural Economics and Agribusiness: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AEC 6113 Agribusiness Firm Management: 3 hours.**

(Prerequisites: EC 3123 or consent of instructor). Three hours lecture. Examination and study of the organization, management, and operation of agricultural business with special reference to the application of managerial principles for effective decision-making

**AEC 6123 Financial and Commodity Futures Marketing: 3 hours.**

(Prerequisites: Junior standing). Three hours lecture. Discussion of the purpose, function, mechanics, analysis, and application of commodity and financial futures markets in pricing and hedging opportunities. (Same as FIN 4123/6123)

**AEC 6133 Analysis of Food Markets and Prices: 3 hours.**

(Prerequisites: AEC 3113 and EC 3123). Three hours lecture. Application of economic theory to agricultural prices and agricultural markets in price estimation, discovery, and determination. Emphasis on marketing management and pricing in agricultural firms

**AEC 6213 Ag Finance I: 3 hours.**

(Prerequisites: AEC 3113 and ACC 2023 or consent of instructor). Three hours lecture. Farm financial structure analysis; capital budgeting and long-term decision making; financial markets for agriculture; farm entry, growth, and transfer

**AEC 6223 Applied Quantitative Analysis in Agricultural Economics: 3 hours.**

(Prerequisite: AEC 3113; and BQA 2113 or ST 2113 or ST 3123; or consent of instructor). Three hours lecture. Emphasizes the intuitive understanding and practical application of basic quantitative, statistical, econometric, and optimization techniques as they relate to problem solving in agricultural economics

**AEC 6233 Environmental Economics: 3 hours.**

(Prerequisites: AEC 3233, EC 3123, and either MA 1613 or MA 1713.) Identifies topics lying on the frontier of environmental economics; demonstrates contribution that economics can make in understanding the problems and in providing guidance on solutions

**AEC 6243 Natural Resource Economics: 3 hours.**

(Prerequisite: AEC 3233, EC 3123, either MA 1613 or 1713, or consent of instructor.) Three hours lecture. Study of economics of renewable and nonrenewable natural resource use. Emphasis on applying microeconomic concepts to land use, water, fisheries, minerals and forest

**AEC 6323 Applied Region Econ Dev: 3 hours.**

(Prerequisite: AEC 6313). Economic analysis and effects of regional resources and development potentials, economic factors affecting industrial location decisions, planning and organization of industrial development

**AEC 6343 Advanced Farm Management: 3 hours.**

(Prerequisites: Senior standing, EC 3123, and AEC 4213 ). Three hours lecture. Techniques and procedures for decision making in farm business as related to determination of optimum enterprise choice and resource combination in both static and dynamic frameworks

**AEC 6353 Introduction to Regional Economic Development: 3 hours.**

(Prerequisites: EC 2113, EC 2123, and MA 1463 or consent of instructor). Three hours lecture. Regional economic differences; location theory (industrial, agricultural, and residential); Land use patterns; Regional structure, growth and methods of analysis; National assistance for regional economic development. (Same as EC 6313)

**AEC 6363 Economics of Precision Agriculture: 3 hours.**

(Prerequisite: EC 3123) Three hours lecture. Economic profitability of precision agriculture technologies, precision farming data management, QGIS operation, economic optimal decision making in site-specific management, precision agriculture impacts on environment and agribusiness, and technology adoption

**AEC 6413 Public Problems of Agriculture: 3 hours.**

(Prerequisite: Senior standing, EC 3123 and AEC 3113). Three hours lecture. Major public and private problems of agriculture policies and action programs of government and individuals to deal with them; limitations encountered; appraisal of results

**AEC 6511 Agricultural and Resource Legislative Policy: 1 hour.**

(Prerequisites: AEC 2713 or consent of instructor). One hour lecture. Discusses agricultural policy history and development, roles of consumer, producer, and environmental groups in policy development, and congressional organization and procedures in the policy process

**AEC 6530 Agribusiness Management Internship: 1-6 hours.**

(Prerequisite: Consent of instructor). Individual work experience with approved agribusiness companies for environmental economics and management students or agribusiness students. (May be repeated for up to a total of 6 hours of credit)

**AEC 6623 Global Marketing of Agricultural Products: 3 hours.**

(Prerequisites: A marketing course is preferred or consent of instructor). This course examines marketing concepts, decisions and strategies that are involved in international marketing and trade of agricultural products. Export market analysis and planning, as well as issues that impact international agricultural trade

**AEC 6713 Quantitative Economics: 3 hours.**

(Prerequisites: AEC 3113, EC 3113, and EC 3123). Three hours lecture. Investigation of the basic mathematical methods and techniques currently used to analyze economic problems

**AEC 6733 Econometric Analysis in Agriculture Economics: 3 hours.**

(Prerequisite: MA 1613 or MA 1713, EC 3123 and ST 2113 or BQA 2113). Three hours lecture. Applications of single-equation estimation techniques to problems in agriculture

**AEC 6803 Applied Quantitative Research: 3 hours.**

(Prerequisites: EC 3123, AEC 4223, and AELC 3203, or consent of instructor). Three hours lecture. Produce an original research paper. Quantitative research methods and their applications. Writing for academic and professional audiences

**AEC 6990 Special Topics in Agricultural Economics and Agribusiness: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AEC 7000 Directed Individual Study in Agricultural Economics and Agribusiness: 1-6 hours.**

Hours and credits to be arranged

**AEC 8123 Analysis of Agricultural Markets.: 3 hours.**

Three hours lecture. Integration of economic theory and econometric methods. Models of consumer demand and agricultural supply under perfect and imperfect competition. Modern estimation techniques, identification strategies, and causal inference

**AEC 8143 Agricultural Production Economics: 3 hours.**

(Prerequisites: EC 3123 or EC 3333 and AEC 4343/6343). Three hours lecture. Theory of production as related to agricultural production and resource use. Emphasis upon optimal organization of agricultural firms

**AEC 8163 Consumers, Producers, and Markets: 3 hours.**

(Prerequisites: EC 3123; MA 1613 or MA 1713). Three hours lecture. Focuses on economic theory related to production, consumption, and markets for products. Extensions into market structure, welfare economics, and non-market goods will also be discussed

**AEC 8233 Applied Welfare and Environmental Economics: 3 hours.**

(Prerequisite: AEC 8163 or consent of instructor). Three hours lecture. This course is an applied approach to welfare economics, wherein the normative significance of economic events is evaluated, and its application to environmental economics

**AEC 8403 Game Theory: 3 hours.**

(Prerequisite: AEC 8163 or EC 8163 or consent of instructor). Three hours lecture. An exploration of how agencies interact strategically. (Same as EC 8403)

**AEC 8532 International Agricultural Trade and Policy: 2 hours.**

(Prerequisite: EC 8163). Two hours lecture. Examination of international trade theories, policies affecting agriculture, international trade, world trade negotiations, barriers to trade, and the role of agricultural trade in the economic development

**AEC 8611 Research Seminar I: 1 hour.**

(Prerequisite: EC 3123). Selection of research topic, development of the research proposal

**AEC 8621 Research Seminar II: 1 hour.**

Final preparation of the research proposal and presentation of the proposal. Each semester

**AEC 8713 Rural Community and Economic Development: 3 hours.**

Three hours lecture. The central focus in this course is on the set of social and economic components that constitute the fabric of rural communities in the U.S

**AEC 8843 Survey Design and Experimental Economics: 3 hours.**

(Prerequisite: EC 3123 and ST 2113 or BQA 2113). Three hours lecture. An exploration of economists' use of data collection techniques, such as surveys and experiments, with emphasis on analysis of non-market valuation problems

**AEC 8990 Special Topics in Agricultural Economics and Agribusiness: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AEC 9000 Research in Agricultural Economics and Agribusiness: 1-13 hours.**

Hours and credits to be arranged

**Ag Educ, Leadership Comm Courses****AELC 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**AELC 2103 Seminar in International Studies in Agricultural Systems: 3 hours.**

Introduction to world agriculture, farming systems and technologies, crops, trade, and food production and processing. Influence of population and climate on global agriculture. Ethical issues surrounding environment, social, political and financial aspects of agriculture. (Same as GA 2103)

**AELC 2411 Orientation to Agricultural Sciences: 1 hour.**

One hour lecture. Introduction to key personnel in the School of Human Sciences, College of Agriculture and Life Sciences, and across the University. Overview of services provided by departments in the School, College, and University. In addition, various career opportunities in the agricultural industry will be covered

**AELC 2413 Orientation to Agricultural Education, Leadership & Communications: 3 hours.**

Three hours lecture. History and principles of agricultural education programs; program development, management, and community involvement; career opportunities in agricultural education, leadership and communications

**AELC 2990 Special Topics in Agricultural Education, Leadership, and Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AELC 3013 Field Experience in Agricultural Education, Leadership and Communications: 3 hours.**

(Prerequisite: Consent of Instructor). Supervised field experience for agricultural education, leadership and communications students in approved settings; pre-internship experiential learning opportunity. (May be repeated one time)

**AELC 3203 Professional Writing in Agriculture, Natural Resources, and Human Sciences: 3 hours.**

(Prerequisites: Completion of EN 1103 and 1113 or equivalent and Junior Standing). Three hours lecture. Basic principles and techniques in communicating information relevant to agriculture/agribusiness, natural resources, and life sciences

**AELC 3333 Professional Presentations in Agriculture and Life Sciences: 3 hours.**

(Prerequisite: AELC 3203). Three hours lecture. Strategies and techniques for effective presentations in agriculture, life sciences and natural resources. Emphasis on oral and visual techniques for formal and non-formal situations

**AELC 3423 Graphic Design in Agriculture and Life Sciences: 3 hours.**

Three hours lecture. An introduction to graphic design software and techniques specific to industries in agriculture and life sciences. Students will use industry-standard software to prepare text and graphics and package them for use in print production and also for use in fabric and textile manufacturing

**AELC 3503 Internship in Agricultural Science and Leadership: 3 hours.**

(Prerequisite: Senior standing or with consent of instructor). Capstone course providing students a supervised learning experience solidifying and applying concepts learned throughout their coursework in a professional atmosphere

**AELC 3603 Internship-Agricultural Communications: 3 hours.**

(Prerequisites: junior standing). Supervised field experiences related to participation in professional activities relating to problems, methods, and basic communications skills in agriculture and life sciences. Course is not repeatable

**AELC 3803 Foundations of Leadership in Agricultural and Life Sciences: 3 hours.**

Three hours lecture. Foundational theories and principles of leadership emphasizing personal characteristics, leadership styles, power and influence, group dynamics, and managing change for effective leadership in agriculture

**AELC 3813 Team Leadership for Agriculture & Life Sciences: 3 hours.**

Three hours lecture. Strategies and techniques for building and leading a successful team. Self-assessment, team-building skills, and experiential activities in teamwork are emphasized and contextualized specifically in agriculture and life sciences

**AELC 4000 Directed Individual Study in Agricultural Education, Leadership, and Communications: 1-6 hours.**

Hours and credit to be arranged

**AELC 4103 Principles and Practices of Extension Education: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Developing, implementing, and evaluating Extension and non-formal educational programs for youth and adult audiences. Comprehension and application of experiential and transformative learning models and teaching methods

**AELC 4203 Applications of Computer Tech to Agricultural Education, Leadership, and Communications: 3 hours.**

Two hours lecture and two hours laboratory. Application of microcomputer technology in agricultural education, leadership, and communications; data storage and retrieval; and use of canned computer programs in agricultural and educational settings

**AELC 4223 Communications Strategies in Agriculture and Life Sciences: 3 hours.**

(Prerequisites: Senior standing and consent of instructor). Three hours lecture. Evaluation and development of communications strategies for agriculture and life science organizations, issues, and/or products. Integrating communications techniques and teamwork are emphasized

**AELC 4403 Development of Youth Programs: 3 hours.**

Three hours lecture. Needs and interests of youth; developing, managing, and evaluating formal and non-formal youth education programs; volunteer and paraprofessional staff development; securing and developing supportive services

**AELC 4424 Teaching Methods in Agricultural and Human Sciences: 4 hours.**

(Prerequisite: College of Ag and Life Science major and junior standing). Three hours lecture. Two hours laboratory. Planning instruction; selection teaching techniques; developing teaching plans; teaching agricultural/human science topics; using instructional technologies; and evaluating learner progress. (Same as FDM/HDFS 4424)

**AELC 4503 International Agricultural Education: 3 hours.**

Three hours lecture. Examination of formal and non-formal agricultural education and related processes that influence global agricultural development including impacts of culture and changing demographics. Analysis of current global agricultural issues, roles of international organizations, and effectiveness of technology transfer

**AELC 4613 Teaching Agricultural Mechanics: 3 hours.**

Two hours lecture and three hours laboratory. Methods and strategies for teaching middle and high school students skills in agricultural mechanics

**AELC 4710 Study Tour: 1-3 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study in Agricultural Education

**AELC 4723 Pedagogy of AgriScience Programs: 3 hours.**

(Prerequisite: Senior standing or permission of instructor). Two hours lecture. Two hours laboratory. Theory and practice in planning objectives and materials, and teaching methods for organizing, delivering, and managing agricultural science programs. Restricted to AELC/AEE teaching concentration students

**AELC 4803 Contemporary Issues in Agriculture and Life Sciences: 3 hours.**

Three hours lecture. Course designed to immerse students in investigation of the issues the agriculture industry faces. Students will uncover the historical aspect of current policy and legislation, identify pertinent contemporary issues, and analyze and describe problems, impacts and solutions

**AELC 4873 Professional Seminar in Agricultural Education: 3 hours.**

(Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. Legal, professional, administrative and curricular issues in agricultural and extension education. Includes philosophy, classroom management, curriculum planning, community involvement and problem solving to plan formal and informal education programs

**AELC 4886 Teaching Internship in Agricultural Education: 6 hours.**

Supervised observation and directed teaching in respective field of endorsement. (Prerequisites: Admission to Teacher Education and senior standing; Co-requisite: AELC 4896)

**AELC 4896 Teaching Internship in Agricultural Education: 6 hours.**

Supervised observation and directed teaching in respective field of endorsement. (Prerequisites: Admission to Teacher Education and senior standing; Co-requisite: AELC 4886)

**AELC 4990 Special Topics in Agricultural Education, Leadership, and Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AELC 6103 Principles and Practices of Extension Education: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Developing, implementing, and evaluating Extension and non-formal educational programs for youth and adult audiences. Comprehension and application of experiential and transformative learning models and teaching methods

**AELC 6403 Development of Youth Programs: 3 hours.**

Three hours lecture. Needs and interests of youth; developing, managing, and evaluating formal and non-formal youth education programs; volunteer and paraprofessional staff development; securing and developing supportive services

**AELC 6424 Teaching Methods in Agricultural and Human Sciences: 4 hours.**

(Prerequisite: College of Ag and Life Science major and junior standing). Three hours lecture. Two hours laboratory. Planning instruction; selection teaching techniques; developing teaching plans; teaching agricultural/human science topics; using instructional technologies; and evaluating learner progress. (Same as FDM/HDFS 4424)

**AELC 6503 International Agricultural Education: 3 hours.**

Three hours lecture. Examination of formal and non-formal agricultural education and related processes that influence global agricultural development including impacts of culture and changing demographics. Analysis of current global agricultural issues, roles of international organizations, and effectiveness of technology transfer

**AELC 6613 Teaching Agricultural Mechanics: 3 hours.**

Two hours lecture and three hours laboratory. Methods and strategies for teaching middle and high school students skills in agricultural mechanics

**AELC 6710 Study Tour: 1-3 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study in Agricultural Education

**AELC 6723 Pedagogy of AgriScience Programs: 3 hours.**

(Prerequisite: Senior standing or permission of instructor). Two hours lecture. Two hours laboratory. Theory and practice in planning objectives and materials, and teaching methods for organizing, delivering, and managing agricultural science programs. Restricted to AELC/AEE teaching concentration students

**AELC 6873 Professional Seminar in Agricultural Education: 3 hours.**

(Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. Legal, professional, administrative and curricular issues in agricultural and extension education. Includes philosophy, classroom management, curriculum planning, community involvement and problem solving to plan formal and informal education programs

**AELC 6990 Special Topics in Agricultural Education, Leadership, and Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AELC 7000 Directed Individual Study in Agricultural and Extension Education: 1-6 hours.**

Hours and credits to be arranged

**AELC 8100 Creative Component Project in Agricultural and Extension Education: 1-13 hours.**

Capstone experience supervised by student's major professor and master's committee. Individual project involving application of coursework to the student's career goal. (Hours and credits to be arranged)

**AELC 8203 Advanced Communications in Agricultural and Extension Education: 3 hours.**

Three hours lecture. Updating of principles of communicating information in the fields of agriculture/ agribusiness, natural resources, and home economics; review and updating of communications techniques

**AELC 8243 Administration and Supervision in Agricultural and Extension Education: 3 hours.**

Three hours lecture. Focus on leadership as a component of good management for educational and human services organizations. Analysis of the decision-making process and discussions about team management, conflict resolution, and situation-based communication skills within the context of a diversity of organizational scenarios

**AELC 8263 Public Relations in Agricultural & Extension Education: 3 hours.**

Three hours lecture. Publics to be dealt with, public relations media; methods and techniques of establishing and maintaining desirable public relations

**AELC 8403 Directing Learning Experience in Agricultural and Extension Education: 3 hours.**

Three hours lecture. Planning instructional activities and educational plans for agricultural audiences for formal and non-formal audiences; assessing and evaluating student learning. Note: Not for students with prior credit in AELC/HDFS 4424 or equivalent

**AELC 8413 Methods of Planned Change in Agricultural and Extension Education: 3 hours.**

Three hours lecture. A study of the theories and processes used by change agents to plan, influence and accomplish change in social, educational and corporate environments

**AELC 8503 Program Planning and Development in Agricultural and Extension Education: 3 hours.**

Three hours lecture. Principles, theory, and practice in developing local and state programs of vocational, technical, and extension education

**AELC 8513 Volunteer Development in Agricultural and Extension Education: 3 hours.**

Three hours lecture. Principles, theory and practice of volunteer development in extension education, high schools, communities, and/or non-profit organizations

**AELC 8593 Historical Foundations of Agricultural and Extension Education: 3 hours.**

Three hours lecture. Historical development of the land-grant system; implications, influences, and evaluation of policies impacting the future of agricultural and extension education

**AELC 8603 Teaching Internship in AEE I: 3 hours.**

(Co-requisite: AELC 8613). Professional full-day public school teaching experience in diverse settings and grade levels for 8 weeks (320 hours) under classroom mentor teachers and university supervisors

**AELC 8613 Teaching Internship in AEE II: 3 hours.**

(Co-requisite: AELC 8603). Professional full-day public school experience in diverse settings and grade levels for 8 weeks (320 hours) under classroom mentor teachers and university supervisors

**AELC 8693 Philosophical Foundations of Agricultural and Extension Education: 3 hours.**

Three hours lecture. Philosophies, foundational theories, and research on teaching and learning process applied to formal and non-formal programs in agricultural and extension education

**AELC 8703 Evaluation of Agricultural and Extension Education Programs: 3 hours.**

Three hours lecture. Evaluation principles and procedures used in developing and analyzing vocational, technical, and extension education programs

**AELC 8801 Graduate Professional Seminar in Agricultural and Extension Education: 1 hour.**

One hour lecture. Introduction to the discipline of agricultural and extension education. Preparing research and program evaluations for publication and dissemination and participating as a professional in the publication process

**AELC 8803 Applying Research Methods to Agricultural and Extension Education: 3 hours.**

Three hours lecture. Principles and techniques for planning, conducting, and reporting research; development of effective design of research problems; emphasis on understanding and evaluating scientific reports

**AELC 8833 Instrumentation and Data Collection Procedures in Social Science Research: 3 hours.**

Three hours lecture. Selection, development, and analysis of instruments and procedures used for collecting research data in the social and life sciences

**AELC 8853 Statistics for Social and Life Sciences in Agriculture: 3 hours.**

Three hours lecture. Introduction to statistical techniques used to analyze quantitative data in the social and life sciences in agriculture

**AELC 8990 Special Topics in Agricultural Education, Leadership, and Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AELC 9000 Research in Agricultural and Extension Education: 1-13 hours.**

Hours and credits to be arranged

**AELC 9103 Applied Multivariate Data Analysis in AEE: 3 hours.**

Three hours lecture. Application of multivariate data analysis techniques used in the applied social and life sciences

**AELC 9583 Analysis and Interpretation of Data in Agricultural and Extension Education Research: 3 hours.**

(Prerequisite: permission of instructor). Three hours lecture. Principles and techniques for collecting, analyzing, and reporting research in agricultural and extension education. Emphasis on student research project development, student authorship

## Agricultural Info Sci Ed Courses

**AIS 2613 Introduction to Information and Decision Science in Agroecosystems: 3 hours.**

Three hours lecture. Introductory course to the science of helping people learn how to access, analyze, apply and amend information to solve problems in agriculture

## Anthropology Courses

**AN 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**AN 1103 Introduction to Anthropology: 3 hours.**

Three hours lecture. What does it mean to be human? Exploration of human nature, variation, and culture; relationships between human bodies and human culture; and human relationships to other species, living and dead, across time and space. Introduction to biological, cultural, linguistic, and archaeological perspectives on humans

**AN 1143 Introduction to Cultural Anthropology: 3 hours.**

Three hours lecture. Introduction to the study of social, political, and economic organization, magic and religion, personality, and art

**AN 1173 Introduction to Gender Studies: 3 hours.**

Three hours lecture. An introduction to theoretical concepts in Gender Studies. This course will examine the influence of the women's movement on the academic development of Gender Studies. (Same as GS 1173 and SO 1173)

**AN 1301 Laboratory for Introduction to Biological Anthropology: 1 hour.**

Two hours laboratory course. Laboratory exercises in the biology of evolution, mechanisms of speciation, concepts of race, and the primate order are explored culminating in an appreciation of paleoanthropology, human evolution, and human variation

**AN 1344 Biological Anthropology: The Making of Us: 4 hours.**

Three hours lecture. Two hours laboratory. Biology of evolution, mechanism of speciation, concepts of race, and the primate order are explored culminating in an appreciation of paleoanthropology, human evolution, and human variation

**AN 1543 Discovering Archaeology: Past Meets Present: 3 hours.**

Three hours lecture. A survey of early cultural development throughout the world; emphasis on archaeological techniques, interpretations and theories of development

**AN 2103 Nutritional Anthropology: 3 hours.**

Three hours lecture. Discussion of human diet and nutrition from holistic, cross-cultural perspective. Topics covered include evolution of human diet, nutrition and subsistence transitions; health, growth, and disease; food insecurity; and food in relation to economy, identity, religion, and senses

**AN 2203 Introduction to Race and Ethnicity: 3 hours.**

(Prerequisite: Three hours in an introductory social science). Three hours lecture. Introduction to the sociological examination of race and ethnicity; overview of theories and methods; exploration of how race and ethnicity impact individual and group identity and social institutions and structures. (Same as SO 2203 and AAS 2203)

**AN 2403 Introduction to the Study of Language: 3 hours.**

Three hours lecture. Students will be introduced to the subfields of linguistics to answer questions they have about language and to provide evidence about language acquisition and use. (Same as EN 2403)

**AN 2510 Archaeological Field Methods: Survey: 1-6 hours.**

Credit to be arranged. Archaeological surface survey methods in field setting, including map-reading, shovel- testing, collection techniques, controlled surface collection, artifact recognition

**AN 2990 Special Topics in Anthropology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AN 3113 Societies of the World: 3 hours.**

(Prerequisite: AN 1103 or its equivalent or consent of instructor). Three hours lecture. A survey of principal culture types and their distribution

**AN 3123 North American Indians: 3 hours.**

(Prerequisite: AN 1103 or consent of instructor). Three hours lecture. Ethnographic survey of the Indians of North and Mesoamerica

**AN 3133 Anthropology of Latin America: 3 hours.**

Three hours lecture. A survey of societies in Latin America with an emphasis on indigenous peoples, their relationship to contemporary social and economic development

**AN 3143 Anthropology of the Middle East: 3 hours.**

Three hours lecture. A survey of culture and society in the Middle East. Ethnographic accounts examine topics such as Islam, gender, identity, economics, politics, and the arts

**AN 3163 Maritime & Fishing People: 3 hours.**

Three hours lecture. Introduction to the anthropological investigation of maritime and fishing people. The course explores: cultural adaptations to maritime existence, the history of seafaring, characteristics of maritime peoples, overfishing, and fisheries economics, management and sustainability

**AN 3193 African Cultures: 3 hours.**

(Prerequisite: AN 1103 or AN 1143 or consent of instructor). Three hours lecture. Course provides a study of sub-Saharan African cultures, including diverse social, political organization, gender roles, and culture change. (Same as AAS 3193)

**AN 3323 Contemporary Woman: 3 hours.**

Three hours lecture. Introductory course for the Concentration in Women's Studies. Major topics are women's heritage, identity, culture, and vulnerabilities. (Same as SO 3323)

**AN 3333 Primate Behavior: 3 hours.**

Three hours lecture. In-depth study of non-human primate evolution, social behavior, and communication. Field studies and conservation efforts will be examined

**AN 3343 Introduction to Forensic Anthropology: 3 hours.**

Three hours lecture. Examination of the foundations and role of forensic anthropology in the forensic sciences. Review of the biological profile, assessment of bone trauma, identification of taphonomic agents, and an exploration of mass disasters and human rights violations

**AN 3510 Archaeological Field Methods: Excavation: 1-6 hours.**

Credit to be arranged. Excavation methods in field setting, including mapping, recording, recovery and proveniencing techniques, field research strategies

**AN 3513 Artifact Analysis: 3 hours.**

Two hours lecture. Two hours laboratory. Introduction to artifact recognition and analysis, focusing on prehistoric and historic ceramics, stone tools and debris, glass, nails, animal bones, shell, and environmental indicators

**AN 3523 North American Archaeology: 3 hours.**

(Prerequisite: AN 1103 or consent of instructor). Three hours lecture. A survey of the prehistoric cultures of North America including the influences of the high civilizations of Mesoamerica

**AN 3533 Rise of Civilization: 3 hours.**

(Prerequisite: AN 1103 or HI 1213). Three hours lecture. Survey of prehistoric cultures and their contributions to the rise of civilizations in Latin America, China, Africa, India and the Middle East

**AN 3540 Archaeological Travel and Participation Program: 1-6 hours.**

Participation in excavations in the Near East and related lecture programs. (Same as MEC 3540 and REL 3540)

**AN 3553 Near Eastern Archaeology: 3 hours.**

Three hours lecture. Introduction to the contributions made by archaeological research to ancient Near Eastern history and prehistory, with special emphasis on the Syro-Palestinian area. (Same as MEC 3553 and REL 3553)

**AN 3563 Data Analytics for Anthropology: 3 hours.**

(Prerequisite: AN1143, AN1344, and AN1543, or consent of instructor). Three hours lecture. Analytical methods for Anthropology with an emphasis on constructing research questions, data acquisition, quantitative methods, and visualizing results

**AN 4000 Directed Individual Study in Anthropology: 1-6 hours.**

Hours and credits to be arranged

**AN 4123 Anthropological Theory: 3 hours.**

(Prerequisite: AN 1103 or its equivalent or consent of instructor). Three hours lecture. A history of the development of anthropological theory; an analysis of contemporary theoretical formulations and approaches

**AN 4133 Medical Anthropology: 3 hours.**

(Prerequisite: AN 1103 or consent of instructor). Three hours lecture. The cross-cultural study of health, sickness, and medicine from a holistic perspective emphasizing interactions between culture and biology and between bio-medicine and local healing traditions

**AN 4143 Ethnographic Methods: 3 hours.**

(Prerequisites: AN 1103 or AN 1143 or consent of instructor.) Three hours lecture. An overview of methods and techniques for conducting ethnographic research

**AN 4163 Anthropology of International Development: 3 hours.**

(Prerequisite: Senior standing or consent of instructor). Three hours lecture. Role of anthropology in international development including origins of the Third World, development theory, current issues in international development, case studies

**AN 4173 Environment and Society: 3 hours.**

(Prerequisite: AN 1103, SO 1003 consent of instructor). Three hours lecture. A study of the interaction between human society and the environment including the social aspects of environmental problems. (Same as SO 4173/6173)

**AN 4303 Human Variation and Origins: 3 hours.**

Three hours lecture. An examination of human origins, genetics, and other principal factors that contribute to physical variation within and between human populations

**AN 4313 Human Osteology: 3 hours.**

Two hours lecture and two hours laboratory. Identification of each human bone both complete and fragmentary. Study of skeletal and dental development, sex differences, age changes, hard tissue histology, trauma analysis, and paleopathology. Guest lectures in advanced laboratory methods

**AN 4323 Plagues and People: 3 hours.**

Three hours lecture. Discussion of the impact of epidemic infectious diseases, such as the Black Death, syphilis, and HIV/AIDS, on human societies throughout history

**AN 4333 Anthropology of Violence: 3 hours.**

Three hours lecture. Cross-cultural anthropological analysis of group-level violence. Examination of modern ethnography, and archaeological and bioarchaeological data

**AN 4343 Anthropology of Death: 3 hours.**

Three hours lecture. Cross-cultural anthropological analysis of mortuary processes and behaviors. Examination of modern ethnography, archaeological and bioarchaeological data

**AN 4353 Biology and Culture: 3 hours.**

Three hours lecture. Exploration and translation into public educational materials of relationships between human biology and culture and their impacts on diet; reproduction; aging; infectious and non-communicable disease; intersectional experiences of race, gender, racism, and prejudice; mental health; sleep; resilience; trauma and violence. Same as AAS 4353/6353

**AN 4363 Advanced Methods in Forensic Anthropology: 3 hours.**

(Prerequisite: AN 3343 and AN 4313, or consent of instructor). Three hours lecture. Advanced hands-on experience and training in the methods used for identification of unknown human skeletal remains. Includes in-depth discussion of the biological profile, taphonomy, and pathology

**AN 4403 Introduction to Linguistics: 3 hours.**

Three hours lecture. The descriptive and historical study of language; linguistic analysis and comparison; language classification; language in its social and cultural setting. (Same as EN 4403/6403)

**AN 4523 Public Archaeology: 3 hours.**

(Prerequisite: AN 1543 or consent of instructor). Three hours lecture. Survey of cultural resource management practices, Federal and State historic preservation laws, research proposal design, significance assessments, professional ethics, employee/client relationships, and public education

**AN 4623 Language and Culture: 3 hours.**

Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as EN 4623/6623 and SO 4623/6623)

**AN 4633 Language and Society: 3 hours.**

Three hours lecture. Examination of relationship between language and society, and how, when, and why people in speech communities use language varieties. (Same as EN 4633/6633 and SO 4633/6633)

**AN 4800 Undergraduate Research in Anthropology: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**AN 4990 Special Topics in Anthropology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AN 6123 Anthropological Theory: 3 hours.**

(Prerequisite: AN 1103 or its equivalent or consent of instructor). Three hours lecture. A history of the development of anthropological theory; an analysis of contemporary theoretical formulations and approaches

**AN 6133 Medical Anthropology: 3 hours.**

(Prerequisite: AN 1103 or consent of instructor). Three hours lecture. The cross-cultural study of health, sickness, and medicine from a holistic perspective emphasizing in-teractions between culture and biology and between bio- medicine and local healing traditions

**AN 6143 Ethnographic Methods: 3 hours.**

(Prerequisites: AN 1103 or AN 1143 or consent of instructor.) Three hours lecture. An overview of methods and techniques for conducting ethnographic research

**AN 6163 Anthropology of International Development: 3 hours.**

(Prerequisite: Senior standing or consent of instructor). Three hours lecture. Role of anthropology in international development including origins of the Third World, development theory, current issues in international development, case studies

**AN 6173 Environment and Society: 3 hours.**

(Prerequisite: AN 1103, SO 1003 consent of instructor). Three hours lecture. A study of the interaction between human society and the environment including the social aspects of environmental problems. (Same as SO 4173/6173)

**AN 6303 Human Variation and Origins: 3 hours.**

Three hours lecture. An examination of human origins, genetics, and other principal factors that contribute to physical variation within and between human populations

**AN 6313 Human Osteology: 3 hours.**

Two hours lecture and two hours laboratory. Identification of each human bone both complete and fragmentary. Study of skeletal and dental development, sex differences, age changes, hard tissue histology, trauma analysis, and paleopathology. Guest lectures in advanced laboratory methods

**AN 6323 Plagues and People: 3 hours.**

Three hours lecture. Discussion of the impact of epidemic infectious diseases, such as the Black Death, syphilis, and HIV/AIDS, on human societies throughout history

**AN 6333 Anthropology of Violence: 3 hours.**

Three hours lecture. Cross-cultural anthropological analysis of group-level violence. Examination of modern ethnography, and archaeological and bioarchaeological data

**AN 6343 Anthropology of Death: 3 hours.**

Three hours lecture. Cross-cultural anthropological analysis of mortuary processes and behaviors. Examination of modern ethnography, archaeological and bioarchaeological data

**AN 6353 Biology and Culture: 3 hours.**

Three hours lecture. Exploration and translation into public educational materials of relationships between human biology and culture and their impacts on diet; reproduction; aging; infectious and non-communicable disease; intersectional experiences of race, gender, racism, and prejudice; mental health; sleep; resilience; trauma and violence. Same as AAS 4353/6353

**AN 6363 Advanced Methods in Forensic Anthropology: 3 hours.**

(Prerequisite: AN 3343 and AN 4313, or consent of instructor). Three hours lecture. Advanced hands-on experience and training in the methods used for identification of unknown human skeletal remains. Includes in-depth discussion of the biological profile, taphonomy, and pathology

**AN 6403 Introduction to Linguistics: 3 hours.**

Three hours lecture. The descriptive and historical study of language; linguistic analysis and comparison; language classification; language in its social and cultural setting. (Same as EN 4403/6403)

**AN 6523 Public Archaeology: 3 hours.**

(Prerequisite: AN 1543 or consent of instructor). Three hours lecture. Survey of cultural resource management practices, Federal and State historic preservation laws, research proposal design, significance assessments, professional ethics, employee/client relationships, and public education



**AN 6623 Language and Culture: 3 hours.**

Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as EN 4623/6623 and SO 4623/6623)

**AN 6633 Language and Society: 3 hours.**

Three hours lecture. Examination of relationship between language and society, and how, when, and why people in speech communities use language varieties. (Same as EN 4633/6633 and SO 4633/6633)

**AN 6990 Special Topics in Anthropology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AN 7000 Directed Individual Study in Anthropology: 1-6 hours.**

Hours and credits to be arranged

**AN 8011 Professionalization in Applied Anthropology: 1 hour.**

One hour seminar. Students are introduced to norms of professional behavior in Applied Anthropology, with focus on success in graduate school and preparation for the job market

**AN 8013 Quantitative Methods in Anthropology: 3 hours.**

Students are introduced to quantitative methods utilized in anthropological research. Students will examine anthropological research design, sampling strategies, probability theory, and various statistical approaches

**AN 8103 Applied Cultural Anthropology: 3 hours.**

(Prerequisites: AN 1103 or AN 1143 or consent of instructor). Three hours lecture. An overview of the application of anthropological theory and method of contemporary social problems

**AN 8123 Environmental Anthropology: 3 hours.**

(Prerequisite: None). Three hours seminar. Study of anthropological approaches to analyzing the relationship between humans and the environment

**AN 8183 Culture, Place and Space: 3 hours.**

Three hours lecture. This course investigates the relationship between culture, space, and place, introducing key ways social scientists approach these concerns. A central focus is the relationship between modes of social difference—particularly race, gender, and class—and cultural meaning in spatial power relations. (Same as GR 8183)

**AN 8193 Current Cultural Theory: 3 hours.**

(Prerequisite: None). Three hours seminar. The study of contemporary theoretical perspectives and problems in cultural anthropology

**AN 8215 Internship in Applied Anthropology: 5 hours.**

A minimum of nine weeks of supervised professional anthropology experience in an appropriate setting

**AN 8303 Seminar in Bio-archaeology: 3 hours.**

Three hours lecture. Overview of applications in bioarchaeology, including paleodemography, paleopathology, and paleonutrition

**AN 8313 Paleopathology: Ancient Disease: 3 hours.**

Three hours seminar. Seminar on theory and methods for reconstructing the history of human health and disease from skeletal, archaeological, biomolecular, and historical material

**AN 8513 Southeastern Archaeology: 3 hours.**

Three hours lecture. Prehistory of Southeastern U.S. from entry of first people to European contact. Changes in technology, settlement, subsistence, demography, and environment examined using archaeological evidence

**AN 8523 Environmental Archaeology: 3 hours.**

Three hours lecture. Coverage of method and theory in environmental archaeology, including elements of palynology, geoarchaeology, floral and faunal analysis, landscape ecology, historical ecology, cultural ecology, and taphonomy

**AN 8533 Readings in Archaeology: Theory: 3 hours.**

Three hours lecture. Archaeological theory and its implications for practice, focusing on evolutionary archaeology but also including culture history, processual, reconstructionist, and post-processual approaches

**AN 8543 Household Archaeology: 3 hours.**

Three hours lecture. Explores inner-workings of societies through the archaeological investigation of households globally. Reviews household universality, composition, function and variation. Considers theoretical, methodological, and substantive issues

**AN 8553 Readings in Archaeology: Applications: 3 hours.**

Three hours lecture. Review of literature related to materials science in archaeology, including thin-sectioning and petrography, raw material sourcing, organic residues, dating techniques, and preservation technology

**AN 8990 Special Topics in Anthropology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AN 9000 Research in Anthropology: 1-13 hours.**

Hours and credits to be arranged

## Architecture Courses

**ARC 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**ARC 1003 Concept and Form: 3 hours.**

(Prerequisites: ART 1213 or ART 1123 or ARC 1536 or BSC 2116) Three hours lecture. Introduction and practice for developing and presenting concepts and criticism

**ARC 1013 Architectural Appreciation: 3 hours.**

Three hours lecture. Illustrated study of architecture's role in shaping the quality of man's environment. Architectural history, design theory, and process as it affects daily life. Intended for non-majors. (Same as BCS 1013)

**ARC 1536 Architectural Design I-A: 6 hours.**

(Prerequisite: Letter of Acceptance into design studio and consent of Director of Architecture). Two hours lecture. Ten hours studio. Introduction to creative process, design principles and methods. Design projects emphasize verbal and visual communication, observing, analyzing, representing, and making of space and architectonically derived form

**ARC 1546 Architectural Design I-B: 6 hours.**

(Prerequisite: ARC 1536 or consent of Director). Two hours lecture. Ten hours studio. Introduction to creative process, design principles and methods. Design projects emphasize verbal and visual communication; observing, analyzing, representing, and making of form, space, materials

**ARC 2313 History of Architecture I: 3 hours.**

Three hours lecture. A survey of the built environment from prehistory through the Early Middle Ages

**ARC 2536 Architectural Design II-A: 6 hours.**

(Prerequisite: ARC 1546 or equivalent or consent of the Director). One hour lecture. Eleven hours studio. Introduction to fundamental aspects of building including structural-spatial ordering systems. Projects emphasize linkages between people and spaces through investigation of perceptual-conceptual issues

**ARC 2546 Architectural Design II-B: 6 hours.**

(Prerequisite: ARC 2713 and ARC 2536 or equivalent, or consent of the director). One hour lecture. Eleven hours studio. Introduction to fundamental aspects of building including structural-spatial ordering systems that build on fundamental design principles taught in previous semesters. Further emphasis is placed on sustainable design methods

**ARC 2713 Environmental Building Systems I: 3 hours.**

(Prerequisite: Architecture majors-ARC 1546 and PH 1123; BCS majors-PH 1123; others-instructor consent). Three hours lecture. Investigation of the morphological impacts of various environmental energies on building forms/systems. Includes light, climatic, and ecological factors. Same as BCS 2713

**ARC 2723 Materials: 3 hours.**

(Prerequisite: Architecture majors - ARC 2536, Non-architecture majors - ARC 1013). Three hours lecture. Introduction to construction materials for Architects. Topics include technical/performance properties, physical characteristics, manufacturing and harvesting, aesthetics, selection and specification, precedents, and environmental impact

**ARC 2990 Special Topics in Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ARC 3313 History of Architecture II: 3 hours.**

(Prerequisite: ARC 2313). Three hours lecture. Survey of major developments in architecture and city planning from the Fourteenth through the Eighteenth Centuries

**ARC 3323 History of Architecture III: 3 hours.**

(Prerequisite: ARC 3313). Three hours lecture. Survey of major developments in American and world architecture and survey of major developments in European architecture beginning from the mid-eighteenth century to the twenty first century

**ARC 3536 Architectural Design III-A: 6 hours.**

(Prerequisite: ARC 2546 or equivalent or consent of the Director). One hour lecture. Eleven hours laboratory. Urban Housing architecture design studio that addresses issues of urbanity, dwelling, spatial and building planning, life safety, regulatory requirements and building codes

**ARC 3546 Architectural Design III-B: 6 hours.**

(Prerequisite: ARC 3713 and ARC 3536 or equivalent, or consent of the director). One hour lecture. Eleven hours laboratory. The development of building design while collaborating with allied professionals on an intermediate scale project by incorporating environmental concerns, building construction assemblies, and building code/zoning and accessibility issues

**ARC 3573 The Art/Architecture of Packaging: 3 hours.**

Three hours lecture . Investigations into theories, techniques, and procedures of packaging (with emphasis on portfolio design) through traditional, mechanical,, and digital means

**ARC 3713 Assemblages: 3 hours.**

(Prerequisite: ARC 2546 and ARC 2723). Two hours lecture and two hours laboratory. Building construction assemblies in relation to building codes, zoning, structure, cladding, moisture/thermal barriers, and fenestration is explored through research and preliminary construction drawings

**ARC 3723 Environmental Building Systems II: 3 hours.**

(Prerequisites: ARC majors-ARC 2546 and ARC 2713; BCS majors-BCS 2713 and BCS 2116; others-consent of instructor). Three hours lecture. Concentrates on defining the mechanical and electrical (active) techniques available to architects for integrating thermal comfort and life safety into the built form. (Same as BCS 3723)

**ARC 3813 Study Abroad Seminar I: 3 hours.**

(Prerequisite: ART 1213 or consent of instructor.) Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor (Same as ART 3813 and ID 3813.)

**ARC 3823 Study Abroad Seminar II: 3 hours.**

(Prerequisite: ART 1213 or consent of instructor.) Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor (Same as ART 3823 and ID 3823.)

**ARC 3904 Architectural Structures I: 4 hours.**

(Prerequisite: MA 1613 and either ARC 1546 or BCS 2226) Three hours lecture. Two hours laboratory. Application of the principles of statics and the strength of materials on structural elements. (Same as BCS 3904)

**ARC 3914 Structures II: 4 hours.**

(Prerequisite: ARC 3904) Three hours lecture. Two hours laboratory. Design and analysis of structural elements as part of frames and other structural systems. (Same as BCS 3914)

**ARC 4000 Directed Individual Study in Architecture: 1-6 hours.**

Hours and credits to be arranged with approval of School of Architecture Director

**ARC 4152 Digital Design I Laboratory: 2 hours.**

(Prerequisite: Undergraduate-permission of instructor; Graduate-none). Four hours laboratory. Laboratory exploration of digital input and output devices concentrating of conceptual design, design development, and manufacturing/construction CAD/CAM processes using automated machines and devices

**ARC 4313 Architectural Theory: 3 hours.**

(Prerequisite: ARC 3323 or equivalent and consent of instructor, and ARC 3546). Three hours lecture. A critical investigation of writings that have shaped architectural theory

**ARC 4333 Contemporary Philosophy and Architecture: 3 hours.**

(Prerequisites: Junior standing or permission of instructor). Three hours lecture. An examination of modernism and postmodernism in philosophy and architecture. (Same as PHI 4013/6013)

**ARC 4536 Architectural Design IV-A: 6 hours.**

(Prerequisite: ARC 3546 or equivalent or consent of director). One hour lecture. Eleven hours laboratory. Design of architectural elements integrating building systems, social concerns, and environmental factors. Studies involve intermediate to large scale projects in realistic architectural situations

**ARC 4546 Architectural Design IV-B: 6 hours.**

(Prerequisites: ARC 3914 and ARC 4536 or equivalent with approval of director). One hour lecture. Eleven hours laboratory. Integrated design studio that demonstrates design, materials and methods synthesis. Topics Include: user and regulatory requirements, site context, accessibility, building envelope assemblies, structural systems, environmental controls, life safety, and sustainability

**ARC 4613 CREATE Common Ground: 3 hours.**

Three hours seminar. Service learning through urban design, issues of economic development/renewal, historic preservation, and transportation for small towns in the CREATE Foundation region

**ARC 4623 Historic Preservation Research Methods: 3 hours.**

(Prerequisite: Junior or Graduate standing or consent of the instructor; ID 4403/6403 – Introduction to Historic Preservation). Three hours seminar. Instruction in research methods to identify, record, and assess historic structures and sites

**ARC 4633 Architecture and Virtual Spaces: 3 hours.**

Three hours lecture. Exploration of physical and virtual worlds from a theoretical, technical, communication, and design perspective

**ARC 4733 Site Planning for Architects: 3 hours.**

(Prerequisite: ARC 2546 or by permission of the instructor) Three hours lecture. Introduces natural ecological systems as they relate to human impacts. The course also explores issues of Site Engineering and Grading, Urban Planning, Legal and Regulatory Context, Site sensitive site planning and stormwater management systems

**ARC 4990 Special Topics in Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ARC 5353 Philosophy of Architecture: 3 hours.**

(Prerequisite: ARC 4313 Architectural Theory). Three hours lecture and field visits. The philosophical issues of meaning, appreciation, and the distinctive characteristics of the artistic creation

**ARC 5383 Legal Aspects of Architecture: 3 hours.**

Three hours lecture. Investigation and research regarding architectural issues including architectural law, contracts, litigation, case studies and other topical issues

**ARC 5443 Architectural Programming: 3 hours.**

One hour lecture. Six hours laboratory. Advanced study of analytical and intuitive methods of programming, leading to development of terminal project program to be used in ARC 5589

**ARC 5493 Architectural Practice: 3 hours.**

Three hours lecture. Investigation into issues facing the graduate architect including: responsibilities to the community and the profession; project and business management; client relations; and delivery of services

**ARC 5576 Architectural Design V-A: 6 hours.**

(Prerequisite: ARC 4546). One hour lecture. Fifteen hours laboratory. Theory and application of architectural problems at urban scale. Investigation of social, economic, political issues effecting architectural programming and design

**ARC 5589 Architectural Design V-B: 9 hours.**

(Prerequisite: ARC 5576 and ARC 5443). Two hours lecture. Twenty hours laboratory. Development of architectural project of complex and comprehensive nature. Emphasis upon thorough examination of all aspects of building

**ARC 5623 Theory of Urban Design: 3 hours.**

(Prerequisite ARC 4313 Architectural Theory). Three hours lecture. General introduction into field of urban design. Course divided into two areas of theory and practice as they relate to contemporary urban development

**ARC 5990 Advanced Special Topics in Architecture: 9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ARC 6114 Professional Practice Strategies: 4 hours.**

Four hours lecture. Exploration of the students career goals relative to emerging technology impact and design/architectural practice trends

**ARC 6152 Digital Design I Laboratory: 2 hours.**

(Prerequisite: Undergraduate-permission of instructor; Graduate-none). Four hours laboratory. Laboratory exploration of digital input and output devices concentrating of conceptual design, design development, and manufacturing/construction CAD/CAM processes using automated machines and devices

**ARC 6162 Digital Design II Laboratory: 2 hours.**

(Prerequisite: ARC 4152/6152). Four hours laboratory. Advanced laboratory exploration of digital input and output devices concentrating on conceptual design, design development and manufacturing/construction CAD/CAM processes using automated machines and devices

**ARC 6333 Contemporary Philosophy and Architecture: 3 hours.**

(Prerequisites: Junior standing or permission of instructor). Three hours lecture. An examination of modernism and postmodernism in philosophy and architecture. (Same as PHI 4013/6013)

**ARC 6613 CREATE Common Ground: 3 hours.**

Three hours seminar. Service learning through urban design, issues of economic development/renewal, historic preservation, and transportation for small towns in the CREATE Foundation region

**ARC 6623 Historic Preservation Research Methods: 3 hours.**

(Prerequisite: Junior or Graduate standing or consent of the instructor; ID 4403/6403 – Introduction to Historic Preservation). Three hours seminar. Instruction in research methods to identify, record, and assess historic structures and sites

**ARC 6633 Architecture and Virtual Spaces: 3 hours.**

Three hours lecture. Exploration of physical and virtual worlds from a theoretical, technical, communication, and design perspective

**ARC 6813 Public Design Seminar I: 3 hours.**

(Prerequisite: Acceptance in Public Design Inter Program.) Three hours lecture. Public practice theory; limitations of standard practice to meet contemporary social, economic and environmental needs; values and leadership of community organizations; examples of alternative practice

**ARC 6823 Public Design Seminar II: 3 hours.**

(Prerequisite: ARC 6813.) Three hours lecture. Understanding community; local services and economic problems and global environmental risks; understanding minority subcultures, poverty, and the role of non-profit organizations

**ARC 6833 Public Design Seminar III: 3 hours.**

(Prerequisite: ARC 6823.) Three hours lecture. Creating and using tools of public practice to help communities address social, economic and environmental problems; leadership skills, advocacy planning, sustaining a non-profit practice

**ARC 6853 Public Practice and Projects I: 3 hours.**

(Prerequisite: Acceptance in Public Design Intern Program). Two hours lecture. Two hours laboratory. Various models of design practice presented by ten outside practitioners. Parallel studio team project

**ARC 6863 Public Practice and Projects II: 3 hours.**

(Prerequisite: ARC 6853). Two hours lecture. Two hours laboratory. Survey of governmental and non-profit organizations that work in the community presented by ten outside practitioners. Parallel studio team project

**ARC 6873 Public Practice and Projects III: 3 hours.**

(Prerequisite: ARC 6863.) Two hours lecture. Two hours laboratory. Challenging the status-quo; presentations by ten visionary people. Parallel studio team projects

**ARC 6990 Special Topics in Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ARC 7000 Directed Individual Study in Architecture: 1-6 hours.**

Hours and credits to be arranged

**ARC 8114 Digital Design I: 4 hours.**

Four hours lecture. Exploration of digital input and output devices concentrating on conceptual design/visualization processes using 3D/4D software and augmenting hardware devices

**ARC 8124 Digital Design II: 4 hours.**

(Prerequisite:ARC 8114) Four hours lecture. Exploration of digital input and output devices concentration on conceptual design, design development, and manufacturing/construction CAD/CAM processes using automated machines and devices

**ARC 8134 Digital Design III: 4 hours.**

Four hour lecture. Advanced exploration of digital input and output methods using 1,2,3,4, and 5D modeling software/hardware application in both virtual and physical problems in theoretical and applied design and research projects

**ARC 8172 Digital Design III Laboratory: 2 hours.**

Four hours laboratory. Advanced laboratory providing exploration of digital input and output methods using 1,2,3,4 and 5D modeling software/hardware applications in both virtual and physical problems in theoretical and applied design and research projects

**ARC 8224 Research and Writing in Architecture: 4 hours.**

Four hours lecture. Provides the student with general grounding in the process of research, problem identification writing, and development of a formal argument in design and architecture

**ARC 8444 Interactive Media: 4 hours.**

(Prerequisite:ARC 6633 ) Three hours lecture. Two hours laboratory. Exploration of media and interaction design solutions through case studies and design exercises using emerging technologies and congruent design concepts

**ARC 8990 Special Topics in Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ARC 9000 Research in Architecture: 1-13 hours.**

Hours and credits to be arranged

## Art Courses

**ART 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**ART 1013 Art History I: 3 hours.**

Three hours lecture. The study of art from prehistoric times to the Renaissance through the architecture, sculpture, painting and minor arts of the western world

**ART 1023 Art History II: 3 hours.**

Three hours lecture. Art from the Renaissance to the present studied chronologically through the architecture, painting, sculpture, and minor arts of the western world

**ART 1113 Art Appreciation: 3 hours.**

Three hours lecture. An illustrated lecture course dealing with periods, styles, and personalities in painting, sculpture, and architecture. Honors section available

**ART 1123 Design I: 3 hours.**

Six hours studio. A basic study of the fundamental elements and principles of design with an emphasis on composition

**ART 1133 Design II: 3 hours.**

(Prerequisite: ART 1123). Six hours studio. A continued study of the fundamental elements and principles of design with an emphasis on the theory and application of color

**ART 1153 Three-Dimensional Design: 3 hours.**

(Prerequisites: ART 1123 or ARC 2536). Six hours studio. An study of the organization of the principles and elements of art as they apply to three-dimensional artwork

**ART 1213 Drawing I: 3 hours.**

Six hours laboratory. A freehand drawing course for all students interested in the visual arts. This course offers the basic vocabulary for a graphic notation

**ART 1223 Drawing II: 3 hours.**

(Prerequisite: ART 1213). Six hours studio. A continuation of ART 1213 further developing conceptual and perceptual use of drawing tools, processes and materials. Black and white, and color media explored

**ART 2013 Painting Survey: 3 hours.**

(Prerequisites: ART 1123 and ART 1213). Six hours laboratory. The fundamentals of oil paintings and composition

**ART 2063 Global Contemporary Art: 3 hours.**

Three hours lecture. This course examines the role of visual culture in the age of globalization. Throughout the semester, students will learn various approaches to visual culture studies using theoretical, practical, creative, and philosophical frameworks

**ART 2103 Photography Survey: 3 hours.**

(Prerequisites: ART 1123 and ART 1213). One hour lecture. Three hours studio. The fundamentals and aesthetics of black and white photography relating to graphic design and the fine arts

**ART 2213 Life Drawing I: 3 hours.**

(Prerequisites: ART 1213 and ART 1223). Six hours laboratory. A drawing class with emphasis on the basic forms and proportions of the human figure

**ART 2233 Drawing III: 3 hours.**

(Prerequisite: ART 1223). Six hours laboratory. A continuation of ART 1223 to develop further drawing skills and concepts for advanced students

**ART 2303 Printmaking Survey: 3 hours.**

(Prerequisites: ART 1123, ART 1133, and ART 1223). Six hours studio. Introduction to the basic techniques and concepts of intaglio and relief printmaking

**ART 2403 Sculpture Survey: 3 hours.**

(Prerequisite: ART 1123 or ART 1153 or permission of instructor). Six hours studio. Introduction to the basic concepts, materials, and processes of sculpture by exploring modeling, casting, carving and constructing

**ART 2413 History and Appreciation of the Arts: 3 hours.**

Three hours lecture. The study of the growth and development of the Art-Crafts through the ages with instructional applications, and practical designs

**ART 2503 Ceramic Art Survey: 3 hours.**

Six hours studio. Introduction to the processes of ceramic art including hand built forms, wheel thrown pottery and glazing

**ART 2803 Introduction to Computing for ART: 3 hours.**

(Prerequisites: ART 1133 or permission of the instructor). One hour lecture. Four hours studio. Introduction to desktop computer hardware, operating systems, and application software in the visual arts and design

**ART 2813 Intermediate Computing for Designers: 3 hours.**

(Prerequisites: ART 2803 or Consent of Instructor). One hour lecture. Four hours studio. Further instruction about desktop computer hardware, operating systems, application software and beginning concept development specific to the graphic design industry for graphic design majors

**ART 2904 Introduction to Film: 4 hours.**

Three hour lecture. Two hours lab. A basic introduction to the study of film language, history, and theory, emphasizing aesthetic, technological, and socio-cultural developments of film form. (Same as CO 2904 and EN 2904)

**ART 2990 Special Topics in Art: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ART 3023 Painting II: 3 hours.**

(Prerequisite:ART 2013 ). Six hours studio. Observational based painting. A study of mediums and techniques in painting in continuation of ART 2013

**ART 3033 Non-Representational Painting: 3 hours.**

(Prerequisite:ART 2013).Six hours studio. Introduction to non-representational painting. Intermediate painting with further emphasis on the skills and techniques of painting

**ART 3043 Figurative Painting: 3 hours.**

(Prerequisite:ART 2013 and ART 2213). Six hours studio. Introduction into painting the figure. A continuation of ART 2013 to further develop skill in use of the medium and formal organization of subject matter in painting

**ART 3053 Watercolor Painting: 3 hours.**

(Prerequisites: ART 1123 and ART 1213). Six hours laboratory. The technique and use of various water-soluble painting mediums

**ART 3063 Digital Painting: 3 hours.**

(Prerequisite ART 2013). Six hours studio. An intermediate course exploring the use of the computer and peripheral devices in the creation of raster and vector base drawing and painting

**ART 3143 Italian Renaissance Art History: 3 hours.**

Three hours lecture. The history of art in Italy in the fifteenth and sixteenth centuries, emphasizing the religious monuments of the period. (Same as REL 2143)

**ART 3163 History of Graphic Design: 3 hours.**

(Prerequisite:Pass second year portfolio review, open only to Graphic Design Majors or consent of instructor). Three hours lecture. A survey of the history of graphic design from pre-writing to digital

**ART 3213 Life Drawing II: 3 hours.**

(Prerequisite: ART 2213). Six hours studio. Further study in rendering the human figure

**ART 3223 Darkroom Basics: 3 hours.**

(Prerequisites: ART 2103 or consent of instructor.) Six hours studio. The course is an introduction to the traditional photographic darkroom

**ART 3233 Studio Lighting: 3 hours.**

(Prerequisites:ART 2103 or permission of instructor). Six hours studio. The course is an introduction to the professional studio lighting techniques

**ART 3243 Intermediate Darkroom: 3 hours.**

(Prerequisites: Art 2103 and ART 3223 or permission of instructor). One hour lecture. Four hours studio. Advanced techniques of photographic processes in black and white with emphasis on aesthetics

**ART 3253 Photogram: 3 hours.**

(Prerequisites: ART 2103 or permission of the instructor). Six hours studio. The course explores the photogram technique as a photographic tool to create a fine art image

**ART 3263 Scanography: 3 hours.**

(Prerequisites: ART 2103 or permission of the instructor). Six hours studio. The course explores the scanner as a photographic tool to create a fine art image. Students will learn a variety of approaches to creating fine art photographic images using a scanner

**ART 3303 Printmaking II: 3 hours.**

(Prerequisite: ART 2303). Six hours studio. Continued exploration of the print as a medium of creative expression

**ART 3313 Graphic Art Design I: 3 hours.**

(Prerequisites: ART 2803, ART 2813). Six hours studio. Introduction to the art and process of design in printed communication. Students develop graphic skills with an emphasis placed upon conceptual development, research, production and both visual and verbal presentation skills

**ART 3323 Graphic Art Design II: 3 hours.**

(Prerequisite: ART 3313). Six hours studio. The execution of a series of design projects promoting an awareness of different forms of printed visual communication

**ART 3403 Printmaking III: 3 hours.**

(Prerequisite:ART 2303 and ART 3303) Six hours studio. Exploration of traditional and contemporary relief printmaking techniques,with emphasis on woodcut and collograph methods. Aesthetic, technical, and conceptual development stressed

**ART 3443 Illustration: 3 hours.**

(Prerequisites: ART 2013 and ART 3053). Six hours studio. A course introducing issues and instrumentation related to standards in the professional field of illustration emphasizing mixed-media processes

**ART 3503 Ceramic Art II: 3 hours.**

(Prerequisite: ART 2503). Six hours studio. Elementary glaze formulation, surface decoration, kiln firing, wheel thrown and hand built form

**ART 3513 Sculpture II: 3 hours.**

(Prerequisite: ART 2403). Six hours studio. Further exploration of concepts and processes of sculpture, including mold making and armature building. Beginning development of personal language of expression

**ART 3523 3D Seminar: 3 hours.**

(Prerequisites: ART 2403 or ART 2503). Six hours studio. Research and investigation of the origins, community, process, and message of contemporary three-dimensional art and craft

**ART 3603 Directed Writings in Modern Art History: 3 hours.**

Three hours lecture. History of the 20th Century Art with emphasis on scholarly writing, reading, and analyzing of contemporary models and varieties of writing

**ART 3613 Art and Film: 3 hours.**

Three hours lecture. This course explores the rich and complex relationship between the visual arts and film

**ART 3623 Art in France: 1850-1900: 3 hours.**

Three hours lecture. This class explores one of the most dynamic periods of artistic production in the entire history of art

**ART 3633 History of Photography: 3 hours.**

Three hours lecture. The history of still photography as a fine art from its beginning to present

**ART 3643 Art of the Graphic Novel: 3 hours.**

Three hours lecture. An introduction to the history of the extended comic strip, or graphic novel, and to examples of this art form's major works

**ART 3653 Roman Baroque Art: 3 hours.**

Three hour lecture. An examination of the art and architecture created in Rome in the 17th Century

**ART 3663 Medieval Stained Glass: 3 hours.**

Three hours lecture. An examination of the history of Medieval stained glass from the points of view of technique, material, style, and cultural/historical significance

**ART 3673 The Gothic Cathedral: 3 hours.**

Three hours lecture. An examination of the art, architecture, religion, politics, and culture of 13th century French Gothic Cathedrals

**ART 3683 The History of Art and Religion: 3 hours.**

Three hours lecture. An examination of the histories, functions, and controversies of visual imagery created in the service of religion/spirituality

**ART 3801 Art Field Study: 1 hour.**

(Prerequisite: Successful completion of Art Concentration Portfolio Review). One hour lecture. A field study of the masters in fine art, graphic design and photography fields in the context of a significant, national art center

**ART 3803 Gallery Management: 3 hours.**

(Prerequisite: ART 1123 and ART 1213). One hour lecture. Four hours laboratory. The study of gallery operations, techniques of curation, artists ethics, installation procedures and gallery management of an art gallery

**ART 3813 Study Abroad Seminar I: 3 hours.**

(Prerequisite: ART 1213 or consent of instructor.) Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor (Same as ARC 3813 and ID 3813.)

**ART 3823 Study Abroad Seminar II: 3 hours.**

(Prerequisite: ART 1213 or consent of instructor.) Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor (Same as ARC 3823 and ID 3823)

**ART 3873 Digital Photography: 3 hours.**

(Prerequisites: ART 2103 or permission of instructor). Six hours studio. The techniques and aesthetics of digital imagery emphasizing the use of digital photographic input and output processes

**ART 3913 Introduction to Print Production: 3 hours.**

(Prerequisites: ART 3323 or consent of instructor). Six hours studio. This class is an introduction to digital print techniques, client work, and the responsibilities and role of graphic designers

**ART 4000 Directed Individual Study in Art: 1-6 hours.**

Hours and credits to be arranged

**ART 4023 Performance Art and Criticism: 3 hours.**

Three hours lecture. This course will examine performance art and criticism from the early 20th century to the present. Students will study various approaches to performance art using critical analysis, theoretical inquiry, group discussions, and local field trips

**ART 4043 History of Digital Art: 3 hours.**

Three hours lecture. A survey of digital art practices from the 1950s to the present. Students will learn theoretical, practical, and philosophical influences on digital art

**ART 4053 Watermedia Painting: 3 hours.**

(Prerequisite: ART 3053) Six hours studio. An in-depth exploration of water based painting media utilizing watercolor and acrylic mediums in the creation of a body of two dimensional artworks

**ART 4073 Visualizing Resistance in the Global South: 3 hours.**

Three hours lecture. This course critically examines the art of resistance, protest, and revolution in contemporary visual culture produced in the Global South. Students will investigate responses to gun violence, political division, sexism, racism, nationalism, and religious discrimination via artistic intervention(s)

**ART 4083 Senior Research: 3 hours.**

(Prerequisites: Senior Standing and consent of instructor, corequisite ART 4620). Three hours lecture. The application of research methods for the fine artist in contemporary society

**ART 4093 Senior Thesis: 3 hours.**

(Prerequisites: Senior Standing and consent of instructor, corequisite ART 4620). Three hours lecture. Execution of a thesis exhibition and portfolio materials

**ART 4103 The Art of Typography and Layout I: 3 hours.**

(Prerequisites: ART 2803, ART 2813). Six hours laboratory. The art and process of presenting written communication in graphic form

**ART 4113 The Art of Typography and Layout II: 3 hours.**

(Prerequisite: ART 4103/6103). Six hours studio. Advanced problems in presenting written communication in graphic form. Advanced problems as well as additional projects will be required for graduate credit

**ART 4123 Screen Printing for Graphic Design: 3 hours.**

(Prerequisite: ART 3313, ART 4103, or permission of Instructor). Six hours studio. An in-depth look at contemporary methods in designing and screen printing posters and shirts

**ART 4124 Topics in Film: 4 hours.**

Three hours lecture. Two hours lab. Repeatable under different subtitles with advisor approval. An advanced investigation of specific topics in Film, Film History, Directors, Genre, and/or approaches to its production. Readings and discussions, supplemented by lectures/labs and film screenings. (Same as CO 4124/6124 and EN 4124/6124)

**ART 4143 Letterpress for Design: 3 hours.**

Prerequisite: ART 3313, ART 4103, or permission of Instructor). Six hours studio. An in-depth look at contemporary methods of designing and letterpress printing identity, postcards and posters

**ART 4153 Art in the City: 3 hours.**

Three hours lecture. Juniors and seniors only. This course will examine the development and implementation of urban arts projects within a diverse array of social, culture, and political contexts

**ART 4163 Visual Storytelling: 3 hours.**

(Prerequisites: ART 3313, ART 4103). Six hours studio. Exploration of methods, processes and fundamental skills integral to visual storytelling as it relates to advertising and branding. Students will gain experience creating conceptually driven branded stories, including writing, producing, art directing, and editing

**ART 4223 Alternative Photography: 3 hours.**

(Prerequisite: ART 2103 or consent of instructor.) One hour lecture. Four hours studio. Alternative photographic processes in black and white with emphasis on aesthetics

**ART 4323 Advanced Printmaking: 3 hours.**

(Prerequisite: ART 2303, ART 3303, and ART 3403). Six hours studio. Exploration of advanced printmaking concepts and techniques. Emphasizes refining a personal aesthetic using previously learned print processes with plate lithographic techniques

**ART 4343 Drawing IV: 3 hours.**

(Prerequisite: ART 2233 at both levels and consent of instructor for 6343). Six hours laboratory. A continuation of ART 2233 to develop further skills for advanced students

**ART 4353 Illustration for Design: 3 hours.**

(Prerequisite: ART 2813 or consent of instructor). Six hours studio. This course will address the concepts, principles, and techniques of illustration for design, emphasizing the visual language to make a harmony between graphic elements and illustration

**ART 4373 Motion Graphics: 3 hours.**

(Prerequisite: ART 2813 or consent of instructor). Six hours studio. Introduction to the concepts and techniques of motion design with the elements of shapes, forms, and type, emphasizing the visual storytelling by dynamic movements

**ART 4403 Advertising Design I: 3 hours.**

(Prerequisite: ART 3323 and ART 4103/6103, and consent of instructor). Six hours laboratory. Course requiring ideational, image making, graphic design and typographic skills to meet rigorous conceptual/visual standards pertinent to creating a brand of a company's identity

**ART 4413 Advertising Design II: 3 hours.**

(Prerequisite: ART 4403/6403 and consent of instructor). Six hours laboratory. An advanced course requiring interaction on a professional level, working with realistic agency-client situations in order to develop efficient, distinguishable and competitive promotional campaigns

**ART 4423 Presentation Skills for Designers: 3 hours.**

(Prerequisites: ART 3313, ART 4103). Six hours studio. Development of pitching and presentation skills, achieved through practice, coaching, and critique. Students will learn to pitch their ideas, their campaigns, their portfolios, and themselves

**ART 4443 Alternative Color: 3 hours.**

(Prerequisites: ART 2103 or permission of instructor). One hours lecture. Four hours studio. Alternative photographic processes in color with emphasis on aesthetics

**ART 4453 Ceramics-Handbuilding: 3 hours.**

(Prerequisites: ART 2503 or consent of instructor). Six hours studio. Advanced skills and professional practices focused on non-wheel forming techniques for creative expression in clay. May be taken twice for credit

**ART 4463 Ceramics-Wheel Technique: 3 hours.**

(Prerequisites: ART 2503 or consent of instructor.) Six hours studio. Advanced skills and professional practices focused on the potter's wheel as a tool for creative expression. May be taken twice for credit

**ART 4473 Ceramics-Glaze Formation: 3 hours.**

(Prerequisites: ART 2503 or consent of instructor). Six hours studio. Advanced skills and professional practices focused on the chemistry of ceramic glazes and developing various application techniques. May be taken twice for credit

**ART 4483 Ceramics-Professional Practices: 3 hours.**

(Prerequisites: ART 2503 or consent of instructor). Six hours studio. Advanced skills with a focus on the development of a marketable aesthetic and professional practices. May be taken twice for credit

**ART 4523 Internship in Graphic Art Design: 3 hours.**

(Prerequisite: Art 3313 and senior standing). Supervised instruction Graphic Design. Advanced problems will be required for graduate credit. May be taken for credit more than once

**ART 4533 Ceramic Art III: 3 hours.**

(Prerequisites: ART 3503). Six hours studio. Advanced problems in glaze formulation, kiln technology and wheel thrown and hand built forms

**ART 4573 Critical Issues in Recent Art: 3 hours.**

(Prerequisite: ART 3603 or an equivalent course on 20th Century art and consent of instructor). Three hours lecture. Discussion of major developments and issues in contemporary art, focusing on the period 1980 to present

**ART 4583 Photographic Portfolio I: 3 hours.**

(Prerequisites: senior standing, Photography concentration majors or permission of instructor). Six hours studio. This course is an introduction to the professional practices in photography and the development of a portfolio. May be taken twice for credit

**ART 4593 Photographic Portfolio II: 3 hours.**

(Prerequisites: ART 4583 or consent of instructor). Six hours studio. This course is an extension of the professional practices in photography and the completion with an exhibition of a portfolio from ART 4583

**ART 4600 Advanced Studio-Drawing: 3-9 hours.**

May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in any one semester. (Prerequisite: ART 4343 and permission of instructor). Advanced study in drawing. Further development of studio skills. Course encourages analysis and criticism, development of personal aesthetic, and further exploration of content and expression

**ART 4610 Advanced Studio - Painting: 3-9 hours.**

May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. (Prerequisite: Consent of instructor). This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues

**ART 4620 Advanced Studio - Fine Arts: 3-9 hours.**

(Repeatable). (Prerequisite: Senior Standing and consent of instructor). Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studies in one semester. Course develops advanced studio skills and professional practice. Taken with Senior Research and Thesis to create capstone artwork

**ART 4630 Advanced Studio - Sculpture: 3-9 hours.**

May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. Six hours studio. Further development of a personal sculptural aesthetic through media of choice

**ART 4640 Advanced Studio - Graphic Design: 3-9 hours.**

(3-9). May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. (Prerequisite: ART 4403 and consent of instructor). This course develops advanced studio skills and professional practice

**ART 4650 Advanced Studio - Ceramics: 3-9 hours.**

May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues

**ART 4660 Advanced Studio - Photography: 9 hours.**

May be taken for credit more than once. Credit and hours to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. Six hours studio. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues

**ART 4683 Photography Internship: 3 hours.**

(Prerequisites: ART 2103 and consent of instructor). Three hours internship. A supervised professional work experience of 150 hours with a photographer or business in the field of photography. (May be taken for credit more than once)

**ART 4693 Internship in Fine Art: 3 hours.**

May be taken for credit more than once. (Prerequisite: Consent of department head). Six hours laboratory. Supervised instruction and experience for professional art practice

**ART 4713 Advanced Print Production: 3 hours.**

(Prerequisite: ART 3913) Six hours studio. A more in-depth look at digital printing techniques through comprehensive work and the responsibilities and roles of graphic design

**ART 4723 Advanced Concept Development: 3 hours.**

(Prerequisite: ART 3323 and ART 4103) Six hour studio. Conceptual development is the primary goal, additionally students will have more comprehensive campaigns in their portfolios. The techniques can be applied to all design courses

**ART 4733 Sculpture- Furniture Making: 3 hours.**

(Prerequisites: ART 2403 or ID 4693 or permission of instructor). Six hours studio. An in-depth investigation into the design and execution of contemporary studio furniture. May be taken twice for credit

**ART 4743 Sculpture- Metal Fabrication: 3 hours.**

(Prerequisites: ART 2403 or consent of instructor). Six hours studio. Introduction to the history and techniques of metalworking including cutting, forming, welding, brazing, finishing, mechanics, kinetics and armature making. May be taken twice for credit

**ART 4753 Sculpture- Materials and Processes: 3 hours.**

(Prerequisites: ART 2403 or consent of instructor). Six hours studio. Introduction and exploration of materials and processes used in design and production of contemporary objects. May be taken twice for credit

**ART 4773 Digital Drawing: 3 hours.**

(Prerequisite: ART 2013; ART 2803; or ART 2103; or instructor approval). Six hours studio. Utilization of computer software, drawing tablets, cameras, and traditional media to create digital imagery

**ART 4813 Introduction of Multimedia I Design and Authoring: 3 hours.**

(Prerequisite: ART 3313 or Consent of instructor). One hour lecture, five hours laboratory. The design and authoring of interactive multimedia for fine and applied arts using desktop computers. Course encourages analysis and criticism of aesthetic and related issues

**ART 4863 Advanced Studio - Computer Art and Design: 3 hours.**

May be taken for credit more than once. (Prerequisite: Consent of instructor). Six hours laboratory. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues

**ART 4873 Digital Imaging: 3 hours.**

(Prerequisite: Art 2103 or consent of instructor). Six hours studio. Application of computer software to generate digital imagery captured with lens-based and related media. Additional projects will be required for graduate credit

**ART 4883 Graphic Design for the Internet: 3 hours.**

(Prerequisite: ART 3313, open only to Graphic Design Majors, or Consent of Instructor). One hour lecture, five hours laboratory. An introduction to graphic design for the Internet, internet history, HTML, image manipulation, and the use of software to facilitate website design

**ART 4893 Video Art: 3 hours.**

(Prerequisites: ART 2103 or consent of instructor). Six hours studio. This course will address the use of an approved digital camera, computer, and video editing software for digital video input and editing of video in a fine arts context. Advanced problems will be required of graduate students

**ART 4924 Film Theory: 4 hours.**

Three hours lecture. One hour lab. This course will introduce students to major theoretical positions and modes of analysis used to understand the various frameworks in which to view, criticize, analyze, and (re)contextualize film. (Same as CO 4924/6924, EN 4924/6924)

**ART 4990 Special Topics in Art: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ART 6023 Performance Art and Criticism: 3 hours.**

Three hours lecture. This course will examine performance art and criticism from the early 20th century to the present. Students will study various approaches to performance art using critical analysis, theoretical inquiry, group discussions, and local field trips

**ART 6103 The Art of Typography and Layout I: 3 hours.**

(Prerequisites: ART 2803, ART 2813). Six hours laboratory. The art and process of presenting written communication in graphic form



**ART 6124 Topics in Film: 4 hours.**

Three hours lecture. Two hours lab. Repeatable under different subtitles with advisor approval. An advanced investigation of specific topics in Film, Film History, Directors, Genre, and/or approaches to its production. Readings and discussions, supplemented by lectures/labs and film screenings. (Same as CO 4124/6124 and EN 4124/6124)

**ART 6223 Alternative Photography: 3 hours.**

(Prerequisite: ART 2103 or consent of instructor.) One hour lecture. Four hours studio. Alternative photographic processes in black and white with emphasis on aesthetics

**ART 6630 Advanced Studio - Sculpture: 3-9 hours.**

May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. Six hours studio. Further development of a personal sculptural aesthetic through media of choice

**ART 6650 Advanced Studio - Ceramics: 3-9 hours.**

May be taken for credit more than once. Hours and credit to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues

**ART 6660 Advanced Studio - Photography: 3-9 hours.**

May be taken for credit more than once. Credit and hours to be arranged and shall not exceed a total of nine hours for all advanced studios in any one semester. Six hours studio. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues

**ART 6773 Digital Drawing: 3 hours.**

(Prerequisite: ART 2013; ART 2803; or ART 2103; or instructor approval). Six hours studio. Utilization of computer software, drawing tablets, cameras, and traditional media to create digital imagery

**ART 6813 Introduction to Multimedia I Design and Authoring: 3 hours.**

(Prerequisite: ART 3313 or Consent of instructor). One hour lecture, five hours laboratory. The design and authoring of interactive multimedia for fine and applied arts using desktop computers. Course encourages analysis and criticism of aesthetic and related issues

**ART 6863 Advanced Studio - Computer Art and design: 3 hours.**

May be taken for credit more than once. (Prerequisite: Consent of instructor). Six hours laboratory. This course develops advanced studio skills and professional practice. Course encourages analysis and criticism of aesthetic, social, ethical and related issues

**ART 6883 Graphic Design for the Internet: 3 hours.**

(Prerequisite: ART 3313, open only to Graphic Design Majors, or Consent of Instructor). One hour lecture, five hours laboratory. An introduction to graphic design for the Internet, internet history, HTML, image manipulation, and the use of software to facilitate website design

**ART 6893 Video Art: 3 hours.**

(Prerequisites: ART 2103 or consent of instructor). Six hours studio. This course will address the use of an approved digital camera, computer, and video editing software for digital video input and editing of video in a fine arts context. Advanced problems will be required of graduate students

**ART 6990 Special Topics in Art: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ART 7000 Directed Individual Study in Art: 1-6 hours.**

Hours and credits to be arranged

**ART 8990 Special Topics in Art: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ART 9000 Research in Art: 1-13 hours.**

Hours and credits to be arranged

**Aerospace Studies - AFROTC Courses****AS 1011 Heritage and Values of the US Air Force-I: 1 hour.**

One hour lecture. A survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force

**AS 1021 Heritage and Values of the US Air Force-II: 1 hour.**

(Prerequisite: AS 1011 or department approval). One hour lecture. A survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force

**AS 1102 Air Force ROTC General Military Course Leadership Lab: 2 hours.**

(Prerequisite: AFROTC Cadets only). Four hours laboratory. A dynamic and integrated grouping of leadership development activities designed to meet the needs and expectations of prospective Air Force second lieutenants and complement the AFROTC academic program

**AS 2011 Team and Leadership Fundamentals-I: 1 hour.**

(Prerequisites: AS 1021 or department approval). One hour lecture. Lecture provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare cadets for field training and leadership positions in the detachment

**AS 2021 Team & Leadership Fundamentals-II: 1 hour.**

(Prerequisites: AS 2011 or department approval). One hour lecture. Lecture provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare cadets for field training and leadership positions in the detachment

**AS 2990 Special Topics in Air Force Aerospace Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**AS 3013 Leading People and Effective Communication-I: 3 hours.**

(Prerequisites: AS 2021 or departmental approval). Three hours lecture. In-depth look at leadership with special emphasis placed on enhancing communication skills, and why that is important as a leader based on USAF Institutional Competencies

**AS 3023 Leading People and Effective Communication-II: 3 hours.**

(Prerequisites: AS 3013 or departmental approval). Three hours lecture. In-depth look at leadership with special emphasis placed on enhancing communication skills, and why that is important as a leader based on USAF Institutional Competencies

**AS 3102 Air Force ROTC Professional Officer Course Leadership Lab: 2 hours.**

(Prerequisite: AFROTC Cadets Only). Four hours lab. A dynamic and integrated grouping of leadership development activities designed to meet the needs and expectations of prospective Air Force second lieutenants and complement the AFROTC academic program

**AS 4000 Directed Individual Study in Air Force Aerospace Studies: 1-6 hours.**

Hours and credits to be arranged

**AS 4013 National Security and Commissioning Preparations-I: 3 hours.**

(Prerequisites: AS 3023 or departmental approval). Three hours lecture. An overview of the issues facing the military and the foundation to understand the role of military officers and their relation to National Security

**AS 4023 National Security and Commissioning Preparation-II: 3 hours.**

(Prerequisites: AS 4013 or departmental approval). Three hours lecture. Overview of the issues facing the military and the foundation to understand the role of military officers and their relation to National Security

**AS 4990 Special Topics in Air Force Aerospace Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Aerospace Engineering Courses

**ASE 1013 Introduction to Aerospace Engineering: 3 hours.**

(Prerequisite: credit or co-registration in MA 1713). Three hours lecture. Three hours laboratory. Historical perspectives of aerospace engineering and fundamentals of aerodynamics, the standard atmosphere, computer modeling and manufacturing, information technology, programming environments, computational tools

**ASE 1501 Student Design Competition: 1 hour.**

(Pre/co-requisite: Aerospace Engineering student with MSU GPA 2.5 or greater or permission of instructor). One hour practicum. Students participate in a department-sponsored design competition, contributing to design and fabrication tasks, writing weekly progress reports, contributing to competitive report and giving presentations

**ASE 2013 Astrodynamics, Propulsion and Structures: 3 hours.**

(Prerequisite: ASE 1013 and a grade of C or better in MA 1713 and credit or registration in MA 1723 and PH 2213). Three hours lecture. Three hours laboratory. Introduction to space flight (astronautics), propulsion, flight vehicle structures and materials, and hypersonic vehicles, applications of computer modeling, computational tools, with historical perspectives

**ASE 2113 Introduction to Aircraft and Spacecraft Performance: 3 hours.**

(Prerequisite: ASE 1013 and CSE 1233 and grade of C or better in MA 1723 and PH 2213). Three hours lecture. Introduction to general aerodynamics, propulsive and structural considerations of flight mechanics, quasi-steady flight; accelerated and maneuvering flight; launch vehicle performance

**ASE 2711 Aerospace Laboratory I: 1 hour.**

(Corequisites: Credit or registration in EM 3213 and EM 3313). Two hours laboratory. Experimental techniques used in aerospace engineering: Laboratory methods and tools

**ASE 2990 Special Topics in Aerospace Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ASE 3123 Aircraft Flight Dynamics: 3 hours.**

(Prerequisite: EM 3413). Three hours lecture. Longitudinal, directional, and lateral static stability and control; related aerodynamics; maneuvering flight; introduction to dynamic stability and control analysis methods; general equation of unsteady motion

**ASE 3213 Mechanics of Deformable Structures: 3 hours.**

(Prerequisite: Grade of C or better in EM 3213 and MA 3113 ). Three hours lecture. Introduction to structural materials and loads. Deflection analysis using energy methods, flexibility-based matrix method, and the finite element method. Influence of design on deflection and vice versa

**ASE 3223 Aerospace Structural Analysis: 3 hours.**

(Prerequisite: Grade of C or better in EM 3213). Three hours lecture. Stress analysis of elastic and inelastic structures under different loading conditions. Shear flow distribution in thin-wall structures. Influence of design on stress and shear flow distributions

**ASE 3233 Aerospace Structural Analysis I: 3 hours.**

(Prerequisite: Grade of C or better in EM 3213). Three hours lecture. Introduction to elasticity, stress analysis of elastic and inelastic structures under different loading conditions. Shear flow distribution in thin-wall structures. Influence of design on stress and shear flow distributions

**ASE 3243 Aerospace Structural Analysis II: 3 hours.**

(Prerequisites: ASE 3233 and MA 3113). Three hours lecture. Deflection analysis using energy methods and the finite element method. Influence of design on deflection and vice versa

**ASE 3313 Incompressible Aerodynamics: 3 hours.**

(Prerequisite: Grade of C or better in EM 3313). Three hours lectures. Potential theory of bodies; airfoil theory and applications; finite wing theory and applications; introduction to Navier-Stokes equations; laminar boundary layers; turbulent boundary layers

**ASE 3333 Aerothermodynamics: 3 hours.**

(Prerequisites: Grade of C or better in MA 2733 and PH 2213). Three hours lecture. Energy; First and Second Laws of Thermodynamics; Entropy; Properties of Ideal Gases, Gas Power Cycles; Introduction to Heat Transfer

**ASE 3721 Aerospace Laboratory II: 1 hour.**

(Prerequisite: ASE 2711; Credit or registration in EM 3413 and ASE 3313). Two hours laboratory. Experimental techniques used in aerospace engineering: Incompressible Aerodynamics & Structures

**ASE 3731 Aerospace Laboratory III: 1 hour.**

(Prerequisite: ASE 2711; Corequisites: ASE 4343 and ASE 3813). Two hours laboratory. Experimental techniques used in aerospace engineering: Compressible Aerodynamics, Propulsion, & Controls

**ASE 3813 Introduction to Orbital Mechanics: 3 hours.**

(Prerequisites: Grade of C or better in EM 2433, MA 3253 and MA 3113). Three hours lecture. Two-body orbital mechanics; geometry of spatial orbits; fundamental orbits determination; orbital maneuvers; introduction to rendezvous and interplanetary trajectories

**ASE 3823 Spacecraft Attitude Dynamics: 3 hours.**

(Prerequisite: EM 3413). Three hours lecture. Motion of spacecraft about center of gravity. Rigid body dynamics and rotational kinematics. Mission pointing requirements and design of the attitude determination and control system

**ASE 4000 Directed Individual Study in Aerospace Engineering: 1-6 hours.**

Hours and credits to be arranged

**ASE 4113 Aerospace Engineering Laboratory I: 3 hours.**

(Prerequisites: Credit or registration in EM 3413). Six hours laboratory. Experimental techniques used in aerospace engineering

**ASE 4123 Aerospace Controls: 3 hours.**

(Prerequisite: ASE 3123 or ASE 3823). Three hours lecture. Methods of dynamic analysis; stability of steady flight; response to actuation of the controls (open loop); closed-loop control ;human crew/vehicle interactions

**ASE 4133 Automatic Control of Aerospace Vehicles: 3 hours.**

(Prerequisite: ASE 4123). Three hours lecture. Optimization techniques; structural flexibility effects; statistical design; sample-data control systems

**ASE 4153 Advanced Performance: 3 hours.**

(Prerequisite: ASE 2113 or consent of instructor). Three hours lecture. Performance methods use for current aeronautical vehicles. Configurations considered are sailplanes, V/STOL aircraft, subsonic/supersonic transports, and fighters

**ASE 4163 Introduction to Flight Test Engineering: 3 hours.**

(Prerequisite: ASE 3313, ASE 4123). Three hours lecture. Introduction to the techniques of aeronautical flight test engineering. Supplements Aerospace curriculum Pitot/static systems, and introduces fixed-wing flight test engineering, data reduction, certification, flight-test risk assessment/mitigation, and flight crew-station analysis procedures

**ASE 4233 Structural Dynamics: 3 hours.**

(Prerequisite: EM 3413). Three hours lecture. Influence coefficients; matrix methods; Lagrange's equations of motion; divergence on an airfoil; introduction to flutter

**ASE 4343 Compressible Aerodynamics: 3 hours.**

(Prerequisites: ASE 3333 & Grade of C or better in EM 3313). Three hours lecture. Equations of motion for multidimensional flow; oblique shock waves; Prandtl Meyer flow; internal flow; method of characteristics; linearized flows; compressible wing theory; compressible boundary layers

**ASE 4353 Combustion Theory and Modeling: 3 hours.**

(Prerequisite: Grade C or better in ASE 3333 or CHE 3113 or ME 3513 or Instructor Consent). Three-hour lecture. Acquisition of theoretical basis of thermodynamics, chemical kinetics, and fluid physics for describing flames and combustion. Exploration of state-of-the-art problem-solving techniques and software tools. (Same as EM 4353/6353)

**ASE 4413 Aircraft Propulsion: 3 hours.**

(Prerequisites: ASE 3333 and ASE 4343). Three hours lecture. Aerothermodynamics of aircraft jet engines and gas turbine engines components; nozzles; turbines; compressors; diffusers; introduction to piston engines; propellers and propeller performance estimation

**ASE 4423 Introduction to Computational Fluid Dynamics: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Elementary aspects of computational fluid dynamics (CFD); review of numerical analysis and fluid mechanics as pertinent to CFD; numerical solution to selected fluid dynamic problems

**ASE 4433 Fundamentals of Numerical Grid Generation: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Grid Generation strategies; effects of grid quality on discretization errors; structured and unstructured grid generation algorithms; solution adaptive grid generation; surface grid generation

**ASE 4443 Spacecraft Propulsion: 3 hours.**

(Prerequisites: ASE 3333 and ASE 4343) Three hours lecture. Nozzles and thermochemistry. Components, design and performance of liquid propellant, solid propellant, hybrid and electric rocket propulsion systems

**ASE 4513 Aircraft Design I: 3 hours.**

(Prerequisites: ASE 3123; and ASE 3313; and ASE 3243 or ASE 3223). Two hours lecture. Three hours laboratory. Introduction to the principles and techniques of aircraft design. Introduction to systems engineering and requirements analysis; design optimization; layout; weight; performance

**ASE 4523 Aircraft Design II: 3 hours.**

(Prerequisite: ASE 4513 ). One hour lecture. Five hours laboratory. Continuation of ASE 4513. Students make use of principles and techniques covered in ASE 4513 to create a design of an aircraft

**ASE 4533 Spacecraft Design I: 3 hours.**

(Prerequisites: ASE 3223 or ASE 3243, ASE 3813, ASE 3823). Two hours lecture. Three hours laboratory. Introduction to the principles and techniques of spacecraft and mission design. Systems engineering and requirement analysis, spacecraft system characteristics and mission phases

**ASE 4543 Spacecraft Design II: 3 hours.**

(Prerequisite: ASE 4533) One hour lecture. Five hours laboratory. Continuation of ASE 4533, Spacecraft Design I. Application of design concepts and principles. Concentration on systems engineering, detail design, life cycle cost, manufacturing and operations

**ASE 4553 Engineering Design Optimization: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction to MDO. (Same as EM 4143/6143 and IE 4743/6743)

**ASE 4623 Aerospace Structural Design: 3 hours.**

(Prerequisite: ASE 3223 or ASE 3233). Three hours lecture. Principles of design and manufacture of aerospace structures. General theories of stability and failure with applications. Design optimization, fabrication, and testing of structural members

**ASE 4713 Introduction to Unmanned Aircraft Systems: 3 hours.**

Three-hour lecture. This course provides an introduction to various aspects involved in design and operation of unmanned aircraft systems. With the increasing use of UAS in civilian and military roles, future engineers will benefit from a systems perspective of unmanned aircraft systems

**ASE 4721 Aerospace Engineering Laboratory II: 1 hour.**

(Prerequisite: ASE 4113). Three hours laboratory. Experimental techniques used in aerospace engineering

**ASE 4800 Undergraduate Research: 1-13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**ASE 4813 Advanced Orbital Mechanics: 3 hours.**

(Prerequisite: ASE 3813). Three hours lecture. Orbital mechanics; perturbations and numerical integration. Global positioning system, launch performance and optimization

**ASE 4990 Special Topics in Aerospace Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ASE 6013 Directed Project in Aerospace Engineering: 3 hours.**

(Contact hours and title to be arranged). An individual professional project open only to candidates for the Master of Science degree (non-thesis option) Formal written and oral project reports are required

**ASE 6133 Automatic Control of Aerospace Vehicles: 3 hours.**

(Prerequisite: ASE 4123). Three hours lecture. Optimization techniques; structural flexibility effects; statistical design; sample-data control systems

**ASE 6153 Advanced Performance: 3 hours.**

(Prerequisite: ASE 2113 or consent of instructor). Three hours lecture. Performance methods use for current aeronautical vehicles. Configurations considered are sailplanes, V/STOL aircraft, subsonic/supersonic transports, and fighters

**ASE 6163 Introduction to Flight Test Engineering: 3 hours.**

(Prerequisite: ASE 3313, ASE 4123). Three hours lecture. Introduction to the techniques of aeronautical flight test engineering. Supplements Aerospace curriculum Pitot/static systems, and introduces fixed-wing flight test engineering, data reduction, certification, flight-test risk assessment/mitigation, and flight crew-station analysis procedures

**ASE 6233 Structural Dynamics: 3 hours.**

(Prerequisite: EM 3413). Three hours lecture. Influence coefficients; matrix methods; Lagrange's equations of motion; divergence on an airfoil; introduction to flutter

**ASE 6353 Combustion Theory and Modeling: 3 hours.**

(Prerequisite: Grade C or better in ASE 3333 or CHE 3113 or ME 3513 or Instructor Consent). Three-hour lecture. Acquisition of theoretical basis of thermodynamics, chemical kinetics, and fluid physics for describing flames and combustion. Exploration of state-of-the-art problem-solving techniques and software tools. (Same as EM 4353/6353)

**ASE 6423 Introduction to Computational Fluid Dynamics: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Elementary aspects of computational fluid dynamics (CFD); review of numerical analysis and fluid mechanics as pertinent to CFD; numerical solution to selected fluid dynamic problems

**ASE 6433 Fundamentals of Numerical Grid Generation: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Grid Generation strategies; effects of grid quality on discretization errors; structured and unstructured grid generation algorithms; solution adaptive grid generation; surface grid generation

**ASE 6553 Engineering Design Optimization: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction to MDO. (Same as EM 4143/6143 and IE 4743/6743)

**ASE 6713 Introduction to Unmanned Aircraft Systems: 3 hours.**

Three-hour lecture. This course provides an introduction to various aspects involved in design and operation of unmanned aircraft systems. With the increasing use of UAS in civilian and military roles, future engineers will benefit from a systems perspective of unmanned aircraft systems

**ASE 6813 Advanced Orbital Mechanics: 3 hours.**

(Prerequisite: ASE 3813). Three hours lecture. Orbital mechanics; perturbations and numerical integration. Global positioning system, launch performance and optimization

**ASE 6990 Special Topics in Aerospace Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ASE 7000 Directed Individual Study in Aerospace Engineering: 1-6 hours.**

Hours and credits to be arranged

**ASE 8313 Advanced Compressible Aerodynamics I: 3 hours.**

(Prerequisite: ASE 4343 or equivalent). Three hours lecture. Derivation of complete equations for compressible fluid flow; unsteady one-dimensional flows; method of characteristics; flow about two-dimensional and axis-symmetric shapes; integral methods

**ASE 8323 Advanced Compressible Aerodynamics II: 3 hours.**

(Prerequisite: ASE 8313). Three hours lecture. Perturbation theory for wings and bodies; optimum wing and body shapes; wing-body interference; transonic flows, hypersonic flows

**ASE 8343 Incompressible Viscous Laminar Flow: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Incompressible Navier-Stokes equations; properties and exact solutions; laminar boundary layer equations; two- and three-dimensional solutions; time-dependent solutions; approximate solutions; boundary layer control

**ASE 8353 Turbulent Flow: 3 hours.**

(Prerequisite: ASE 8343). Three hours lecture. Origins of turbulence; stability statistical theory of turbulence; isotropic and non-isotropic turbulence; equations of turbulent flow; turbulent boundary layer; free turbulent flow

**ASE 8363 Computational Heat Transfer: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Application of numerical techniques to elliptic and parabolic problems in engineering heat transfer and fluid flow. Discretization techniques; linearization; stability analysis. (Same as ME 8363)

**ASE 8413 Computational Fluid Dynamics I: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Review of relevant numerical analysis; one dimensional methods; compressible inviscid methods, Euler Equation methods, inviscid-viscous interaction methods; current literature

**ASE 8423 Computational Fluid Dynamics II: 3 hours.**

(Prerequisite: ASE 8413 or equivalent). Three hours lecture. Compressible Viscous Methods; Navier-Stokes equation methods; turbulence models; incompressible methods; panel methods; finite element methods, current literature

**ASE 8853 Statistical Orbit Determination: 3 hours.**

(Prerequisite: ASE 4813/6813 or consent of instructor). Three hours lecture. Review of matrix and statistical concepts. Overview of orbit determination problem. Least squares: sequential and batch processors; square-root filters; discrete and continuous Kalman filters

**ASE 8863 Optimal Control of Dynamic Systems: 3 hours.**

(Prerequisite: ASE 4123 or ECE 4913/6913 or equivalent). Three hours lecture. State variable description of systems: maximum principle of Pontryagin, dynamic programming, optimization of linear systems with quadratic performance measures; time optimal and fuel optimal systems. (Same as ECE 8943 )

**ASE 8990 Special Topics in Aerospace Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ASE 9000 Research in Aerospace Engineering: 1-13 hours.**

Hours and credits to be arranged

**Applied Sociology Courses****ASO 1003 Introduction to Applied Sociology: 3 hours.**

Three hours lecture. The use of sociological theory, methods, skills, and research to resolve issues and problems in real-world settings. How to put sociology into practice

**ASO 3103 Program Evaluation: 3 hours.**

(Prerequisite: ASO 1003). Three hours lecture. Program evaluation theory, methods, and practices with a focus on the practical craft of evaluation research; strategic issues of program evaluation; application of various research methods to program evaluation in community based contexts

**ASO 3203 Survey Design and Evaluation: 3 hours.**

(Prerequisite: ASO 1003). Three hours lecture. Review and evaluation of survey design and their uses; emphasis on survey construction, implementation, and analytical techniques

**ASO 3213 Applied Sociology Research Methods: 3 hours.**

(Prerequisite: ASO 1003). Three hours lecture. A survey of the field of applied research and methodology, including an examination of the various types of applied research designs, techniques, and procedures

**ASO 4103 Applied Data Management: 3 hours.**

(Prerequisite: ASO 1003). Three hours lecture. An introduction in how to manage social scientific data using real data to apply analytical tools

**ASO 4153 Internship in Applied Sociology: 3 hours.**

(Prerequisite: Sophomore standing or consent of instructor). Three hours practicum. A supervised work experience of 150 hours within a selected community organization or agency; individually supervised performance and self development in a real world setting related to applied sociology

**ASO 4203 Focus Groups and Interviewing: 3 hours.**

(Prerequisite: ASO 1003). Three hours lecture. An introduction to the qualitative research methods of focus groups and interviewing

**ASO 4803 Applied Sociology Capstone: 3 hours.**

(Prerequisite: Senior standing or consent of instructor). Three hours lecture. A capstone course to expand opportunities for students and options beyond graduation. Analyzes contemporary debates and topics within applied sociology; explores employment and careers, reflection and assessment of learning in the major

**Biochemistry Courses****BCH 1001 Introduction to Biochemistry: 1 hour.**

One hour lecture. A course to acquaint the beginning students with the overall concepts of biochemistry and molecular biology. Current research will be described. Offered every year

**BCH 1011 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**BCH 2013 Introduction to Forensic Science: 3 hours.**

(Prerequisite: BIO 1134, BIO 1144 or consent of instructor). Three hours lecture. Introduction to the field of forensic science, including areas of trace evidence, DNA, drug analysis, and an overview of forensic science techniques and technologies

**BCH 2023 Molecular Mechanisms of Human Diseases: 3 hours.**

(Prerequisites: Co-registration with BIO 1134 or consent of instructor). Three hours lecture. This course will introduce students to principles of biochemistry and molecular biology in the context of select human diseases

**BCH 2990 Special Topics in Biochemistry, Molecular Biology, Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BCH 3102 Essential Biochemical Concepts and Analysis: 2 hours.**

(Prerequisites: Biochemistry major with Sophomore standing; Minimum Grade of C in CH 1223 General Chemistry II and CH 1221 Investigations in Chemistry II). Preparation in fundamental biochemistry and molecular biology thought processes, laboratory skills and analytical practices with critical interpretation and presentation

**BCH 3901 Senior Seminar: 1 hour.**

(Prerequisite: BCH 4613/6613). Each student will prepare and present a formal paper based on independent study of the literature and undergraduate research investigations

**BCH 4000 Directed Individual Study in Biochemistry, Molecular Biology, Entomology, and Plant Pathology: 1-6 hours.**

Hours and credits to be arranged

**BCH 4013 Principles of Biochemistry: 3 hours.**

(Prerequisite: CH 2503, BIO 1134 or equivalent.) Three hours lecture. A survey of biochemistry designed to provide the non-major with a comprehensive background in the field. (Credit will not be given to students matriculating in the Biochemistry or Molecular Biology degree programs.)

**BCH 4100 Biochemistry and Molecular Biology Internship: 1-6 hours.**

Internship (1 to 6 Hours). Credit hours to be arranged. Supervised work, career shadowing, or research experience in disciplines related to biochemistry and molecular biology in an appropriate setting approved by the faculty advisor. (May be taken more than once for credit)

**BCH 4113 Essentials of Molecular Genetics: 3 hours.**

Three hours lecture. A survey of molecular biology and genetics designed to provide the non-major with a comprehensive background in the field. (Credit will not be given to students matriculating in the Biochemistry or Molecular Biology degree program)

**BCH 4243 Plant Molecular Biology: 3 hours.**

Three hours lecture. Course provides an overview of processes of DNA replication, RNA transcription, protein translation, and cell function. The molecular basis of biological activity between biomolecules (DNA, RNA, and proteins). Their interactions, biosynthesis, and the regulation of these interactions in the various systems of a plant cell

**BCH 4253 Macronutrients: Human Metabolism: 3 hours.**

(Prerequisites: FNH Majors: Grade of "C" or better or concurrent enrollment in BCH 4013 and Junior or Senior Standing; or BCH Major). Three hours face-to-face lecture or web-based distance instruction. In-depth study of the chemistry and functionality of macronutrients in food systems and their biochemical impact on the human body. (Same as FNH 4253/6253)

**BCH 4333 Advanced Forensic Science: 3 hours.**

(Prerequisite: BCH 4013/6013 or BCH 4603/6603 and BCH 4613/6613; or consent of instructor). Three hours lecture. An advanced study of the central concepts in forensic science as they relate to physiology, biochemistry and statistics

**BCH 4414 Protein Methods: 4 hours.**

(Prerequisite: Coregistration in BCH 4603/6603). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of protein biochemistry

**BCH 4443 Introduction to Public Health: 3 hours.**

(Prerequisite: BIO 1134, BIO 1144 or consent of instructor). Three hours lecture. Introduction to the field of Public Health. Includes an overview of historic and existing health problems and disparities unique to the United States and Southeast and an overview of related epidemiological methods

**BCH 4503 Scientific Communication Skills: 3 hours.**

(Prerequisite: EN 1113 and MA 1713 and CH 4513 or consent of instructor, or Graduate standing). Three hours lecture. Introduction to developing information literature and survey of data manipulation and presentation skills

**BCH 4603 General Biochemistry I: 3 hours.**

(Prerequisites: CH 4564, CH 4523/6523 or consent of instructor). Three hours lecture. BCH 4603/6603 must be completed before student may enroll in BCH 4613/6613. Detailed studies of the structure and metabolism of carbohydrates, lipids, proteins, nucleic acids, enzymes, and coenzymes

**BCH 4613 General Biochemistry II: 3 hours.**

(Prerequisites: CH 4564, CH 4523/6523 or consent of instructor). Three hours lecture. BCH 4603/6603 must be completed before student may enroll in BCH 4613/6613. Detailed studies of the structure and metabolism of carbohydrates, lipids, proteins, nucleic acids, enzymes, and coenzymes

**BCH 4623 Integrative Metabolic and Medical Biochemistry: 3 hours.**

(Prerequisite: Coregistration in BCH 4613/6613). A continuation of BCH 4613/6613 to include an integrative approach to study metabolic biochemistry in the context of medical biochemistry

**BCH 4713 Molecular Biology: 3 hours.**

(Prerequisite: Coregistration in BCH 4613/6613). Three hours lecture. A study of basic molecular process such as synthesis of DNA, RNA, and protein in both prokaryotic and eukaryotic cells. Offered fall semester. (Same as GNS 6713)

**BCH 4800 Undergraduate Research in Biochemistry: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**BCH 4803 Integrative Protein Evolution: 3 hours.**

(Prerequisite: BCH 4613/6613 Biochemistry II). This course focuses on providing students with an integrative view of molecular evolution, demonstrating how genomic mutations cause biochemical changes which are then reflected at the organismal level, using hemoglobin as our model system

**BCH 4804 Molecular Biology Methods: 4 hours.**

(Prerequisite: Coregistration in BCH 4613/6613). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of molecular biology. (Same as GNS 4804/6804),

**BCH 4903 Plant Biochemistry and Molecular Biology: 3 hours.**

Three hours lecture. A comprehensive course on biochemical and molecular processes specific for plant cells. The course includes ample information on the molecular components and pathways required for plant response to pathogens and tolerance to environmental factors

**BCH 4990 Special Topics in Biochemistry, Molecular Biology, Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BCH 6013 Principles of Biochemistry: 3 hours.**

(Prerequisite: CH 2503, BIO 1134 or equivalent.) Three hours lecture. A survey of biochemistry designed to provide the non-major with a comprehensive background in the field. (Credit will not be given to students matriculating in the Biochemistry or Molecular Biology degree programs.)

**BCH 6113 Essentials of Molecular Genetics: 3 hours.**

Three hours lecture. A survey of molecular biology and genetics designed to provide the non-major with a comprehensive background in the field. (Credit will not be given to students matriculating in the Biochemistry or Molecular Biology degree program)

**BCH 6243 Plant Molecular Biology: 3 hours.**

Three hours lecture. Course provides an overview of processes of DNA replication, RNA transcription, protein translation, and cell function. The molecular basis of biological activity between biomolecules (DNA, RNA, and proteins). Their interactions, biosynthesis, and the regulation of these interactions in the various systems of a plant cell

**BCH 6253 Macronutrients: Human Metabolism: 3 hours.**

(Prerequisites: FNH Majors: Grade of "C" or better or concurrent enrollment in BCH 4013 and Junior or Senior Standing; or BCH Major). Three hours face-to-face lecture or web-based distance instruction. In-depth study of the chemistry and functionality of macronutrients in food systems and their biochemical impact on the human body. (Same as FNH 4253/6253)

**BCH 6333 Advanced Forensic Science: 3 hours.**

(Prerequisite: BCH 4013/6013 or BCH 4603/6603 and BCH 4613/6613; or consent of instructor). Three hours lecture. An advanced study of the central concepts in forensic science as they relate to physiology, biochemistry and statistics

**BCH 6414 Protein Methods: 4 hours.**

(Prerequisite: Coregistration in BCH 4603/6603). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of protein biochemistry

**BCH 6443 Introduction to Public Health: 3 hours.**

(Prerequisite: BIO 1134, BIO 1144 or consent of instructor). Three hours lecture. Introduction to the field of Public Health. Includes an overview of historic and existing health problems and disparities unique to the United States and Southeast and an overview of related epidemiological methods

**BCH 6503 Scientific Communication Skills: 3 hours.**

(Prerequisite: EN 1113 and MA 1713 and CH 4513 or consent of instructor, or Graduate standing). Three hours lecture. Introduction to developing information literature and survey of data manipulation and presentation skills

**BCH 6603 General Biochemistry I: 3 hours.**

(Prerequisites: CH 4564, CH 4523/6523 or consent of instructor). Three hours lecture. BCH 4603/6603 must be completed before student may enroll in BCH 4613/6613. Detailed studies of the structure and metabolism of carbohydrates, lipids, proteins, nucleic acids, enzymes, and coenzymes

**BCH 6613 General Biochemistry II: 3 hours.**

(Prerequisites: CH 4564, CH 4523/6523 or consent of instructor). Three hours lecture. BCH 4603/6603 must be completed before student may enroll in BCH 4613/6613. Detailed studies of the structure and metabolism of carbohydrates, lipids, proteins, nucleic acids, enzymes, and coenzymes

**BCH 6623 Integrative Metabolic and Medical Biochemistry: 3 hours.**

(Prerequisite: Coregistration in BCH 4613/6613). A continuation of BCH 4613/6613 to include an integrative approach to study metabolic biochemistry in the context of medical biochemistry

**BCH 6713 Molecular Biology: 3 hours.**

(Prerequisite: Coregistration in BCH 4613/6613). Three hours lecture. A study of basic molecular process such as synthesis of DNA, RNA, and protein in both prokaryotic and eukaryotic cells. Offered fall semester. (Same as GNS 6713)

**BCH 6803 Integrative Protein Evolution: 3 hours.**

(Prerequisite: BCH 4613/6613 Biochemistry II). This course focuses on providing students with an integrative view of molecular evolution, demonstrating how genomic mutations cause biochemical changes which are then reflected at the organismal level, using hemoglobin as our model system

**BCH 6804 Molecular Biology Methods: 4 hours.**

(Prerequisite: Coregistration in BCH 4613/6613). Two hours lecture. Four hours laboratory. A comprehensive course to teach the student the modern methods of molecular biology. (Same as GNS 4804/6804),

**BCH 6903 Plant Biochemistry and Molecular Biology: 3 hours.**

Three hours lecture. A comprehensive course on biochemical and molecular processes specific for plant cells. The course includes ample information on the molecular components and pathways required for plant response to pathogens and tolerance to environmental factors

**BCH 6990 Special Topics in Biochemistry, Molecular Biology, Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BCH 7000 Directed Individual Study in Biochemistry, Molecular Biology, Entomology and Plant Pathology: 1-6 hours.**

Hours and credits to be arranged

**BCH 8101 Seminar: 1 hour.**

Review of current literature; individual presentation of research or classical topics. Course can be taken twice for credit

**BCH 8243 Molecular Biology of Plants: 3 hours.**

(Prerequisite: Coregistration in BCH 4613/6613). Three hours lecture. A study of plant development at the molecular level. Emphasis will be placed on the influence of nucleic acid metabolism on plant development

**BCH 8631 Topics in Genomics: 1 hour.**

(Prerequisites: PSS/BCH 8653 or BCH 4713/6713 or BCH 8643 ). Review and discussion of classic and current genomics literature; individual presentation of a seminar highlighting an area of genomics research. (Same as PSS 8631)

**BCH 8633 Enzymes: 3 hours.**

(Prerequisites: BCH 4613/6613). Three hours lecture. A study of enzymes; their purification, classification, kinetics and mechanisms

**BCH 8643 Molecular Genetics: 3 hours.**

(Prerequisites: PO 3103, or BIO 3103, and Coregistration in BCH 5613/7613). Three hours lecture. Study of the gene and its expression with emphasis on structure and function in higher organisms. (Same as GNS 8643)

**BCH 8653 Genomes and Genomics: 3 hours.**

(Prerequisites: BCH 4113/6113 or BCH 4713/6713 or BCH 8643 or consent of instructor). Overview of genome structure and evolution with emphasis on genomics, the use of molecular biology, robotics, and advanced computational methods to efficiently study genomes. (Same as PSS 8653)

**BCH 8654 Intermediary Metabolism: 4 hours.**

(Prerequisite: BCH 4613/6613). Four hours lecture. An advanced in-depth study of anabolic and catabolic pathways involved in cellular metabolism. Bioenergetics and control mechanisms will be emphasized

**BCH 8663 Proteome and Proteomics: 3 hours.**

Three hours lecture. This course introduces proteome (the entire complement of proteins in cells) and proteomics which is the large-scale study of proteomes, directed to analyzing protein function in a cellular context. It is designed to cover the fundamental concepts of proteomics and its applications to biomedical research

**BCH 8673 Host-Microbe Interaction Mechanisms: 3 hours.**

(Prerequisite: Graduate standing or permission of instructor). Three hours lecture. Comprehensive overview of molecular interactions between microbes and their hosts and vectors leading to disease, colonization, symbiosis, vector transmission, immune responses, and other outcomes. Mammalian, plant, and insect systems will be covered. (Same as EPP 8673)

**BCH 8990 Special Topics in Biochemistry, Molecular Biology, Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BCH 9000 Research in Biochemistry, Molecular Biology, Entomology, and Plant Pathology: 1-13 hours.**

Hours and credit to be arranged

## Building Construction Science Courses

### **BCS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

### **BCS 1013 Architecture Appreciation: 3 hours.**

Three hours lecture. Illustrated study of architecture's role in shaping the quality of man's environment. Architectural history, design theory, and process as it affects daily life. Intended for non-majors. (Same as ARC 1013)

### **BCS 1116 Building Construction Studio A: 6 hours.**

(Prerequisites: MA 1323 or ACT Math sub-score 24). Twelve hours laboratory. Introduction to construction materials and methods, construction drawing and modeling, building systems, project life cycles and management, and professional thinking and action

### **BCS 1126 Building Construction Studio B: 6 hours.**

(Prerequisite: BCS 1116). Twelve hours laboratory. Development of building assemblies and construction sequencing, drawings and computer applications, project management skills, and professional thinking and action

### **BCS 2013 Construction and Culture: 3 hours.**

Three hours lecture. A study of the development construction throughout history. The purpose of this course is to broaden the students' awareness of the global significance of construction

### **BCS 2116 Building Construction Studio 1: 6 hours.**

(Prerequisite: BCS 1126). Twelve hours laboratory. In depth examination of building construction materials and methods, systems, construction drawing and details, and construction finishes

### **BCS 2226 Building Construction Studio 2: 6 hours.**

(Prerequisite: BCS 2116). Three hours of lecture and six hours of laboratory. In-depth study of estimating, cost control, financial management, and equipment management in construction projects

### **BCS 2313 Virtual Design and Construction: 3 hours.**

Prerequisites: BCS 1116). Three hours lecture. Use of digital tools to create virtual models of buildings for improving the construction process throughout the lifespan of the project

### **BCS 2713 Environmental Building Systems I: 3 hours.**

(Prerequisite: Architecture majors-ARC 1546 and PH 1123; BCS majors-PH 1123; others-instructor consent). Three hours lecture. Investigation of the morphological impacts of various environmental energies on building forms/systems. Includes light, climatic, and ecological factors. Same as ARC 2713

### **BCS 3006 Construction Internship/Co-Op: 6 hours.**

(Prerequisite: BCS 1126 and consent of instructor). Supervised professional work experience of 480 hours with a professional construction firm in which the student obtains on-the-job experience in aspects of construction management. This course can substitute BCS 2116 or BCS 3126

### **BCS 3116 Building Construction Studio 3: 6 hours.**

(Prerequisite: BCS 2226). Three hours of lecture and six hours of laboratory. In-depth study of health and safety, project management, construction management, plant and equipment management, logistics and operations management, and building pathology

### **BCS 3126 Building Construction Studio 4: 6 hours.**

(Prerequisite: BCS 3116). Twelve hours laboratory. In-depth evaluation of the principles and applications of construction productivity, estimating and bidding procedures, cost alternatives, scheduling, sequencing, budgeting and project cashflow management

### **BCS 3213 Mechanical and Electrical Systems: 3 hours.**

(Prerequisite: BCS 3723). Three hours lecture. A detailed examination of the design and construction of building electrical systems

### **BCS 3323 High Performance Construction: 3 hours.**

(Prerequisite: BCS 3116). Three hours lecture. Advanced building fabrication and construction systems are explored including high-performance construction materials such as fiber-reinforced cement, fiber-reinforced plastics, polymeric materials, geosynthetics, masonry materials and coatings

### **BCS 3413 Graphic Construction Communication: 3 hours.**

Three hours lecture. Introduction to graphic communication used in the construction field and how to read construction documents

### **BCS 3423 Materials and Methods: 3 hours.**

Three hours lecture. Introduction to construction materials and methods

### **BCS 3433 Introduction to Estimating: 3 hours.**

(Prerequisites: BCS 3413, BCS 3423). Three hours lecture. Introduction to quantity take-offs, pricing, estimating, and cost management in the construction discipline

### **BCS 3443 Construction Safety and Health: 3 hours.**

Three hours lecture. This course will present and discuss fundamental topics related to construction site safety including Introduction to OSHA, Personal Protective Equipment, Tools, Health Hazards in Construction, Construction Stairways and Ladders, Material Handling, Fall Protection, Cranes and Scaffolds, Excavation, Confined Space, and Fire Protection

### **BCS 3453 Construction Technology: 3 hours.**

Three hours lecture. Use of a collection of innovative tools and software to improve the construction process throughout the lifespan of the project

### **BCS 3723 Environmental Building Systems II: 3 hours.**

(Prerequisites: ARC majors-ARC 2546 and ARC 2713; BCS majors-BCS 2713 and BCS 2116; others-consent of instructor). Three hours lecture. Concentrates on defining the mechanical and electrical (active) techniques available to architects for integrating thermal comfort and life safety into the built form. (Same as ARC 3723)

### **BCS 3904 Structures I: 4 hours.**

(Prerequisite: MA 1613 and either ARC 2546 or BCS 1126). Three hours lecture. Three hours laboratory. Application of the principles of statics and the strength of materials on structural elements. Construction material. (Same as ARC 3904)

### **BCS 3914 Structures II: 4 hours.**

(Prerequisite: ARC 3904 or BCS 3904). Three hours lecture. Two hours laboratory. Design and analysis of structural elements as part of frames and other structural systems. (Same as ARC 3914)

### **BCS 4000 Directed Individual Study in Building Construction Science: 1-6 hours.**

Hours and credits to be arranged

### **BCS 4116 Building Construction Studio 5: 6 hours.**

(Prerequisite: BCS 3126). Three hours of lecture and six hours of laboratory. In-depth evaluation of the legal and contractual environment for construction activities/projects. Emphasis on specifications; dispute resolution; construction contracts and procurement systems; and project delivery modeling



**BCS 4126 Building Construction Studio 6: 6 hours.**

(Prerequisite: BCS 4116). Three hours of lecture and six hours of laboratory. In-depth study of project controls, risk management, strategic management, construction accounting, facilities and maintenance management, and international construction and contracting

**BCS 4222 Professional Communication and Practice: 2 hours.**

(Prerequisite: BCS 3126). Two hour lecture. Construction practice is reviewed in the broader context of ethics and the built environment. Emphasis on developing professional communication

**BCS 4223 Professional Practice: 3 hours.**

(Prerequisites:BCS 3126) Three hours lecture. Construction ethics are reviewed in the broader context of architecture relative to social responsibility. Additional exploration includes professional ethics and emerging best practices

**BCS 4413 Introduction to Construction Scheduling: 3 hours.**

(Prerequisite: BCS 3433). Three hours lecture. In-depth study of project time management, construction management, plant and equipment management, logistics and operations management, and scheduling tools and methods

**BCS 4423 Building Utility Systems: 3 hours.**

(Prerequisite: BCS 3453). Three hours lecture. A detailed review of common utility systems in construction projects and examination of the design and construction processes of these systems along with their applicable standards and guidelines

**BCS 4433 Building Structural Systems: 3 hours.**

Three hours lecture. The evaluation of structures, the properties of materials and the structural behavior of load-resisting members as it relates to buildings

**BCS 4443 Project Management: 3 hours.**

(Prerequisite: BCS 3443). Three hours lecture. In-depth study of project management and its components, construction management, and various project management knowledge areas

**BCS 4453 Construction Legalities: 3 hours.**

Three hours lecture. An introduction to the parties, procedures, and legal aspects of a construction project and dispute

**BCS 4990 Special Topics in Building Construction Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BCS 7000 Directed Individual Study in Building Construction Science: 1-6 hours.**

Hours and credits to be arranged

**Biological Sciences Courses****BIO 1004 Anatomy and Physiology: 4 hours.**

(Prerequisite: a course in the biological sciences). Three hours lecture. Two hours laboratory. For non-science majors. The structure and function of the human body with special emphasis on the muscular, nervous, circulatory, respiratory, digestive, urinary and reproductive systems

**BIO 1011 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**BIO 1023 Plants and Humans: 3 hours.**

Two hours lecture. Two hours laboratory. Students may not have credit for both BIO1023 and BIO1203, BIO1033, BIO2113, or general biology courses transferred from other institutions. A survey of botany intended to introduce non-science majors to the world of plants, emphasizing their relationships with humans and society

**BIO 1111 Welcome to Biological Sciences: 1 hour.**

One hour lecture. Provides first year students with an introduction to the Department of Biological Sciences, including expectations, available resources, and tools to aid in their success as students and beyond

**BIO 1123 Animal Biology: 3 hours.**

Two hours lecture. Two hours laboratory. For non-science majors. Students may not have credit for both BIO 1123 and BIO 1504 . Basic understanding of life processes, diversity, inheritance, reproduction, ecology, and evolution

**BIO 1134 Biology I: 4 hours.**

Three hours lecture. Two hours laboratory. Principles of Biology including nature of science, chemistry of life, cell structure and division, cellular respiration, photosynthesis, Mendelian, chromosomal and molecular genetics, evolution, and ecology

**BIO 1144 Biology II: 4 hours.**

Three hours lecture. Two hours laboratory. Form and function of organisms including body plans and phylogeny, human evolution, plant anatomy and physiology, animal anatomy and physiology, reproduction, development, and animal behavior

**BIO 2103 Cell Biology: 3 hours.**

(Prerequisites: 6 hours of biology, CH 1223). Three hours lecture. A comparative study of cell structure among plant, animal and bacterial systems

**BIO 2113 Plant Biology: 3 hours.**

(Prerequisite: BIO 1134). Two hours lecture. Two hours laboratory. An introduction to the biology of vascular plants, including physiology, anatomy and morphology development, genetics, evolution and diversity, ecology and applied botany

**BIO 2123 Ethical Issues in Biology: 3 hours.**

(Prerequisite: BIO 1134 or equivalent). Three hours lecture. This course will cover ethical analysis of current biological research issues involved in our understanding of life. Course emphasis will be directed upon issues arising from recent advances in molecular, cellular and organismal biology. Honors section available

**BIO 2213 Survey Plant Kingdom: 3 hours.**

Two hours lecture. Two hours laboratory. A survey of algae, bryophytes, vascular plants, and fungi, with emphasis on morphology, internal anatomy, life cycles fossil record, and evolutionary relationships

**BIO 2313 Ecosystems of Mississippi: 3 hours.**

(Prerequisite: BIO 1123 or equivalent). Three hours lecture. History and ecological processes of major ecosystems of Mississippi. (Credit for this course may be earned only at the Meridian campus)

**BIO 2503 Environmental Quality: 3 hours.**

Three hours lecture. (Prerequisite: One course in biology). Relevance of ecological principles to environmental problems and relationships of humans with their environment with emphasis on preservation of environmental quality

**BIO 2513 Animal Diversity: 3 hours.**

(Pre-requisites: BIO 1134 and BIO 1144). Two hours lecture. Three hours laboratory. An introduction to evolutionary relationships and diversity of major invertebrate and vertebrate phyla, and animal behaviors, distributions, and ecology

**BIO 2990 Special Topics in Biological Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIO 3004 Human Anatomy: 4 hours.**

Three hours lecture. Two hours laboratory. Study of the human body with emphasis in anatomical terminology, overview of tissues, and body organization from cellular level to body system level

**BIO 3013 Professional Writing for Biologists: 3 hours.**

(Prerequisite: Junior/Senior standing in BIO, MIC, or MDT, or consent of instructor). Three hours lecture. Refinement of writing skills for more effective communications. Assignments to include routine and specialized correspondence, technical reports, and speech preparation and delivery

**BIO 3014 Human Physiology: 4 hours.**

(Prerequisites: BIO 1134 and CH 1213, or BIO 2004 and CH 1043 or equivalent) Three hours lecture. Two hours laboratory. Comprehensive examination of the function and regulation of the human body and physiological integration of organ systems to maintain homeostasis

**BIO 3103 Genetics I: 3 hours.**

Two hours lecture. Two hours laboratory. (Prerequisites: MA 1313 or higher, BIO 1134 or higher or BIO 2113 or higher ). Principles of heredity, genetic material, and gene expressions. (Same as GNS 3103, PO 3103)

**BIO 3104 Ecology: 4 hours.**

(Prerequisite: BIO 1134). Three hours lecture. Three hours laboratory. A general survey of ecological principles and concepts pertaining to plants and animals with reference to ecosystem structure and function, and interactions among ecosystem components

**BIO 3113 Marine Biology: 3 hours.**

(Prerequisite: BIO 1134 or equivalent.) Three hours lecture. An introduction to marine environments, the diversity of life in the different marine habitats and human utilization of marine resources

**BIO 3213 Biology of Reptiles and Amphibians: 3 hours.**

Three hours lecture. Evolution, systematics, biology, and ecology of reptiles and amphibians for non-science majors

**BIO 3223 Biology of Fishes: 3 hours.**

(Prerequisite: BIO 1123 or equivalent). Two hours lecture, two hours laboratory. For non-science majors. Evolution, systematics, biology and ecology of fishes. (Credit for this course may be earned only at the Meridian campus)

**BIO 3233 Biology of Birds: 3 hours.**

(Prerequisite: BIO 1123 or equivalent). Two hours lecture, two hours laboratory. For non-science majors. Evolution, systematics, biology and ecology of birds. (Credit for this course may be earned only at the Meridian campus)

**BIO 3303 Parasitology: 3 hours.**

(Prerequisite: BIO 1134 or equivalent). Two hours lecture. Three hours laboratory. A survey of parasitology to include parasites of importance to the health of humans and domestic animals

**BIO 3304 General Microbiology: 4 hours.**

(Prerequisites: CH 1053 or CH 1223). Two hours lecture. Four hours laboratory. For science majors. Students may not have credit for both BIO 1043 and BIO 3304. Fundamentals; techniques in staining and culture of microorganisms

**BIO 3443 Biology of Cancer: 3 hours.**

(Prerequisite: BIO 2103 or equivalent). Three hours lecture. This course will cover the fundamentals of cancer biology, focusing on molecular and cellular changes involved in the conversion of a normal cell to a cancer cell. Additional topics may include cancer detection, prevention, and treatment

**BIO 3504 Comparative Anatomy: 4 hours.**

(Prerequisite: BIO 1134 and BIO 1144). Two hours lecture. Six hours of laboratory. The vertebrate animals; relationships of organs and systems; and their phylogenetic significance

**BIO 3524 Biology of Vertebrates: 4 hours.**

Three hours lecture, three hours laboratory. Evolution, systematics, ecology and behavior of vertebrates. Laboratory includes classification of major groups, identification of species, field trips, and experiments in behavior and physiological ecology

**BIO 4000 Directed Individual Study in Biological Sciences: 1-6 hours.**

Hours and credits to be arranged

**BIO 4011 Senior Thesis in Biological Sciences: 1 hour.**

(Prerequisites: BIO 4013 with a grade of B or better and consent of department head and thesis committee). Writing of the undergraduate thesis under the direction of the major advisor

**BIO 4100 Medical Technology Clinicals: 3-19 hours.**

(Prerequisite: Consent of instructor). Medical Technology Clinical Internship

**BIO 4111 AMCAS Prep: 1 hour.**

One hour lecture. Course designed to help junior and senior pre-medical students prepare for the upcoming AMCAS/AACOMAS application

**BIO 4113 Evolution: 3 hours.**

(Prerequisites: MA 1313 or equivalent, BIO 1134 and BIO 1144, BIO 3103 or BIO 4133). Historical development of evolutionary theory; phylogeny and systematic; historic or organic evolution; molecular and phenotypic variation in populations; genetic drift and natural selection; speciation

**BIO 4114 Cellular Physiology: 4 hours.**

(Prerequisites: Seven hours of biological science and two semesters of organic chemistry). Three hours lecture. Three hours laboratory. A study of the morphology and function of the cell. (Same as PHY 4114/6114)

**BIO 4123 Behavioral Ecology: 3 hours.**

(Prerequisites: MA 1313 or equivalent, BIO 1134 and BIO 1144, BIO 3103 or BIO 4133). Three hours lecture. This course focuses on the influence that animal behaviors have in determining their survival, and reproductive success using a hypothesis driven framework

**BIO 4124 Mathematical Modeling in Ecology and Evolution: 4 hours.**

(Prerequisites: BIO 1134 & BIO 1144 & MA 1713 & Junior/Senior standing, or consent of instructor). Three hours lecture. Three hours laboratory. This course will provide an overview of how mathematical and analytical tools may be used to explore and understand a wide range of biological processes

**BIO 4133 Human Genetics: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144 or BIO 2113 or consent of instructor) Three hours lecture Principles of Mendelian and molecular genetics as applied to humans. Description and causes of human genetic diseases and other anomalies. (Same as GNS 4133/6133)

**BIO 4143 Population Genetics: 3 hours.**

(Prerequisite: Both BIO 1134 and 1144, or BIO 2113, or consent of instructor). Three hours lecture. Study of the structure of genetic variation in populations and its applications in life sciences

**BIO 4203 Taxonomy of Spermatophytes: 3 hours.**

(Prerequisites: BIO 2113 and BIO 2213). Two hours lecture. Three hours laboratory. Classification and nomenclature of seed plants; introductory methods of collection; laboratory studies of representative plant families

**BIO 4204 Plant Anatomy: 4 hours.**

(Prerequisites: BIO 2113 and BIO 2213). Two hours lecture. Four hours laboratory. Structure and development of cell types, tissues, roots, stems, leaves, flowers, and fruits of seed plants, with emphasis on angiosperms

**BIO 4213 Plant Ecology: 3 hours.**

Two hours lecture. Three hours laboratory. Conceptual overview and contemporary application of ecological principles related to plant distributions as local to global scales. Laboratory incorporates research planning, data collection, and analysis

**BIO 4214 General Plant Physiology: 4 hours.**

(Prerequisites: BIO 2113 and CH 1213). Three hours lecture. Three hours laboratory. Chemical and physical activities of the plant; absorption; transpiration; mineral nutrition; photosynthesis; translocation; growth processes

**BIO 4224 Aquatic Botany: 4 hours.**

(Prerequisite: BIO 2203 and one of BIO 3104, BIO 4213 or WF 3133 or graduate standing; or consent of instructor). Three hours lecture. Four hours laboratory, every other week. Growth forms, taxonomy and morphology, and physiological adaptations of hydrophytic vegetation; ecological interactions involving hydrophytes; function of plants in aquatic ecosystems

**BIO 4233 Living with Global Change: 3 hours.**

Three hours lecture. Holistic examination of the interrelationship between human activities and ecological systems, with an emphasis on the concept of "sustainable" natural resource management

**BIO 4243 Plant Molecular Biology: 3 hours.**

This course will provide an overview of processes of DNA replication, RNA transcription, protein translation, and cell function. The molecular basis of biological activity between biomolecules (DNA, RNA, and proteins). Their interactions, biosynthesis, and the regulation of these interactions in the various systems of a plant cell

**BIO 4303 Bioinstrumentation: 3 hours.**

(Prerequisite: BIO 4304/6304). Two hours lecture. Two hours laboratory and demonstrations. Theory and practical application of electrical, optical and other instruments employed in microbiology and medical technology

**BIO 4324 Microbiology and Ecology of Soil: 4 hours.**

(Prerequisite: BIO 3304). The study of diverse soil microbial communities and how they influence the structure and function of ecosystems (natural and managed) and the global biosphere (same as PSS 4314/6314)

**BIO 4404 Environmental Microbiology: 4 hours.**

(Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Terrestrial, aquatic, and subsurface microbial ecosystems. Microbiology of water and wastewater treatment, solid waste disposal, landfarming, impact of hazardous waste, and environmental reclamation. Spring/odd years

**BIO 4405 Pathogenic Microbiology: 5 hours.**

(Prerequisite: BIO 3304). Three hours lecture. Four hours laboratory. The microorganisms producing disease in man and lower animals; means of transmission; protection against disease

**BIO 4413 Immunology: 3 hours.**

(Prerequisite: BIO 3304 and CH 4513). Three hours lecture. Survey of the functions of the immune system. Emphasis on mammalian immunology, including T- and B-cell interactions in humoral and cell mediated immunity

**BIO 4414 Microbiology of Foods: 4 hours.**

(Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Isolation and classification of the microorganisms associated with spoilage of commercial and domestic preserved foods. Same as FNH 4414/6414

**BIO 4423 Microbial Symbiosis: 3 hours.**

(Prerequisite: BIO 3304). Three hours lecture. Lecture and discussion course covering beneficial microbial associations with plant and animal hosts. Examined interactions include nutrient provisioning, metabolic complementation, defensive alliances, and others. Course emphasizes key microbiological concepts to address how associations form, persist, and degenerate

**BIO 4424 Eukaryotic Microbiology: 4 hours.**

(Prerequisites: BIO 1134, BIO 1144, and BIO 2103). Three hours lecture. Three hours laboratory. This course examines aspects of the basic biology and evolution of microbial eukaryotes (protists) from a comparative perspective

**BIO 4433 Principles of Virology: 3 hours.**

(Prerequisites: BCH 4603, BIO 3103 and BIO 3304). Three hours lecture. Principles of viral infectivity, multiplication, and chemical constitution

**BIO 4442 Bacterial Genetics Laboratory: 2 hours.**

(Prerequisite: BCH 4603, BIO 3304 and concurrent enrollment in BIO 4443/6443). Four hour laboratory. The genetic and molecular manipulation of bacteria and their viruses

**BIO 4443 Bacterial Genetics: 3 hours.**

(Prerequisites: BCH 4603, BIO 3304 or consent of instructor). Three hours lecture. The genetics of bacteria and their viruses including: replication, rearrangement, repair, transfer, regulation, and methods of manipulation and analysis of DNA

**BIO 4463 Bacterial Physiology: 3 hours.**

(Prerequisites: BIO 3404 and BCH 4603). Three hours lecture. Structure and function relationships and major aerobic and anaerobic metabolic pathways in microorganisms

**BIO 4493 Microbial Ecology: 3 hours.**

(Prerequisite: Junior or graduate standing or consent of instructor, corequisite BIO 3304 or equivalent). Three hours lecture. The study of evolutionary and ecological processes that generate and maintain microbial diversity in a variety of habitats

**BIO 4503 Vertebrate Histology: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144 ). Two hours lecture. Three hours laboratory. Study of the microscopic anatomy, structure, and function of major cell types and tissues

**BIO 4504 Comparative Vertebrate Embryology: 4 hours.**

(Prerequisite: BIO 1134 and BIO 1144). Two hours lecture. six hours laboratory. The embryology of the vertebrates; the fertilization of the egg; stages of cleavage and the development of organs and systems

**BIO 4514 Animal Physiology: 4 hours.**

(Prerequisites: Ten hours of biological science and organic chemistry). Three hours lecture. Three hours laboratory. Functions and interrelationship of the systems of the body. (Same as PHY 4514/6514)

**BIO 4563 Evolutionary and Developmental Biology: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144). Three hours lecture. A comparative study of the cell, molecular, and developmental regulatory mechanisms that have evolved to generate the body plans of a wide range of metazoan embryos, from sponges to humans

**BIO 4603 Ethnobotany: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144, or AN 1143 and AN 1343). Three hours lecture. Relationships between plants and humans through examination of cultures, uses of plants, paleoethnobotany, and the science of botany

**BIO 4610 Urinalysis: 2-6 hours.**

(Prerequisite: Acceptance to Med Tech internship). Study of physical, chemical and microscopic properties of body fluids. Emphasis is placed on laboratory procedures, morphological findings and correlation of test results to disease

**BIO 4612 Special Topics: 2 hours.****BIO 4620 Hematology: 2-9 hours.**

(Prerequisite: Acceptance to Med Tech internship). Study of the maturation, morphology, and function of blood cells and their role in disease. Emphasis is placed on lab procedures, identification, and relationships with disease

**BIO 4624 Immunohematology: 4 hours.**

(Prerequisite: Completion of all preprofessional requirements). Three hours lecture. Six hour laboratory. Blood group serology, compatibility testing, and identification of atypical antibodies, Transfusion practices and blood group immunogenetics

**BIO 4626 Hematology: 6 hours.**

(Prerequisite: Completion of all preprofessional requirements). Four hours lecture. Eight hours laboratory. Normal and abnormal blood and bone marrow cells. Coagulation mechanisms

**BIO 4630 Special Topics: 1-9 hours.**

BIO 4630 Special Topic. (1-9). (Prerequisite: Acceptance to Med Tech internship). Topics are presented to prepare students for future roles including management, lab operations, education, research, quality assurance and regulatory issues, along with other special topics

**BIO 4636 Clinical Chemistry: 6 hours.**

(Prerequisite: Completion of all preprofessional requirements). Four hours lecture. Eight hours laboratory. Normal and abnormal human body chemistry. Emphasis on instrumentation

**BIO 4640 Clinical Micro: 2-9 hours.**

(Prerequisite: Acceptance to Med Tech Internship). Study of bacteria-causing disease in man. Includes lab identification using conventional methods as well as rapid systems, susceptibility testing, and evaluation of clinical specimens

**BIO 4650 Immunohematology: 2-9 hours.**

(Prerequisite: Acceptance to Med Tech internship.) The study of blood group antigens and antibodies. Includes donor selection, lab procedures, identification, storage, quality control, transfusion practices and related topics

**BIO 4660 Serology/Immunology: 2-9 hours.**

(Prerequisite: Acceptance to Med Tech internship.) Study of the immunologic response in infections and autoimmune diseases, characterization of lymphocyte populations in neoplasms, abnormal immunologic responses

**BIO 4670 Clinical Chemistry: 2-9 hours.**

BIO 4670 Clinical Chemistry. (2-9). (Prerequisite: Acceptance to Med Tech internship). Study of the biochemical constituents of body fluids, functions, and alterations in disease states. Emphasis placed on analytical laboratory methods

**BIO 4673 Industrial Microbiology: 3 hours.**

Three hours lecture. Introduction to microbial anatomy, physiology, and genetics. Use of microorganisms and their by-products. Identification and control of biofouling, biocorrosion, and biodegradation of products and processes. (Same as CHE 4673/6673)

**BIO 4703 Avian Diversity: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144, or permission of instructor). Two hours lecture. Three hours laboratory. A detailed survey of bird biology, with emphasis on their unique evolutionary adaptations. Laboratory includes field-identification, independent research and examination of bird reference collection

**BIO 4990 Special Topics in Biological Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIO 4993 Community Ecology: 3 hours.**

(Prerequisite: Junior, senior or graduate standing). Three hours lecture. An introduction to theoretical and empirical studies of ecological communities, including their structure, diversity, and responses to a changing world

**BIO 6013 Genetics and Molecular Biology: 3 hours.**

(Prerequisite: Consent of instructor). Three hours video and online. Analysis of transmission of genetic information from molecular to organismal levels; examination of ways in which genotype determines phenotype. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 6023 Principles of Evolutionary Biology: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours video and online. Current concepts in genetic variation, natural selection, and adaptation of populations; speciation, extinction, and phylogenetics; patterns of human evolution. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 6033 Fundamentals of Biotechnology: 3 hours.**

(Prerequisite: BIO 6013 and BIO 8033, or instructor consent). Three hours video/online. Fundamental principles of animal/plant biotechnology including recombinant DNA technology, gene-based diagnostics, genetically modified organisms and transgenics. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in non-distance degree program)

**BIO 6043 Developmental and Reproductive Biology: 3 hours.**

(Prerequisites: BIO 6013 and BIO 8033 or instructor consent).

Three hours video/online. Study of reproduction/development from gametes through birth in mammals; focusing on stages, anatomy, physiology, mechanisms, genetics. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in non-distance degree program)

**BIO 6113 Evolution: 3 hours.**

(Prerequisites: MA 1313 or equivalent, BIO 1134 and BIO 1144, BIO 3103 or BIO 4133). Historical development of evolutionary theory; phylogeny and systematic; historic or organic evolution; molecular and phenotypic variation in populations; genetic drift and natural selection; speciation

**BIO 6114 Cellular Physiology: 4 hours.**

(Prerequisites: Seven hours of biological science and two semesters of organic chemistry). Three hours lecture. Three hours laboratory. A study of the morphology and function of the cell. (Same as PHY 4114/6114)

**BIO 6123 Behavioral Ecology: 3 hours.**

(Prerequisites: MA 1313 or equivalent, BIO 1134 and BIO 1144, BIO 3103 or BIO 4133). Three hours lecture. This course focuses on the influence that animal behaviors have in determining their survival, and reproductive success using a hypothesis driven framework

**BIO 6124 Mathematical Modeling in Ecology and Evolution: 4 hours.**

(Prerequisites: BIO 1134 & BIO 1144 & MA 1713 & Junior/Senior standing, or consent of instructor). Three hours lecture. Three hours laboratory. This course will provide an overview of how mathematical and analytical tools may be used to explore and understand a wide range of biological processes

**BIO 6133 Human Genetics: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144 or BIO 2113 or consent of instructor) Three hours lecture Principles of Mendelian and molecular genetics as applied to humans. Description and causes of human genetic diseases and other anomalies. (Same as GNS 4133/6133)

**BIO 6143 Population Genetics: 3 hours.**

(Prerequisite: Both BIO 1134 and 1144, or BIO 2113, or consent of instructor). Three hours lecture. Study of the structure of genetic variation in populations and its applications in life sciences

**BIO 6203 Taxonomy of Spermatophytes: 3 hours.**

(Prerequisites: BIO 2113 and BIO 2213). Two hours lecture. Three hours laboratory. Classification and nomenclature of seed plants; introductory methods of collection; laboratory studies of representative plant families

**BIO 6204 Plant Anatomy: 4 hours.**

(Prerequisites: BIO 2113 and BIO 2213). Two hours lecture. Four hours laboratory. Structure and development of cell types, tissues, roots, stems, leaves, flowers, and fruits of seed plants, with emphasis on angiosperms

**BIO 6213 Plant Ecology: 3 hours.**

Two hours lecture. Three hours laboratory. Conceptual overview and contemporary application of ecological principles related to plant distributions as local to global scales. Laboratory incorporates research planning, data collection, and analysis

**BIO 6214 General Plant Physiology: 4 hours.**

(Prerequisites: BIO 2113 and CH 1213). Three hours lecture. Three hours laboratory. Chemical and physical activities of the plant; absorption; transpiration; mineral nutrition; photosynthesis; translocation; growth processes

**BIO 6224 Aquatic Botany: 4 hours.**

(Prerequisite: BIO 2203 and one of BIO 3104, BIO 4213 or WF 3133 or graduate standing; or consent of instructor). Three hours lecture. Four hours laboratory, every other week. Growth forms, taxonomy and morphology, and physiological adaptations of hydrophytic vegetation; ecological interactions involving hydrophytes; function of plants in aquatic ecosystems

**BIO 6243 Plant Molecular Biology: 3 hours.**

This course will provide an overview of processes of DNA replication, RNA transcription, protein translation, and cell function. The molecular basis of biological activity between biomolecules (DNA, RNA, and proteins). Their interactions, biosynthesis, and the regulation of these interactions in the various systems of a plant cell

**BIO 6303 Bioinstrumentation: 3 hours.**

(Prerequisite: BIO 4304/6304). Two hours lecture. Two hours laboratory and demonstrations. Theory and practical application of electrical, optical and other instruments employed in microbiology and medical technology

**BIO 6324 Microbiology and Ecology of Soil: 4 hours.**

(Prerequisite: BIO 3304). The study of diverse soil microbial communities and how they influence the structure and function of ecosystems (natural and managed) and the global biosphere (same as PSS 4314/6314)

**BIO 6404 Environmental Microbiology: 4 hours.**

(Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Terrestrial, aquatic, and subsurface microbial ecosystems. Microbiology of water and wastewater treatment, solid waste disposal, landfarming, impact of hazardous waste, and environmental reclamation. Spring/odd years

**BIO 6405 Pathogenic Microbiology: 5 hours.**

(Prerequisite: BIO 3304). Three hours lecture. Four hours laboratory. The microorganisms producing disease in man and lower animals; means of transmission; protection against disease

**BIO 6413 Immunology: 3 hours.**

(Prerequisite: BIO 3304 and CH 4513). Three hours lecture. Survey of the functions of the immune system. Emphasis on mammalian immunology, including T- and B-cell interactions in humoral and cell mediated immunity

**BIO 6414 Microbiology of Foods: 4 hours.**

(Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Isolation and classification of the microorganisms associated with spoilage of commercial and domestic preserved foods. Same as FNH 4414/6414

**BIO 6424 Eukaryotic Microbiology: 4 hours.**

(Prerequisites: BIO 1134, BIO 1144, and BIO 2103). Three hours lecture. Three hours laboratory. This course examines aspects of the basic biology and evolution of microbial eukaryotes (protists) from a comparative perspective

**BIO 6433 Principles of Virology: 3 hours.**

(Prerequisites: BCH 4603, BIO 3103 and BIO 3304). Three hours lecture. Principles of viral infectivity, multiplication, and chemical constitution

**BIO 6442 Bacterial Genetics Laboratory: 2 hours.**

(Prerequisite: BCH 4603, BIO 3304 and concurrent enrollment in BIO 4443/6443). Four hour laboratory. The genetic and molecular manipulation of bacteria and their viruses

**BIO 6443 Bacterial Genetics: 3 hours.**

(Prerequisites: BCH 4603, BIO 3304 or consent of instructor). Three hours lecture. The genetics of bacteria and their viruses including: replication, rearrangement, repair, transfer, regulation, and methods of manipulation and analysis of DNA

**BIO 6463 Bacterial Physiology: 3 hours.**

(Prerequisites: BIO 3404 and BCH 4603). Three hours lecture. Structure and function relationships and major aerobic and anaerobic metabolic pathways in microorganisms

**BIO 6493 Microbial Biology: 3 hours.**

(Prerequisite: Junior or graduate standing or consent of instructor, corequisite BIO 3304 or equivalent). Three hours lecture. The study of evolutionary and ecological processes that generate and maintain microbial diversity in a variety of habitats

**BIO 6503 Vertebrate Histology: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144 ). Two hours lecture. Three hours laboratory. Study of the microscopic anatomy, structure, and function of major cell types and tissues

**BIO 6504 Comparative Vertebrate Embryology: 4 hours.**

(Prerequisite: BIO 1134 and BIO 1144). Two hours lecture. six hours laboratory. The embryology of the vertebrates; the fertilization of the egg; stages of cleavage and the development of organs and systems

**BIO 6514 Animal Physiology: 4 hours.**

(Prerequisites: Ten hours of biological science and organic chemistry). Three hours lecture. Three hours laboratory. Functions and interrelationship of the systems of the body. (Same as PHY 4514/6514)

**BIO 6563 Evolutionary and Developmental Biology: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144). Three hours lecture. A comparative study of the cell, molecular, and developmental regulatory mechanisms that have evolved to generate the body plans of a wide range of metazoan embryos, from sponges to humans

**BIO 6603 Ethnobotany: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144, or AN 1143 and AN 1343). Three hours lecture. Relationships between plants and humans through examination of cultures, uses of plants, paleobotany, and the science of botany

**BIO 6673 Industrial Microbiology: 3 hours.**

Three hours lecture. Introduction to microbial anatomy, physiology, and genetics. Use of microorganisms and their by-products. Identification and control of biofouling, biocorrosion, and biodegradation of products and processes. (Same as CHE 4673/6673)

**BIO 6703 Avian Diversity: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144, or permission of instructor). Two hours lecture. Three hours laboratory. A detailed survey of bird biology, with emphasis on their unique evolutionary adaptations. Laboratory includes field-identification, independent research and examination of bird reference collection

**BIO 6990 Special Topics in Biological Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIO 6993 Community Ecology: 3 hours.**

(Prerequisite: Junior, senior or graduate standing). Three hours lecture. An introduction to theoretical and empirical studies of ecological communities, including their structure, diversity, and responses to a changing world

**BIO 7000 Directed Individual Study in Biological Sciences: 1-6 hours.**

Same as GCRL Zoology 561. Hours and credits to be arranged. Directed Individual Study courses usually require prerequisites of BIO 4326/6326

**BIO 8011 Seminar I: 1 hour.**

One hour seminar. Weekly seminar on current research in the Biological Sciences. Attendance is mandatory for on-campus Biological Sciences graduate students not enrolled in BIO 8021

**BIO 8021 Seminar II: 1 hour.**

One hour seminar. Weekly seminar on current research in the Biological Sciences and one formal presentation of the student's research; serves as the student's public exit seminar

**BIO 8023 Modern Microbiology: 3 hours.**

(Prerequisite: Consent of instructor). Three hours video and online. Fundamental principles of microbiology, including microbial structure, replication, and diversity; role of microorganisms in human health and the environment. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 8033 Advanced Cell Biology: 3 hours.**

(Prerequisite: Instructor consent). Three hours video and online. Study of eukaryotic cellular and sub-cellular structure and function; integration of cellular processes to understand the cell as a whole. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirement in a non-distance degree program)

**BIO 8043 Ecology and the Environment: 3 hours.**

(Prerequisite: Instructor consent). Three hours video/online. Investigation of biodiversity, ecological hierarchies, and interactions between biota and the environment. Includes as introduction to contemporary environmental science issues. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 8053 Comprehensive Study of Animals: 3 hours.**

(Prerequisites: BIO 6023 or consent of instructor). Three hours video and online. Study of invertebrate and vertebrate animals, including reproduction, development, physiology, behavior, ecology and evolution. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 8063 Comprehensive Study of Plants: 3 hours.**

(Prerequisite: BIO 6023 or consent of instructor). Three hours video and online. Study of plants from bryophytes to angiosperms, including growth, photosynthesis, respiration, nutrition, reproduction, ecology, and evolution. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 8093 Experimental Biology and Biostatistics: 3 hours.**

(Prerequisite: Consent of instructor). Three hours video and online. Experimental design and methods for statistical analysis of biological data, with an emphasis on inquiry using the scientific method. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 8103 Advanced Ecology: 3 hours.**

(Prerequisite: BIO 3104). Two hours lecture. Three hours laboratory. Selected topics with special references to bioenergetics, population and human ecology; with student research project

**BIO 8113 Biogeography: 3 hours.**

Three hours lecture. Study of the geographic distribution of life. Emphasis placed on climatic, geologic, and human influence, dispersal mechanisms and evolutionary history

**BIO 8123 Speciation: 3 hours.**

Three hours seminar. Species concepts, species delimitation, evolution of reproductive isolation, modes of speciation, and the rate of speciation are discussed

**BIO 8163 Invasion Ecology: 3 hours.**

Three hours lecture. Theoretical and empirical ecology of species invasion. Discussion-based with an emphasis understanding the invasion process from ecological, evolutionary, and biogeographical perspectives

**BIO 8183 Capstone in Modern Biology: 3 hours.**

(Prerequisites: Thirty hours of BIO graduate work and consent of instructor). Three hours lecture. Hands-on laboratory/field experiences which demonstrate major techniques of molecular, cellular, organismal and ecological biology. (Intended for high school/community college science educators. Cannot be used to satisfy degree requirements in non-distance program)

**BIO 8191 Seminar in General Biology: 1 hour.**

(Prerequisites: Thirty-three hours of BIO graduate work and consent of instructor). One hour seminar. Conduit for interactions with faculty to assist students in preparing for their comprehensive exam. (Intended for high school/community college science educators. Course cannot be used to satisfy degree requirements in a non-distance degree program)

**BIO 8223 Plant Metabolism: 3 hours.**

(Prerequisites: BIO 4214 and organic chemistry). Three hours lecture. Photosynthesis, respiration, nitrogen metabolism, and other metabolic processes

**BIO 8233 Molecular Applications: 3 hours.**

Two hours lecture. Two hours laboratory. Discussion of the fundamental principles behind basic molecular applications used in biology with a focus on methods employed to study DNA, RNA and proteins

**BIO 8283 Developmental Plasticity: 3 hours.**

Three hours lecture. Study of variation in biological form and function through a synthesis of ecology, evolution and developmental biology

**BIO 8443 Key Concepts in Plant Ecology: 3 hours.**

Three hours lecture. Lecture and discussion course covering development and contemporary application of key ecological concepts governing assembly of communities. Course emphasizes plant ecology, but concepts are intended to be broadly applicable to any taxa of interest and any ecosystem type

**BIO 8990 Special Topics in Biological Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIO 9000 Research in Biological Sciences: 1-13 hours.**

Same as GCRL Zoology 561. Hours and credits to be arranged

**Business Information Systems Courses****BIS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**BIS 1012 Introduction to Business Information Systems: 2 hours.**

Two hours lecture. Overview of business information systems. Application of computer hardware, software, data, analytics, and procedures to business processes. Covers the internet, emerging technologies, and personal and business analytical productivity packages

**BIS 1523 Web Development I: 3 hours.**

Three hours lecture. An introduction to the design, development, and maintenance of dynamic web pages and web sites, including coverage of HTML, CSS, and the PHP programming language

**BIS 1733 Visual Basic Programming: 3 hours.**

Three hours lecture. Introduction to object-oriented, event-driven, and procedural programming to develop business and e-commerce applications

**BIS 1753 Introduction to Business COBOL: 3 hours.**

(Prerequisites: Grade of B or higher in BIS 1733, or grade of B or higher in any 3 hours of computer programming, or graduate standing). Three hours lecture. Structured program design for business applications. Data editing, table handling, and file processing with sequential and random access files will be stressed

**BIS 2523 Web Development II: 3 hours.**

(Prerequisite: BIS 1523) Three hours lecture. Advanced design, development, and maintenance of dynamic web pages and web sites, including coverage of Javascript, third party Javascript tools such as jQuery and jQuery Mobile, as well as AJAX, and PHP/MySQL

**BIS 2990 Special Topics in Business Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIS 3233 Management Information Systems: 3 hours.**

Three hours lecture. A survey of the components, functions, and processes of Information Systems as they relate to managing modern organization for increased efficiency and competitiveness

**BIS 3523 Advanced Languages I: 3 hours.**

(Prerequisite: BIS 1523 and BIS 2523, or any 6 hours of computer programming). Three hours lecture. An introduction to object-oriented programming, with an emphasis on working with classes, objects, and event-driven programming

**BIS 3713 Electronic Information Systems: 3 hours.**

(Prerequisite: Junior Standing and six hours of mathematics and/or statistics, or consent of instructor). Three hours lecture. Principles of business information systems using computer equipment. Business problem solving, including problem definition, flow charting, basic programming and input-output design. (Credit for this course may be earned only at the Meridian and Jackson branches of Mississippi State University. Credit will not be granted for this course and BIS 1013 or CS 1013)

**BIS 3753 Business Database Systems: 3 hours.**

(Prerequisite: BIS 1523 and BIS 2523, or any 6 hours of computer programming, or graduate standing). Three hours lecture. Introduction to business database applications. Includes data modeling, design techniques, and data collection, storage, manipulation, retrieval, and analytical strategies

**BIS 4000 Directed Individual Study in Business Information Systems: 1-6 hours.**

Hours and credits to be arranged

**BIS 4113 Business Information Systems Security Management: 3 hours.**

(Prerequisite: BIS 3233 or any 3 hours of computer-related coursework). Three hours lecture. Concepts, skills, tools, and analytical techniques involved in management of computer security as it applies to today's business environment

**BIS 4513 Microcomputers and Networks: 3 hours.**

(Prerequisite: BIS 3523 or equivalent, or any 3 hours of computer-related coursework). Three hours lecture. Concepts and technology of microcomputers and of computer networks. Experience in building and maintaining microcomputer and networking hardware and software

**BIS 4523 Business Programming with COBOL: 3 hours.**

(Prerequisite: BIS 1523 and BIS 2523 or 6 hours of computer programming; or graduate standing and three hours of computer programming). Three hours lecture. In-depth concepts and experience in business-oriented computer programming. File input/output, sequential, indexed sequential, and relative files

**BIS 4533 Decision Support Systems: 3 hours.**

(Prerequisites: BIS 3233 or equivalent). Three hours lecture. Theory and application of decision support, business intelligence, integrated collaboration systems, and data mining using advanced computing techniques. Hands-on experience in developing decision support systems

**BIS 4753 Structured Systems Analysis and Design: 3 hours.**

(Prerequisite: BIS 1523 and BIS 2523, or any 6 hours of computer programming). Three hours lecture. Analysis/design of computer-based information systems emphasizing problem identification, requirements structuring, business data analytics, and solution generation in business process analysis projects

**BIS 4763 BIS Senior Seminar: 3 hours.**

(Prerequisite: Senior standing, BIS 1523, BIS 2523, and 9 hours of upper-level BIS courses; or consent of instructor). Three hours lecture. Preparation for IS careers involving information systems management emphasizing e-commerce technology and emerging business models. Business analytics project

**BIS 4990 Special Topics in Business Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIS 6113 Business Information Systems Security Management: 3 hours.**

(Prerequisite: BIS 3233 or any 3 hours of computer-related coursework). Three hours lecture. Concepts, skills, tools, and analytical techniques involved in management of computer security as it applies to today's business environment

**BIS 6513 Microcomputers and Networks: 3 hours.**

(Prerequisite: BIS 3523 or equivalent, or any 3 hours of computer-related coursework). Three hours lecture. Concepts and technology of microcomputers and of computer networks. Experience in building and maintaining microcomputer and networking hardware and software

**BIS 6523 Business Programming with COBOL: 3 hours.**

(Prerequisite: BIS 1523 and BIS 2523 or 6 hours of computer programming; or graduate standing and three hours of computer programming). Three hours lecture. In-depth concepts and experience in business-oriented computer programming. File input/output, sequential, indexed sequential, and relative files

**BIS 6533 Decision Support Systems: 3 hours.**

(Prerequisites: BIS 3233 or equivalent). Three hours lecture. Theory and application of decision support, business intelligence, integrated collaboration systems, and data mining using advanced computing techniques. Hands-on experience in developing decision support systems

**BIS 6990 Special Topics in Business Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIS 7000 Directed Individual Study in Business Information Systems: 1-6 hours.**

Hours and credits to be arranged

**BIS 8113 Management Information Technology and Systems: 3 hours.**

Three hours lecture. Course includes the description, development and use of systems from an analytical perspective. Technology-enabled concepts are used for student assignments

**BIS 8122 Multimedia Presentation and Communication: 2 hours.**

(Prerequisite: Graduate Standing). Two hours lecture. Emphasis on planning and delivering business presentations enhanced by multimedia. Concepts, design, and experience in developing multimedia presentations. Exposure to interactive multimedia

**BIS 8213 Secure Systems Analysis and Design: 3 hours.**

(Prerequisite or co-requisite: BIS 8113 or any 3 hours of computer-related coursework). Three hours lecture. Analysis/design of secure computer-based information systems using structured methodologies. Emphasis on functional and security requirements analysis, business data analysis, logical system design, quality assurance, and comprehensive information security management

**BIS 8313 Advanced Database Design Administration: 3 hours.**

(Prerequisite: Three hours of computer programming with a grade of B or better). Three hours lecture. Design and management of local and distributed data resources, database design, definition, creation, maintenance, acquisition and analytical use. Role of Database Administrator

**BIS 8413 Data Analytics: 3 hours.**

(Prerequisite: BQA 8443 or equivalent). Three hours lecture. Enterprise approach to improving business processes and managerial decision-making through quantitatively sophisticated analysis of organizational data. Hands-on experience in analytical techniques, modeling, and software

**BIS 8513 Business Telecommunications: 3 hours.**

(Prerequisite or co-requisite: BIS 8113 or equivalent). Three hours lecture. The evaluation, analysis and design of information systems utilizing telecommunications and networking concepts and techniques. Emphasis is on business applications and related considerations

**BIS 8613 MIS Administration: 3 hours.**

(Prerequisite or co-requisite: BIS 8113 or equivalent). Three hours lecture. Administration of the MIS function in the business enterprise. Emphasis on activity of managing and analyzing the IS function at all levels of the firm



**BIS 8753 Information Systems Collaborative Project: 3 hours.**

(Prerequisites: 9 hours of graduate BIS coursework beyond 8113). Three hours lecture. Capstone experience incorporating knowledge gained in prerequisite courses. Requires team participation using appropriate tools and methodologies in assisting organizations with real-world information systems related requirements through business and data analysis

**BIS 8990 Special Topics in Business Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BIS 9000 Research in Business Information Systems: 1-13 hours.**

Hours and credits to be arranged

**BIS 9013 General Topics in MIS Research: 3 hours.**

(Prerequisites: BIS Ph.D. student or permission of instructor). Three hours lecture. Review of the most widely recognized literature in the MIS field, including studies on systems acceptance, usage, user satisfaction, and group support

**BIS 9113 Management Information Systems (MIS) Seminar: 3 hours.**

(Prerequisite: BIS Ph.D. student or permission of instructor). Three hours lecture. Penetrating review of issues, methodologies and new developments in design and operation of management information, decision support, and computer-based decision-making systems

**BIS 9213 Advanced Topics in MIS Research: 3 hours.**

(Prerequisite: BIS Ph.D. student or permission of instructor). In-depth study of MIS research topics. Review of emerging theories and methodologies, scientific empiricism, modeling, validity, measurement, research design, journal review, and research project management

**BIS 9313 Qualitative Research in MIS: 3 hours.**

(Prerequisites: BIS Ph.D. student or permission of instructor). Three hours lecture. Emphasis is on evaluation the operation and contribution of qualitative research in MIS. The approach, conduct, and evaluation of qualitative research

**BIS 9613 Info Security Research Design: 3 hours.**

(Prerequisite: Current BIS Ph.D. Student or permission of instructor). Three hours lecture. Review of InfoSec research theory and methods, plus emerging methodological issues. Design of rigorous publishable research projects to address emerging InfoSec research questions

## Business Law Courses

**BL 2413 The Legal Environment of Business: 3 hours.**

Three hours lecture. Environmental study of legal influences, concepts, institutions, emphasizing social forces shaping business law. Introduces business students to interrelationships of law and society, jurisprudence and business

**BL 2990 Special Topics in Business Law: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BL 3001 Innovation Law: You Don't Look Good in Stripes: 1 hour.**

(Prerequisite: Admission to MVP). An introduction to specific legal missteps that entrepreneurs must consider during the startup process. Topics include basic business law concepts and a working knowledge of how to converse with transactional lawyers

**BL 3223 The Law of Commercial Transactions: 3 hours.**

(Prerequisite: BL 2413 and Junior Standing). Three hours lecture. Commercial instruments in the economic process. Use of commercial and investment paper; documents of title, security instruments, notes, drafts, checks; integrated treatment of uniform statutes

**BL 3233 Business Law for Resorts: 3 hours.**

(Prerequisites: Junior standing) Three hours lecture. A survey of state and federal business law and ethical issues as they relate to legislation concerning resorts, conventions, and casinos. Course available only on MSU-Meridian campus

**BL 4000 Directed Individual Study in Business Law: 1-6 hours.**

(Prerequisite: BL 2413 and Junior standing). Hours and credits to be arranged

**BL 4243 Legal Aspects of Entrepreneurship: 3 hours.**

(Prerequisite: BL 2413, MGT 3323, or consent of instructor). Three hours lecture. Business creation including legal aspects from permits and taxes to structure and sale with emphasis on Mississippi Law

**BL 4263 Environmental Law: 3 hours.**

(Prerequisite: BL 2413). Three hours lecture. An introduction to how environmental law interfaces with the legal system. Overview of the major statutes, cases, and regulations pertaining to the environment

**BL 4273 International Business Law: 3 hours.**

(Prerequisite: BL 2413). Three hours lecture. An international commercial transaction course emphasizing trade, licensing and investments (contracts, financing, instruments, dispute resolution)

**BL 4333 Real Estate Law: 3 hours.**

(Prerequisite: BL 2413 or consent of instructor). Three hours lecture. The legal principles applicable to real estate, including types of ownership and interests, mortgages, restrictions, and regulations. (Same as REF 4333/6333)

**BL 4990 Special Topics in Business Law: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BL 6243 Legal Aspects of Entrepreneurship: 3 hours.**

(Prerequisite: BL 2413, MGT 3323, or consent of instructor). Three hours lecture. Business creation including legal aspects from permits and taxes to structure and sale with emphasis on Mississippi Law

**BL 6263 Environmental Law: 3 hours.**

(Prerequisite: BL 2413). Three hours lecture. An introduction to how environmental law interfaces with the legal system. Overview of the major statutes, cases, and regulations pertaining to the environment

**BL 6273 International Business Law: 3 hours.**

(Prerequisite: BL 2413). Three hours lecture. An international commercial transaction course emphasizing trade, licensing and investments (contracts, financing, instruments, dispute resolution)

**BL 6333 Real Estate Law: 3 hours.**

(Prerequisite: BL 2413 or consent of instructor). Three hours lecture. The legal principles applicable to real estate, including types of ownership and interests, mortgages, restrictions, and regulations. (Same as REF 4333/6333)

**BL 6990 Special Topics in Business Law: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BL 7000 Directed Individual Study in Business Law: 1-6 hours.**

Hours and credits to be arranged

**BL 8113 Law, Business, Ethics, and Dispute Resolution: 3 hours.**

Three hours lecture. Legal and ethical issues faced by the business firm with emphasis on prevention and resolution of disputes, including mediation, negotiation and alternative dispute resolution

**BL 8990 Special Topics in Business Law: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Business Quantitative Analysis Courses

**BQA 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**BQA 2001 Business Informatics: 1 hour.**

(Prerequisite: Admission to MVP). The class will focus on processing data to help inform and frame business decisions. Topics will include data formatting, model design, basic data management, and simple forecasting techniques. Emphasis will be placed on interpreting the results for a business

**BQA 2113 Business Statistical Methods I: 3 hours.**

(Prerequisite: MA 1613 or MA 1713 and BIS 1012 or equivalent). Three hours lecture. Methods of describing numerical data; probability in business decisions; random variables; sampling distributions; introduction to estimation and hypothesis testing; computer statistical packages applied

**BQA 2990 Special Topics in Business Quantitative Analysis: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BQA 3113 Introduction to Business Statistical Methods: 3 hours.**

(Prerequisite: MA 1463 or equivalent). Three hours lecture. Descriptive statistics; measures of central tendency, measures of dispersion, probability, discrete and continuous random variables, sampling, estimation, hypothesis testing, computer package applications. (Credit for this course may be earned only at the Meridian Campus. Credit will not be granted for this course and BQA 2113 or ST 2113)

**BQA 3123 Business Statistical Methods II: 3 hours.**

(Prerequisite: BQA 2113 or equivalent). Three hours lecture. Reviewing estimation and hypothesis testing; correlation and regression; chi-square tests; analysis of variance; non-parametric concepts; index numbers; time series analysis; computer statistical packages applied

**BQA 4000 Directed Individual Study in Business Quantitative Analysis: 1-6 hours.**

(Prerequisite: Junior standing). Hours and credits to be arranged

**BQA 4413 Business Forecasting and Predictive Analytics: 3 hours.**

(Prerequisite: BQA 3123 or equivalent). Analysis of large datasets using methods such as exploratory data analysis, business forecasting, and predictive analytics. Implementation of techniques using computational tools. Use of real world business and competition datasets

**BQA 4423 Business Decision Analysis: 3 hours.**

(Prerequisites: BQA 3123 or equivalent). Basic/medium-level quantitative analysis methods for business decisions, including optimization modeling using spreadsheets, queueing service system, Newsboy models, customer choice models, and simulation. It serves students who want to grasp the techniques to solve real-world business decision problems

**BQA 4990 Special Topics in Business Quantitative Analysis: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BQA 6413 Business Forecasting and Predictive Analytics: 3 hours.**

(Prerequisite: BQA 3123 or equivalent). Analysis of large datasets using methods such as exploratory data analysis, business forecasting, and predictive analytics. Implementation of techniques using computational tools. Use of real world business and competition datasets

**BQA 6423 Business Decision Analysis: 3 hours.**

(Prerequisites: BQA 3123 or equivalent). Basic/medium-level quantitative analysis methods for business decisions, including optimization modeling using spreadsheets, queueing service system, Newsboy models, customer choice models, and simulation. It serves students who want to grasp the techniques to solve real-world business decision problems

**BQA 6990 Special Topics in Business Quantitative Analysis: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BQA 7000 Directed Individual Study in Business Quantitative Analysis: 1-6 hours.**

Hours and credits to be arranged

**BQA 8233 Quantitative Analysis and Business Research: 3 hours.**

(Prerequisite: BQA 8443 or equivalent). Three hours lecture. Investigation of the managerial decisions and statistical techniques used for conducting business research, collection and analysis of data, and presentation results

**BQA 8443 Statistical Analysis for Business Decision-making: 3 hours.**

(Prerequisites: Proficiency with spreadsheet software). Three hours lecture. Review of descriptive statistics, parametric inference procedures, analysis of variance, regression, nonparametric methods; business problem formulation for computer analysis using statistical packages

**BQA 8583 Quantitative Methods for Research in Business: 3 hours.**

(Prerequisite: BQA 8443). Three hours lecture. Designed to familiarize the graduate student with the fundamentals of scientific research and the classical and modern quantitative methods of analysis useful in business research

**BQA 8990 Special Topics in Business Quantitative Analysis: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BQA 9333 Statistical Methods for Business Research: 3 hours.**  
(Prerequisite: Doctoral student or permission of instructor). Three hours lecture. Understanding and communicating statistical methods for business and economics academic publications; descriptive statistics; random variables; estimation; Bayesian credible sets; hypothesis testing; regression; nonparametric; computerized analysis

**BQA 9533 Advanced Statistics for Business Decisions: 3 hours.**  
(Prerequisite: BQA 8443). Three hours lecture. Multivariate analysis; multiple regression analysis; multiple discriminant analysis; multivariate analysis of variance and covariance; factor analysis; cluster analysis

## Business Technology Education Courses

**BTE 3003 Practicum in Technology Teacher Education: 3 hours.**  
Three hour practicum. Field-based observation of secondary technology students and participation in classroom activities

**BTE 4213 Methods of Teaching Business Subjects: 3 hours.**  
Three hours lecture. Objectives, materials, and methods of teaching basic business subjects, including economics, and design and methods of teaching online

**BTE 4463 Method of Teaching Business Technology: 3 hours.**  
(Prerequisite: Admission to Teacher Education for teacher education majors and keyboarding proficiency using the touch method). Three hours lecture. A study of objectives, materials and methods appropriate for teaching business technology courses

**BTE 4873 Professional Seminar in Vocational/Technical Education: 3 hours.**  
(Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. A seminar dealing with legal, professional, administrative, and curriculum issues as they relate to vocational/technical education

**BTE 4886 Teaching Internship: 6 hours.**  
(Prerequisites: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, completion of all professional education courses with a grade of C or better). Supervised observation and directed teaching in respective fields of endorsement

**BTE 4896 Teaching Internship: 6 hours.**  
(Prerequisites: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a grade of C or better). Supervised observation and directed teaching in respective fields of endorsement

**BTE 6213 Methods of Teaching Business Subjects: 3 hours.**  
Three hours lecture. Objectives, materials, and methods of teaching basic business subjects, including economics, and design and methods of teaching online

**BTE 6463 Method of Teaching Business Technology: 3 hours.**  
(Prerequisite: Admission to Teacher Education for teacher education majors and keyboarding proficiency using the touch method). Three hours lecture. A study of objectives, materials and methods appropriate for teaching business technology courses

## Business Administration Courses

**BUS 1111 Freshman Business Plan: 1 hour.**  
One hour lecture. This course is designed to help entering freshman business majors succeed in their degree program and begin preparation for their business career after graduation

**BUS 2990 Special Topics in Business: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BUS 3011 Academic Peer Advising: 1 hour.**  
(Prerequisites: Junior standing and consent of instructor, for Business majors only). One hour lecture. Study of the role, benefits, objectives, and practice of academic peer advising

**BUS 3021 Academic Peer Advising II: 1 hour.**  
(Prerequisites: BUS 3011 and consent of Instructor, for Business majors only). One hour lab. Laboratory application of academic peer advising

**BUS 3031 Academic Peer Advising III: 1 hour.**  
(Prerequisites: BUS 3011, BUS 3021, and consent of Instructor, for Business majors only). One hour lab. Laboratory application of academic peer advising

**BUS 4000 Directed Individual Study in Business: 1-6 hours.**  
Hours and credits to be arranged

**BUS 4203 Business Internship: 3 hours.**  
(Prerequisites: Approval of Associate Dean prior to internship). A minimum of ten weeks consisting of forty hours per week of business or public service experience

**BUS 4853 Strategic Management: 3 hours.**  
(Prerequisite: Graduating senior and BIS 3233 and FIN 3123 and MGT 3113 and MKT 3013.) Three hours lecture. Administrative process under conditions of uncertainty in large, small, entrepreneurial, and family businesses. Emphasis in integrating knowledge acquired in the functional areas of business administration in formulating administrative policies

**BUS 4990 Special Topics in Business: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BUS 6990 Special Topics in Business: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BUS 7000 Directed Individual Study in Business: 1-6 hours.**  
Hours and credits to be arranged

**BUS 8990 Special Topics in Business: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**BUS 9113 Preparing Future Business Faculty: 3 hours.**  
Three hours lecture. An examination of teaching, research, and service expectations for business academicians. Selected topics include institutional support, instructional technologies, journal submission, and job market

## Culinary Arts Courses

**CA 1251 ServSafe: 1 hour.**  
One hour lecture. Food safety training leading to national ServSafe Certification

**CA 2003 Introduction to Culinary Arts: 3 hours.**

Three hours lecture. Career options in culinary arts and the food hospitality industry; introduction to kitchen operation and cuisine, food history, food safety and sanitation

**CA 2603 CA Entrepreneurship: 3 hours.**

Three hours lecture. Basic application of fundamental entrepreneurial skills in a culinary-specific environment

**CA 2990 Special Topic In CA: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CA 3005 Food Prep I: 5 hours.**

Three hours lecture. Four hours lab. Techniques used in cooking; food identification, handling, and preparation; preparation of soups, stocks and sauces; basics of baking; salad preparation; pasta and grains

**CA 3015 Food Prep II: 5 hours.**

Three hours lecture. Four hours lab. Intermediate level of food preparation, meat fabrication; basic charcuterie; smoked products; plate presentation; meal planning for large groups and off-premise catering

**CA 3023 Menu and Recipe Development: 3 hours.**

(Prerequisite: CA 3005 or consent of instructor). Three hours lecture. The development of recipes and menus for application to food service test kitchen settings

**CA 3103 Dining Room Service: 3 hours.**

(Prerequisite: CA 2003) Food service preparation for dining services, history of food service, beverage identification and management, as well as staff coordination

**CA 3153 Demonstration Techniques: 3 hours.**

Three hours lecture. This course focuses on adequate knowledge and skills necessary for presenting, demonstrating, and merchandising various items or procedures

**CA 3500 CA Internship: 6-12 hours.**

(Prerequisite: CA 3015 and recommendation of the Director of the Culinary Arts Institute) 6-12 hours internship. Supervised application of knowledge and skills in a food service program

**CA 3623 Business Law for CA: 3 hours.**

(Prerequisite: CA 2003 & CA 2603) Three hours lecture. A comprehensive study of the legal aspects of the hospitality industry with emphasis on compliance and prevention of liabilities

**CA 3633 Service Design and Management: 3 hours.**

(Prerequisite: CA 2003, CA 2603, & CA 3103) Three hours lecture. Food and beverage service systems design and management. Emphasis on the customer service aspect of culinary ventures from the perspective of organizational management

**CA 3643 CA Venture Marketing: 3 hours.**

(Prerequisite: CA 2603) Three hours lecture. Study of the fundamentals of marketing research, planning, and strategy as applied to culinary ventures. Emphasis on the development of market planning and research skills

**CA 3653 HR Management of Culinary Business: 3 hours.**

(Prerequisite: CA 2003 & CA 2603) Three hours lecture. Applied perspective of human resource management for culinary-specific environments

**CA 3753 Advancing Baking: 3 hours.**

(Prerequisite: CA 3005). Two hours lecture. Two hours laboratory. The theory and practice of operating a small bakery or pastry shop. Provides experience in producing French and American pastries and baked goods. Emphasis is on producing products from scratch, by hand

**CA 4005 Food Preparation III: 5 hours.**

(Prerequisite: CA 3015) Three hours lecture. Four hours lab. Advanced level of food preparation; emphasis on distinctive and complex food preparations; extensive menu-based meal planning and presentation

**CA 4013 World Cuisines: 3 hours.**

(Prerequisite: CA 3015) Three hours lecture. Regional cuisines from throughout the world and application of cooking methods used in these cuisines including distinctive ingredients and approaches to food preparation

**CA 4103 Business Skills in Culinary Arts: 3 hours.**

(Prerequisite: MA 1113). Three hours lecture. Basic business skills and business mathematics applied to the food industry

**CA 4153 Food Styling: 3 hours.**

(Prerequisite: Art 1033, 1043, 2203, or permission on the Director of the Culinary Arts Institute) Three hours lecture. Concepts and techniques for food presentation to the camera, including styling techniques; the process of preparing food for still photography and videos; selecting tools and props; choosing and treating ingredients

**CA 4603 Culinary Arts Entrepreneurship: 3 hours.**

(Prerequisite: All other courses in the Culinary Entrepreneurship program). Three hours seminar. Capstone course in culinary entrepreneurship. Emphasis on case analysis and the development and presentation of a comprehensive culinary business plan

## Community College Leadership Courses

**CCL 7000 Directed Individual Study in Community College Leadership: 1-9 hours.**

Hours and credits to be arranged

**CCL 8113 Community College History/Philosophy: 3 hours.**

Three hours lecture. Objectives of the community college, philosophical/historical bases, changing roles, issues in higher education/workforce development/economic industry

**CCL 8123 Community College Finance: 3 hours.**

Three hours lecture. Analyzes tools, methods, problems in community college financial management, revenue sources, budget preparation, risk management, purchasing, employee compensation

**CCL 8133 Leadership Theory and Practice in the Community College: 3 hours.**

Three hours lecture. In-depth analysis of leadership theory and practice in the community college environment, including an overview of leadership, approaches, theories, and ethics

**CCL 8143 Program Planning and Development: 3 hours.**

In-depth analysis of workforce education including the mission, the knowledge base, planning and developing programs, and delivering programs

**CCL 8153 Human Resources Administration: 3 hours.**

Examines the role of the human resources administrator on workforce education leadership; key administrative functions, workforce development, benefits and compensation, and employee relations are analyzed

**CCL 8163 Organization and Administration in Postsecondary Institutions: 3 hours.**

Three hours lecture. Organization of postsecondary institutions and their culture and climate; constituencies; and administration, including consideration of current events affecting institutions, the challenges they present, and possible solutions

**CCL 8173 Community College Teaching and Learning: 3 hours.**

Comprehensive preparation for teaching at the community college: teaching strategies centered on outcomes and experiential learning, assessment of learning, and job related responsibilities

**CCL 8183 Diversity within the Community College: 3 hours.**

Three hours lecture. Diversity within the community college setting with foci on creating a diverse and inclusive organizational culture, diversity and cultural competencies, equitable educational experiences, and the influence of diversity within schools. Current trends and theories are addressed

**CCL 8193 Issues in Community College and Workforce Leadership: 3 hours.**

A study of the current issues in community college leadership and workforce education. Designed for students in the community college leadership program

**CCL 8213 Internship in Community College Leadership: 3 hours.**

Provides experience in community college leadership and is conducted at a local community college under supervision of an administrator serving as the student's mentor

**CCL 8223 Internship in Workforce Education Leadership: 3 hours.**

Provides experience in workforce education leadership and is conducted at a local community college under supervision of an administrator serving as the student's mentor

**CCL 8233 Community College Legal Issues: 3 hours.**

Three hours lecture. In-depth analysis of the legal/policy issues pertaining to students, faculty, and administrators of community colleges

**CCL 8243 Internship in Community College Teaching: 3 hours.**

Provides experience in workforce education leadership and is conducted at a local community college under supervision of an administrator serving as the student's mentor

**CCL 8253 Community College Research Methods: 3 hours.**

Three hours lecture. Analysis of the research process to include literature review, developing research questions, collecting and analyzing data, and reporting results, with an emphasis on research in community colleges. Includes both qualitative and quantitative research designs

**CCL 8283 Leadership in Community College Administration: 3 hours.**

Three hours lecture. Nature and types of leadership and foundation theories. Uses of theory in administrative problem solving by applying models to community college mission, organization, and academe

**CCL 8313 Community College Instructional Assessment: 3 hours.**

Three hours lecture. In-depth analysis of community college setting, students, courses planning, and assessment of instruction, including techniques associated with effective teaching and assessment in the community college arena

**CCL 8333 Community College Administration: 3 hours.**

Three hours lecture. In-depth analysis of community college governance, structure, functions, and its relationship with external groups, state government

**CCL 8343 Community Development and Resources: 3 hours.**

In-depth analysis of community environment in which community colleges serve, including strategic planning, asset mapping, project development, resources and grant writing, and project evaluation

**CCL 8353 Applications of Organizational Theory and Behavior in Community College Leadership: 3 hours.**

Three hours lecture. Nature and types of community college leadership and foundation theories for understanding and managing modern organizations in relation to community college mission, organization, and academe

**CCL 8363 Community College Activities Administration: 3 hours.**

Three hours lecture. Nature and types of community college activities, understanding and managing today's students, legal aspects, and relation to the community college mission, organization, and academe

**CCL 8373 Community College Curriculum Improvement: 3 hours.**

Three hours lecture. Comprehensive overview of community college curriculum improvement; theory and perspectives, contemporary curriculum, curriculum design and assessment, and curricular innovation

**CCL 8383 Ethical Decision Making in Community College Administration: 3 hours.**

Three hours lecture. Ancient, modern, and postmodern ethical theory. Case studies used to analyze ethical decisions. Multiple decision models and ethical concepts applied to problems and moral dilemmas

**CCL 8990 Special Topics in Community College Leadership: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CCL 9000 Research in Community College Leadership: 1-13 hours.**

Hours and credits to be arranged

**CCL 9913 Dissertation Seminar: 3 hours.**

Optional or elective course for specialized study in developing dissertation research. May be repeated once for credit

## Civil Engineering Courses

**CE 1001 Introduction to Civil Engineering: 1 hour.**

Three hours laboratory. Introduction to the Civil Engineering profession. Ethics. Engineering problem-solving, basic computing skills and tools used in Civil Engineering. Engineering communications

**CE 1011 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**CE 2213 Surveying: 3 hours.**

(Prerequisite: Credit in MA 1323 with a grade of C or better, or Credit, or concurrent registration in MA 1613, or Credit or concurrent registration in MA 1713). Two hours lecture, Four hour field and problem work. Fundamentals of field measurements. Theory, selection, and use of surveying instruments, theories used in adjustment of surveys

**CE 2803 Environmental Engineering Issues: 3 hours.**

(Prerequisite: Grade of C or better in CH 1213 and CH 1223). Three hours lecture. An overview of the scientific, social and legal issues impacting environmental management and protection in the United States

**CE 2990 Special Topics in Civil & Environmental Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CE 3113 Transportation Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 2213 and ST 3123; Co-requisite EM 2413). Three hours lecture. An introduction to the general modes of transportation, the planning processes associated with the modes of transportation and design of transportation facilities

**CE 3311 Construction Materials Lab: 1 hour.**

(Co-requisite: Credit or concurrent enrollment in CE 3313.) Three hours laboratory. A laboratory introduction to testing construction materials that includes analysis of data collected and presentation of the findings in written documents

**CE 3313 Construction Materials: 3 hours.**

(Prerequisite: Grade of C or better in CE 3413; credit or enrollment in ST 3123). Two hours lecture. Physical and mechanical properties of basic civil engineering construction materials. Significance of and reasons for testing control and specification of materials

**CE 3411 Soil Mechanics Laboratory: 1 hour.**

(Prerequisite: Credit or concurrent enrollment in CE 3413). Three hours laboratory. Laboratory tests to determine soil properties and behavior

**CE 3413 Soil Mechanics: 3 hours.**

(Prerequisite: Credit or current enrollment in EM 3213). Three hours lecture. Introduction to soil properties and behavior. Emphasis is placed on relating soil properties to compressibility and shear strength of soils

**CE 3501 Water Resource Engineering Lab: 1 hour.**

(Co-requisite: Credit or concurrent enrollment in CE 3503). A laboratory introduction to the analysis and design of systems for hydraulic and hydrologic management

**CE 3503 Water Resource Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 2803, credit or concurrent enrollment in EM 3313). Three hours lecture. Fundamentals of hydrology and hydraulics. Analysis and design of stormwater management systems; water distribution, stormwater, and sanitary sewer design

**CE 3603 Structural Mechanics: 3 hours.**

(Prerequisite: Grade of C or better in EM 3213). Three hours lecture. Analytical and graphical methods of structural analysis; stress diagrams; influence lines; deflection; methods of work, moment distribution and slope deflection

**CE 3801 Environmental Engineering and Water Resources Engineering Lab: 1 hour.**

(Co-requisite: Credit or concurrent enrollment in CE 3823). Three hours laboratory. A laboratory introduction to processes and operations used in systems for water supply and wastewater reclamation

**CE 3823 Environmental Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 2803). Three hours lecture. Environmental process design. Analysis and design of systems for water treatment, wastewater treatment, air pollution control, and hazardous waste engineering

**CE 4000 Directed Individual Study in Civil & Environmental Engineering: 1-6 hours.**

Hours and Credits to be arranged

**CE 4103 Pavement Design: 3 hours.**

(Prerequisite: Grade of C or better in CE 3313; or consent of major advisor). Three hours lecture. Analysis design of both flexible and rigid pavement structures

**CE 4133 Geometric Design of Highways: 3 hours.**

(Prerequisite: Grade of C or better in CE 3113; or consent of major advisor). Three hours lecture. Highway finance, organization and planning, economic analysis, elements of highway and street design, computer applications to highway engineering

**CE 4143 Traffic Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 3113, grade of C or better in ST 3123; or consent of major advisor). Three hours lecture. Human and vehicular characteristics as they affect highway traffic flow; traffic regulation, accident cause/prevention; improving flow on existing facilities; planning traffic systems

**CE 4153 Freight Transportation System Analysis: 3 hours.**

(Prerequisite: CE 3113 and consent of instructor; or consent of major advisor). Three hours lecture. Definition, taxonomy and emerging issues for multi-modal transportation systems with focus on freight transportation and mathematical models for complex logistics and supply chain systems

**CE 4163 Urban Transportation Planning: 3 hours.**

(Prerequisite: CE 3113 and consent of instructor; or consent of major advisor). Three hours lecture. This course will provide an understanding of the nature of travel demand and methods and computer software used to plan for future transportation systems

**CE 4173 Travel Behavior Modeling and Forecasting: 3 hours.**

(Prerequisite: CE 3113 or consent of instructor). Three hours lecture. This course gives an overview of travel behavior and demand analysis and forecasting, with primary attention to the statistical and behavioral choice model research techniques used to study and forecast travel demand

**CE 4183 Waterborne Transportation Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 3113; or consent of major advisor). Three hours lecture. Navigation vessels and their characteristics. Planning and design of Marine Transportation System facilities including navigation ports, channels and locks

**CE 4233 Control Surveys: 3 hours.**

(Prerequisite: Grade of C or better in CE 2213 ). Two hours lecture. Four hours laboratory. Methods and procedures for performing control surveys

**CE 4243 Land Surveys: 3 hours.**

(Prerequisites: Grade of C or better in CE 2213 or consent of major advisor). Three hours lecture. Methods of surveying and describing property with emphasis on Mississippi's public land surveys

**CE 4433 Foundations: 3 hours.**

(Prerequisite: Grade of C or better in CE 3413; or consent of major advisor). Three hours lecture. Introduction to exploration and engineering evaluation of subsoil and groundwater conditions for selection and design of foundations for structures and earth masses

**CE 4483 Geosynthetics: 3 hours.**

(Prerequisite: Grade of C or better in CE 3413 or equivalent). Three hour lecture. Understand the behavior of the different types of geosynthetic materials, proper design-by-function and selection of the right material for its intended applications

**CE 4513 Engineering Hydrology: 3 hours.**

(Prerequisite: grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Hydrologic processes; rainfall-runoff analysis; groundwater flow; frequency analysis; hydrologic design

**CE 4523 Open Channel Hydraulics: 3 hours.**

(Prerequisite: Grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Continuity, energy and momentum principles in open channel flow, flow resistance, uniform and non-uniform flow, channel controls and transitions, unsteady flow routing

**CE 4533 Computational Methods in Water Resources Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Review of relevant numerical analysis; numerical methods for kinematic wave, St. Venant, Boussinesq and depth-averaged equations; simulation of one and two dimension free-surface flows

**CE 4543 Advanced Reinforced Concrete: 3 hours.**

(Prerequisite: Grade of C or better in CE 4973; or consent of major advisor). Three hours lecture. Two-way slab systems, shear walls, retaining walls, bi-axial bending of columns, torsion, brackets and corbels. Introduction to prestressed concrete

**CE 4563 Sedimentation Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 4523; or consent of major advisor). Three hours lecture. Processes by which cohesive and non-cohesive sediments are transported in overland flow and in rivers, reservoirs, estuaries and coastlines. Deposition and erosion rates. Design criteria

**CE 4583 Stream Reconnaissance: 3 hours.**

(Prerequisite: Grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Stream channel form and sedimentary features. Understanding how water flows into trough streams and channel form and function. Hydrologic, hydraulic and geomorphic channel evolution processes

**CE 4633 Concrete Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603). Three hours lecture. Theory and problems in the analysis and design of concrete structures

**CE 4703 Construction Engineering and Management: 3 hours.**

(Prerequisite: Grade of C or better in IE 3913, Senior standing or consent of instructor; or consent of major advisor). Three hours lecture. Construction contracts and law, cost estimating, and project scheduling

**CE 4733 Construction Engineering Equipment and Methods: 3 hours.**

(Prerequisite: Grade of C or better in IE 3913, Senior standing or consent of instructor; or consent of major advisor). Three hours lecture. Aspects of planning, operation and management of civil engineering support equipment, site logistics, equipment cost engineering, power systems and environmental considerations of equipment use

**CE 4743 Analysis and Mitigation of Conflicts, Claims and Disputes: 3 hours.**

(Prerequisite: Senior standing or consent of instructor; or consent of major advisor). Three hour lecture. Overview of the different techniques used to analyze and mitigate conflicts, claims, and disputes (C2D) in civil engineering projects

**CE 4753 Construction Cost Estimating: 3 hours.**

(Prerequisite: Senior Standing). Three hour lecture. Overview of cost estimates, total cost of a project, direct and indirect costs, labor and equipment cost analysis, materials management, overhead; contingency; and profit, bonds and insurance in construction engineering projects

**CE 4763 Construction Risk Management: 3 hours.**

(Prerequisite: Senior Standing). Three hour lecture. Overview of Introduction to the concept of risk: Risk, uncertainty, probability, components of a risk event (source, impact etc.), risk reward structure, risk attitude in construction engineering projects

**CE 4800 Undergraduate Research: 1-13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**CE 4843 Environmental Engineering Chemistry: 3 hours.**

(Prerequisite: Grade of C or better in CE 3823 or consent of instructor; or consent of major advisor). Three hours lecture. Introduction to advanced theoretical concepts in sanitary engineering analysis with special emphasis on inorganic, organic, and physical chemistry

**CE 4863 Water and Wastewater Engineering: 3 hours.**

(Prerequisite: CE 3823 with grade of C or better; or consent of major advisor). Three hour lecture. Evaluation of municipal water and wastewater characteristics and flows; application of various unit processes/unit operations for the treatment of municipal water and wastewater

**CE 4883 Engineered Environmental Systems: 3 hours.**

(Prerequisite: CE 3503 & CE 3823 with grade of C or better; or consent of major advisor). Three hour lecture. Evaluation and characterization of storm water quality; selection, design and application of various treatment technologies; surface water quality management and modeling; and sustainable engineering

**CE 4893 Hazardous Waste Management: 3 hours.**

(Prerequisite: Grade of C or better in CE 3823; or consent of major advisor). Three hours lecture. Examination of state-of-the-art technologies available for the handling treatment; storage; and disposal of hazardous waste materials

**CE 4903 Civil Engineering Comprehensive: 3 hours.**

(Prerequisite: Graduation semester, or consent of department head). Engineering, ethical and professional practice considerations in the planning, design, and construction of civil engineering projects

**CE 4913 Matrix of Analysis of Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603, or consent of instructor; or consent of major advisor). Matrix formulation and computer analysis of structures. Linear stiffness analysis of truss and frames structures

**CE 4923 Structural Dynamics: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603, or consent of instructor; or consent of major advisor). Three hours lecture. Response of a single and multi-degree of freedom structures to dynamic loading: free vibration, harmonic excitation, pulses, and earthquakes

**CE 4953 Concrete and Steel Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603). Three hours lecture. Load on structures. Analysis and design of concrete and steel structures using the ACI and AISC specifications

**CE 4963 Steel Structures I: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603). Three hours lecture. Loads on structures. Analysis, design, and study of steel structures using the AISC specifications. Focus on beams and columns

**CE 4973 Concrete Structures I: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603). Three hours lecture. Loads on structures. Analysis, design, and study of concrete structures using the ACI specifications. Focus on beams and columns

**CE 4983 Engineering of Wood Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603; or consent of major advisor). Three hours lecture. Loads on structures. Analysis and design of wood structures using the appropriate specifications. Focus on beams and columns

**CE 4990 Special Topics in Civil & Environmental Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CE 4993 Prestressed Concrete Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 4973; or consent of major advisor). Three hours lecture. Loads on structures. Analysis and design of prestressed concrete structures using ACI specifications. Focus on beams

**CE 6103 Pavement Design: 3 hours.**

(Prerequisite: Grade of C or better in CE 3313; or consent of major advisor). Three hours lecture. Analysis design of both flexible and rigid pavement structures

**CE 6133 Geometric Design of Highways: 3 hours.**

(Prerequisite: Grade of C or better in CE 3113; or consent of major advisor). Three hours lecture. Highway finance, organization and planning, economic analysis, elements of highway and street design, computer applications to highway engineering

**CE 6143 Traffic Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 3113, grade of C or better in ST 3123; or consent of major advisor). Three hours lecture. Human and vehicular characteristics as they affect highway traffic flow; traffic regulation, accident cause/prevention; improving flow on existing facilities; planning traffic systems

**CE 6153 Freight Transportation System Analysis: 3 hours.**

(Prerequisite: CE 3113 and consent of instructor; or consent of major advisor). Three hours lecture. Definition, taxonomy and emerging issues for multi-modal transportation systems with focus on freight transportation and mathematical models for complex logistics and supply chain systems

**CE 6163 Urban Transportation Planning: 3 hours.**

(Prerequisite: CE 3113 and consent of instructor; or consent of major advisor). Three hours lecture. This course will provide an understanding of the nature of travel demand and methods and computer software used to plan for future transportation systems

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(Prerequisite: CE 3113 or consent of instructor). Three hours lecture. This course gives an overview of travel behavior and demand analysis and forecasting, with primary attention to the statistical and behavioral choice model research techniques used to study and forecast travel demand

**CE 6183 Waterborne Transportation Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 3113; or consent of major advisor). Three hours lecture. Navigation vessels and their characteristics. Planning and design of Marine Transportation System facilities including navigation ports, channels and locks

**CE 6243 Land Surveys: 3 hours.**

(Prerequisites: Grade of C or better in CE 2213 or consent of major advisor). Three hours lecture. Methods of surveying and describing property with emphasis on Mississippi's public land surveys

**CE 6433 Foundations: 3 hours.**

(Prerequisite: Grade of C or better in CE 3413; or consent of major advisor). Three hours lecture. Introduction to exploration and engineering evaluation of subsoil and groundwater conditions for selection and design of foundations for structures and earth masses

**CE 6483 Geosynthetics: 3 hours.**

(Prerequisite: Grade of C or better in CE 3413 or equivalent). Three hour lecture. Understand the behavior of the different types of geosynthetic materials, proper design-by-function and selection of the right material for its intended applications

**CE 6513 Engineering Hydrology: 3 hours.**

(Prerequisite: grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Hydrologic processes; rainfall-runoff analysis; groundwater flow; frequency analysis; hydrologic design

**CE 6523 Open Channel Hydraulics: 3 hours.**

(Prerequisite: Grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Continuity, energy and momentum principles in open channel flow, flow resistance, uniform and non-uniform flow, channel controls and transitions, unsteady flow routing

**CE 6533 Computational Methods in Water Resources Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Review of relevant numerical analysis; numerical methods for kinematic wave, St. Venant, Boussinesq and depth-averaged equations; simulation of one and two dimension free-surface flows

**CE 6543 Advanced Reinforced Concrete: 3 hours.**

(Prerequisite: Grade of C or better in CE 4973; or consent of major advisor). Three hours lecture. Two-way slab systems, shear walls, retaining walls, bi-axial bending of columns, torsion, brackets and corbels. Introduction to prestressed concrete

**CE 6563 Sedimentation Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 4523; or consent of major advisor). Three hours lecture. Processes by which cohesive and non-cohesive sediments are transported in overland flow and in rivers, reservoirs, estuaries and coastlines. Deposition and erosion rates. Design criteria

**CE 6583 Stream Reconnaissance: 3 hours.**

(Prerequisite: Grade of C or better in CE 3503; or consent of major advisor). Three hours lecture. Stream channel form and sedimentary features. Understanding how water flows into trough streams and channel form and function. Hydrologic, hydraulic and geomorphic channel evolution processes

**CE 6703 Construction Engineering and Management: 3 hours.**

(Prerequisite: Grade of C or better in IE 3913, Senior standing or consent of instructor; or consent of major advisor). Three hours lecture. Construction contracts and law, cost estimating, and project scheduling

**CE 6733 Construction Engineering Equipment and Methods: 3 hours.**

(Prerequisite: Grade of C or better in IE 3913, Senior standing or consent of instructor; or consent of major advisor). Three hours lecture. Aspects of planning, operation and management of civil engineering support equipment, site logistics, equipment cost engineering, power systems and environmental considerations of equipment use



**CE 6743 Analysis and Mitigation of Conflicts, Claims and Disputes: 3 hours.**

(Prerequisite: Senior standing or consent of instructor; or consent of major advisor). Three hour lecture. Overview of the different techniques used to analyze and mitigate conflicts, claims, and disputes (C2D) in civil engineering projects

**CE 6753 Construction Cost Estimating: 3 hours.**

(Prerequisite: Senior Standing). Three hour lecture. Overview of cost estimates, total cost of a project, direct and indirect costs, labor and equipment cost analysis, materials management, overhead; contingency; and profit, bonds and insurance in construction engineering projects

**CE 6763 Construction Risk Management: 3 hours.**

(Prerequisite: Senior Standing). Three hour lecture. Overview of Introduction to the concept of risk: Risk, uncertainty, probability, components of a risk event (source, impact etc.), risk reward structure, risk attitude in construction engineering projects

**CE 6843 Environmental Engineering Chemistry: 3 hours.**

(Prerequisite: Grade of C or better in CE 3823 or consent of instructor; or consent of major advisor). Three hours lecture. Introduction to advanced theoretical concepts in sanitary engineering analysis with special emphasis on inorganic, organic, and physical chemistry

**CE 6863 Water and Wastewater Engineering: 3 hours.**

(Prerequisite: CE 3823 with grade of C or better; or consent of major advisor). Three hour lecture. Evaluation of municipal water and wastewater characteristics and flows; application of various unit processes/unit operations for the treatment of municipal water and wastewater

**CE 6873 Water and Wastewater Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CE 3803). Two hours lecture. One hour laboratory. Evaluation of municipal water and waste-water characteristics and flows; application of various unit processes/unit operations for the treatment of municipal water and wastewater

**CE 6883 Engineered Environmental Systems: 3 hours.**

(Prerequisite: CE 3503 & CE 3823 with grade of C or better; or consent of major advisor). Three hour lecture. Evaluation and characterization of storm water quality; selection, design and application of various treatment technologies; surface water quality management and modeling; and sustainable engineering

**CE 6893 Hazardous Waste Management: 3 hours.**

(Prerequisite: Grade of C or better in CE 3823; or consent of major advisor). Three hours lecture. Examination of state-of-the-art technologies available for the handling treatment; storage; and disposal of hazardous waste materials

**CE 6913 Matrix of Analysis of Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603, or consent of instructor; or consent of major advisor). Matrix formulation and computer analysis of structures. Linear stiffness analysis of truss and frames structures

**CE 6923 Structural Dynamics: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603, or consent of instructor; or consent of major advisor). Three hours lecture. Response of a single and multi-degree of freedom structures to dynamic loading: free vibration, harmonic excitation, pulses, and earthquakes

**CE 6963 Design of Steel Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 4953). Three hours lecture. Loads on structures. Analysis and design of steel structures using the AISC specifications. Focus on beams and columns

**CE 6973 Design of Concrete Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603). Three hours lecture. Loads on structures. Analysis, design, and study of concrete structures using the ACI specifications. Focus on beams and columns

**CE 6983 Engineering of Wood Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 3603; or consent of major advisor). Three hours lecture. Loads on structures. Analysis and design of wood structures using the appropriate specifications. Focus on beams and columns

**CE 6990 Special Topics in Civil & Environmental Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CE 6993 Prestressed Concrete Structures: 3 hours.**

(Prerequisite: Grade of C or better in CE 4973; or consent of major advisor). Three hours lecture. Loads on structures. Analysis and design of prestressed concrete structures using ACI specifications. Focus on beams

**CE 7000 Directed Individual Study in Civil & Environmental Engineering: 1-6 hours.**

Hours and credits to be arranged

**CE 8133 Traffic Flow Theory: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. An analysis of the engineering and mathematical principles of traffic flow

**CE 8143 Traffic Simulation and Advanced Traffic Management: 3 hours.**

(Prerequisite: Consent of Major Advisor). Introduction of traffic control concepts. Understanding of existing traffic control systems. In-depth knowledge of traffic simulation

**CE 8163 Public Transportation: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Principles of efficient management, and planning of public transportation systems: capabilities and limitations, optimal scale and layout, design and operation of transit systems

**CE 8203 Finite Element Modeling in CEE: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Modern finite element methods for continuum mechanical models relevant to civil and environmental engineering, including surface and subsurface fluid flow, mass transport, and solid mechanics

**CE 8303 Material Characterization: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Characterization of advanced material behaviors for pavement subgrades, bases and surface courses, Stree dependency, viscoelasticity, repeated load moduli, and stabilization are central behaviors of interest

**CE 8313 Materials Science and Durability of Concrete: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Materials science of concrete and cement-based materials with a focus on materials specification and testing as well as identifying mechanisms of material degradation

**CE 8333 Pavement Performance and Rehabilitation: 3 hours.**

(Prerequisites: Consent of Major Advisor). Three hours lecture. Field methods for evaluating pavement performance including surveys, profiling, and frictional resistance. Impulse deflection testing of structural integrity. Pavement preservation and rehabilitation techniques

**CE 8343 Advanced Pavement Materials: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Properties, behavior and performance of highway and airfield paving materials; principally asphalt and concrete. Quality control and assurance. Constituent material properties and specifications

**CE 8413 Advanced Geotechnical Site Characterization: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Fundamentals of geotechnical engineering site characterization and special techniques for large projects involving difficult complex geological soils

**CE 8423 Geotechnical Earthquake Engineering: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Dynamic soil properties, seismic site response analysis, and evaluation of soil liquefaction, seismic stability of dams and embankments, seismic aspects of foundation design

**CE 8433 Advanced Foundations: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. A continuation of CE 3433 with emphasis on unusual soil conditions and foundations

**CE 8443 Soil Behavior: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Review of methods of testing to define response; rationale for choosing shear strength and deformation parameters for soils for design applications

**CE 8453 Physical Properties of Soils: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Three hours laboratory. A study of the physical properties of soil masses as related to foundation engineering

**CE 8463 Slopes & Embankments: 3 hours.**

(Prerequisite: Consent of Major Advisor). Analysis and design of geotechnical systems placed on an angle from the horizontal

**CE 8473 Theoretical Soil Mechanics: 3 hours.**

(Prerequisite: Consent of Advisor). Three hours lecture. Modern interpretation of soil behavior for engineering applications. Extrapolation of actual conditions from standard testing results

**CE 8503 Data Analysis for CEE: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Analysis and interpretation of civil and environmental engineering data. Empirical, analytic, and statistical decomposition of spatial and temporal data to determine meaning

**CE 8533 Hydromechanics: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Mechanics of incompressible unsteady, turbulent flows. Equations of motion, hydrodynamic forces on structures, introduction to turbulence

**CE 8543 Tidal Hydraulics: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Hydrodynamics and transport in tidal bays and estuaries. Unsteady, non-uniform stratified flows, tides, waves, currents, circulation, salinity intrusion, and sedimentation, and engineering analysis and works

**CE 8553 Rivers, Estuaries and Coasts: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Basic introduction to the physical processes in river, estuaries, and coastal zones. Engineered solutions to common problems concerning flow and sedimentation

**CE 8563 Groundwater Resource Evaluation: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Groundwater movement; Darcy's law; equations of groundwater flow; confined and unconfined flow; wells and well field analysis; groundwater quality; aquifer management

**CE 8573 Hydro-environmental Analysis: 3 hours.**

(Prerequisite: Consent of Major Advisor.) Three hours lecture. Environmental engineering aspects of physical/chemical/ biological processes impacting conventional and toxic materials in surface waters. Characteristics of rivers/streams, lakes and estuaries related to environmental quality

**CE 8593 Environmental Hydrology: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Discuss hydrologic cycle and its effects on water quality; principles and models for pollutant transport and transformations in surface runoff, in-stream, unsaturated soil, and groundwater

**CE 8603 Mat Struct Analysis II: 3 hours.**

(Prerequisite: Consent of Major Advisor). Advanced topics in matrix structural analysis using the direct stiffness method

**CE 8623 Theory of Plates and Shells: 3 hours.**

(Prerequisites: Consent of Major Advisor.) Three hours lecture. Equations of equilibrium for plates, slabs, and shells

**CE 8653 Computational Inelasticity: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hour lecture. Computational methods and finite elements applied to inelastic deformations of solids; deformation continuum plasticity, viscoplasticity and viscoelasticity; with application to metals, soils, concrete, and polymers

**CE 8673 Blast Effects and Structures Responses: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Fundamental blast phenomena. Blast loadings on structures and effects on occupants. Design and analysis of structural elements and systems subjected to blast

**CE 8683 Finite Element Analysis in Structural Engineering: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Energy and elasticity principles. Development of planar three-dimensional and curved elements. Applications to plates and shells. Use of computer programs

**CE 8713 Green Building Systems: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hour lecture. Understanding negative impacts of construction on the societal sustainability and using life-cycle assessment, systems analysis and economic valuation for mitigation

**CE 8803 Unit Processes and Operations in Environmental Engineering I: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Theory and application of physical and chemical unit processes and operations available for the treatment of water and wastewater

**CE 8823 Unit Processes and Operations in Environmental Engineering II: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Theory and application of biological processes available for the treatment of wastewater

**CE 8863 Solid Waste Management: 3 hours.**

(Prerequisite: Consent of Major Advisor.) Three hours lecture. Define and characterize non-hazardous solid wastes and how to minimize, handle, transport, store, recycle and dispose of these materials

**CE 8923 Surface Water Quality Modeling: 3 hours.**

(Prerequisite: Consent of Major Advisor). Development of the mathematical formulations describing the distribution of concentration of conservative and nonconservative pollutants describing the distribution of concentration of conservative in natural waters

**CE 8933 Surface Water Quality Modeling II: 3 hours.**

(Prerequisite: Consent of Major Advisor.) Three hours lecture. Advanced topics related to surface water quality modeling. Overview of the present state-of-the-art of modeling, analysis eutrophication, toxic materials (organic chemicals and metals) and review of recent trends

**CE 8953 Fine Sediment Processes: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Fine sediment processes in transport, deposition, and erosion by water. Fluid-particle interactions, flocculation process in clay sediments, lutocline, formations and fluid mud, bed formation processes

**CE 8963 Hydraulics of Closed Conduits: 3 hours.**

(Prerequisite: Consent of Major Advisor). Three hours lecture. Analysis of steady, quasi-steady, time-dependent, and transient conduit flow; flow resistance; system components; distribution systems; compute applications to closed conduits

**CE 8990 Special Topics in Civil & Environmental Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CE 9000 Research in Civil & Environmental Engineering: 1-13 hours.**  
Hours and credits to be arranged

## College of Forest Resources Courses

**CFR 1001 First Year Seminar: 1 hour.**

One hour seminar. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**CFR 1011 Amb. Leadership Development: 1 hour.**

(Pre-requisite: Application and interview required then approval by instructor). One hour lecture. For Ambassadors of College of Forest Resources only. Focus on recruitment, discussion and study of each department, and community service outreach. Repeatable for up to 6 credits

## Chemistry Courses

**CH 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**CH 1043 Survey of Chemistry I: 3 hours.**

Three hours lecture. The nature of chemistry and its applications. For non-chemistry majors

**CH 1051 Experimental Chemistry: 1 hour.**

Three hours laboratory. A laboratory to accompany CH 1043. Experiments designed to illustrate the practical aspects of chemistry

**CH 1053 Survey of Chemistry II: 3 hours.**

(Pre-requisite: CH 1043). The nature of chemistry and its applications. Designed for non-chemistry majors

**CH 1073 Preparatory Chemistry: 3 hours.**

Three hours lecture. A review of basic concepts and mathematical tools crucial to study and understand fundamental chemistry concepts. Recommended for students who may need additional preparation in chemistry before undertaking the general chemistry CH 1213/1223 sequence. This course does not satisfy the University Core Curriculum science requirement

**CH 1141 Professional Chemistry: Paths: 1 hour.**

Skills to be successful as a chemistry major and in possible careers in chemistry. Introduction to professional conduct of scientists and necessary computer skills

**CH 1211 Investigations in Chemistry I: 1 hour.**

(Prerequisite: A grade of C or better in CH 1213 or concurrent enrollment in CH 1213). Three hours laboratory. Selected experiments to illustrate fundamentals of chemistry. Accompanies CH 1213

**CH 1213 Chemistry I: 3 hours.**

(Prerequisites: ACT Math subscore 24 or grade of C or better in MA 1313) Three hours lecture. The principles of atomic and molecular structure, energetics, dynamics, and synthesis as related to chemical systems

**CH 1221 Investigations in Chemistry II: 1 hour.**

(Prerequisites: Grade of C or better in CH 1211 and a grade of C or better in CH 1223 or concurrent enrollment in CH 1223). Three hours laboratory. Selected experiments to illustrate the fundamentals of chemistry. Accompanies CH 1223

**CH 1223 Chemistry II: 3 hours.**

(Prerequisites: Grade of C or better in CH 1213). Three hours lecture. The principles of atomic and molecular structure, energetics, dynamics, and synthesis as related to chemical systems

**CH 1234 Integrated Chemistry I: 4 hours.**

(Prerequisites: ACT Math subscore 24 or grade of C or better in MA 1313). Three hours lecture. Three hours laboratory. Integrated lecture-lab course for chemistry majors. Stoichiometry, thermochemistry, bonding and structure, properties of solid, liquids, gases and solutions. Honors section available

**CH 1244 Integrated Chemistry II: 4 hours.**

(Prerequisites: Grade of C or better in CH 1234 or CH 1213 and CH 1211). Three hours lecture. Three hours laboratory. Integrated lecture-laboratory course for chemistry majors. Kinetics, equilibrium, acid-base chemistry, advanced thermochemistry, electrochemistry, chemistry of metals, nuclear chemistry, and introduction to organic chemistry

**CH 2141 Professional Chemistry: Tools: 1 hour.**

(Prerequisite: CH 1141). One hour lecture. Advanced computer skills including chemical literature searching. Introduction to oral communication and research in chemistry

**CH 2501 Elementary Organic Chemistry Laboratory: 1 hour.**

(Prerequisite: CH 1211 or CH 1051). Three hours laboratory. A laboratory course to accompany CH 2503

**CH 2503 Elementary Organic Chemistry: 3 hours.**

(Prerequisite: CH 1213 or CH 1043). Three hours lecture. A terminal course in organic chemistry. Common aliphatic, aromatic, and heterocyclic compounds

**CH 2990 Special Topics in Chemistry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CH 3141 Professional Chemistry: Literature: 1 hour.**

(Prerequisite: CH 2141 ). One hour lecture. Advanced discussion of careers the chemical literature. Introduction to scientific writing

**CH 3212 Inorganic Chemistry Laboratory: 2 hours.**

(Prerequisite: Prior credit in CH 3213). Four hours laboratory. The application of modern experimental techniques to inorganic systems

**CH 3213 Inorganic Chemistry: 3 hours.**

(Prerequisites: Grade of C or better in CH 4513 or CH 4554). Three hours lecture. A basic course in inorganic chemistry. Topics include periodicity, ionic interactions, systematic chemistry of the elements and solvent relations to acid-base and redox reactions

**CH 3311 Analytical Chemistry I Laboratory: 1 hour.**

(Prerequisites: Grade of C or better in CH 1223 and CH 1221 or in CH 1244. Prior credit or concurrent enrollment in CH 3313). Three hours laboratory. Laboratory course to accompany CH 3313

**CH 3313 Analytical Chemistry I: 3 hours.**

(Prerequisites: Grade of C or better in CH 1221 and CH 1223 or in CH 1244). Three hours lecture. Quantitative, instrumental, and separation methods in analytical chemistry

**CH 4000 Directed Individual Study in Chemistry: 1-6 hours.**

Hours and credits to be arranged

**CH 4141 Professional Chemistry: Research: 1 hour.**

(Prerequisite: CH 3141). One hour lecture. Disseminating research results in chemistry. Advanced scientific writing, performing scientific research and professional conduct of scientists

**CH 4213 Advanced Inorganic Chemistry I: 3 hours.**

(Prerequisite: Grades of C or better in CH 3213 and either CH 4523 or CH 4564). Three hours lecture. Primarily the study of the elements in light of the periodic law; emphasis on coordination number, molecular complexes, and nuclear chemistry

**CH 4303 Environmental Chemistry I: 3 hours.**

(Prerequisites: Grade of C or better in CH 1223 or in CH 1244, junior standing). Three hours lecture. A systematic study of the basic concepts of environmental chemistry. Topics include air, water, soil chemistry, pollution, and environmental regulations

**CH 4331 Practical Mass Spectrometry: 1 hour.**

This is a one credit hour undergraduate-level lecture-lab course intended to show students how to operate various mass spectrometers. The mass spectrometry techniques that will be studied in this class are gas chromatography & liquid chromatography mass spectrometry, inductively coupled plasma mass spectrometry and high-resolution mass spectrometry

**CH 4341 Practical Materials Characterization: 1 hour.**

This is a one credit hour undergraduate-level lecture-lab course intended to show students how to operate the various instruments used specially for the characterization of synthetic materials. The techniques that will be studied in this class are thermogravimetric analysis, differential scanning calorimetry, atomic absorption spectroscopy and BET analysis

**CH 4351 Analytical Chemistry Laboratory II: 1 hour.**

(Prerequisite: Grade of C or better in CH 3311. Concurrent registration in CH 4353/6353). Three hours laboratory. Laboratory course to accompany CH 4353/6353

**CH 4353 Analytical Chemistry II: 3 hours.**

(Prerequisites: Grade of C or better in CH 3313). Three hours lecture. Three hours laboratory. A study of instrument-based methods in analytical chemistry

**CH 4403 Biophysical Chemistry: 3 hours.**

(Prerequisites: PH 1123 or PH 2223, MA 1723, grade of C or better in CH 4813). Three hours lecture. Principles of thermodynamics, solutions, electrochemistry, kinetics, transport processes, macromolecular solutions and electromagnetic properties as applied to biological systems

**CH 4411 Physical Chemistry Laboratory I: 1 hour.**

(Prerequisite: Prior credit or concurrent enrollment CH 4413/6613 ). Three hours laboratory Laboratory course to accompany CH 4413/6413

**CH 4413 Thermodynamics and Kinetics: 3 hours.**

(Prerequisites: PH 2213 or PH 1113, MA 1723, grade of C or better in CH 1223 or CH 1244). Three hours lecture. A study of the quantitative and theoretical properties of matter. Topics include chemical thermodynamics and kinetics, and solutions

**CH 4421 Physical Chemistry Laboratory II: 1 hour.**

(Prerequisite: Prior credit or concurrent enrollment in CH 4423/6423). Three hours laboratory. Laboratory course to accompany CH 4423/6423

**CH 4423 Quantum Mechanics and Spectroscopy: 3 hours.**

(Prerequisites: PH 2213 or PH 1113, MA 1723, grade of C or better in CH 1223 or CH 1244). Three hours lecture. Topics include solid state, surface chemistry, macromolecules, quantum mechanics, spectroscopy, and statistical thermodynamics

**CH 4441 Practical Computational Chemistry: 1 hour.**

(Graduate standing or sophomore level). One hour lecture/lab. This course addresses the fundamentals of computational chemistry and will cover basic theory as well as the process for performing computations using readily available quantum software packages. Interpretation of the generated data will be discussed. Basic Unix commands and navigation

**CH 4451 Practical Chemical Data Analysis: 1 hour.**

(Graduate standing or sophomore level) One hour lecture. This course addresses the fundamentals of scripting, a type of computer coding language, and corresponding practical applications to collecting, manipulating, organizing chemical data. The development of scripts to perform useful and specific tasks will be covered

**CH 4461 Practical Optical Spectroscopy: 1 hour.**

(Prerequisite: Sophomore (4461) or Graduate standing (6461) or permission from instructor). One hour lecture and one hour lab. Practical applications of spectroscopy focused on techniques utilizing UV-vis spectroscopy, fluorescence spectroscopy, circular dichroism, and polarimetry. Students must illustrate fluency in data acquisition and extrapolation for professional presentation

**CH 4471 Practical Vibrational Spectroscopy: 1 hour.**

(Prerequisite: Sophomore (4471) or Graduate standing (6471) or permission from instructor). One hour lecture and one hour lab. Practical applications of spectroscopy focused on vibrational techniques utilizing infrared spectroscopy and Raman spectroscopy. Students must illustrate fluency in data acquisition and extrapolation for professional presentation

**CH 4511 Organic Chemistry Laboratory I: 1 hour.**

(Prerequisites: Grade of C or better in CH 1221 and CH 1223 or in CH 1244. Prior credit or concurrent enrollment in CH 4513). Three hours laboratory. A laboratory course to accompany CH 4513/6513

**CH 4513 Organic Chemistry I: 3 hours.**

(Prerequisites: Grade of C or better in CH 1223 or in CH 1244). Three hours lecture. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds

**CH 4521 Organic Chemistry Laboratory II: 1 hour.**

(Prerequisites: Grade of C or better in CH 4511/6511 and CH 4513/6513 or in CH 4554. Prior credit or concurrent enrollment in CH 4523). Three hours laboratory. A laboratory course to accompany CH 4523/6523

**CH 4523 Organic Chemistry II: 3 hours.**

(Prerequisite: Grade of C or better in CH 4513/6513 or in CH 4554). Three hours lecture. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds

**CH 4531 Practical Nuclear Magnetic Resonance Spectroscopy 1: 1 hour.**

One hour lecture, one hour lab. Course is focused on the applications of NMR spectroscopy. Topics studied include the introduction of basic NMR theory, Good Acquisition Practice for <sup>1</sup>H NMR and <sup>13</sup>C NMR, Processing NMR data, Topspin software and computer administration, NMR reservation policy, and NMR trouble shooting

**CH 4541 Practical Nuclear Magnetic Resonance Spectroscopy 2: 1 hour.**

One hour lecture, one hour lab. Course is focused on the advanced application of NMR spectroscopy. Topics studied here include 2D NMR, Decoupled NMR, NMR acquisition parameters, VT NMR experiments, tune to special nuclei (<sup>31</sup>P, <sup>195</sup>Pt, <sup>19</sup>F), and other requested special NMR topics

**CH 4554 Integrated Organic I: 4 hours.**

(Prerequisites: Grade of C or better in CH 1221 and 1223 or in 1244). Three hours lecture. Three hours laboratory. Integrated lecture-lab course for chemistry majors. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds

**CH 4564 Integrated Organic II: 4 hours.**

(Prerequisite: Grade of C or better in CH 4511 and CH 4513 or in CH 4554). Three hours lecture. Three hours laboratory. Integrated lecture-lab course for chemistry majors. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds

**CH 4601 Quantitative Techniques in Biological Chemistry: 1 hour.**

(Prerequisite: CH 4523, BCH 4613 or concurrent enrollment in BCH 4613). Two hours laboratory. Upper-level chemistry laboratory focusing on advanced analytical and instrumental techniques applied to biological macromolecules

**CH 4603 Undergraduate Research: 3 hours.**

Nine hours laboratory. Original research project directed by a chemistry faculty member

**CH 4711 Senior Seminar: 1 hour.**

(Prerequisite: CH 4141 or concurrent enrollment). One hour lecture. Submission of a written report and presentation of a seminar on either experimental results or a literature topic in chemistry

**CH 4713 Study Abroad Tour: 3 hours.**

Three hour study abroad. Experiential learning through travel abroad focusing on specialized areas of study in Chemistry

**CH 4800 Undergraduate Research in Chemistry: 4 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**CH 4911 Practical Chemical Laboratory Instruction I: 1 hour.**

(Prerequisite: Senior undergraduate student or graduate standing). One hour lecture. This course teaches the appropriate methods and professionalism required for teaching lab experiments in a graduate level program

**CH 4990 Special Topics in Chemistry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CH 6213 Advanced Inorganic Chemistry I: 3 hours.**

(Prerequisite: Grades of C or better in CH 3213 and either CH 4523 or CH 4564). Three hours lecture. Primarily the study of the elements in light of the periodic law; emphasis on coordination number, molecular complexes, and nuclear chemistry

**CH 6303 Environmental Chemistry I: 3 hours.**

(Prerequisites: Grade of C or better in CH 1223 or in CH 1244, junior standing). Three hours lecture. A systematic study of the basic concepts of environmental chemistry. Topics include air, water, soil chemistry, pollution, and environmental regulations

**CH 6351 Analytical Chemistry Laboratory II: 1 hour.**

(Prerequisite: Grade of C or better in CH 3311. Concurrent registration in CH 4353/6353). Three hours laboratory. Laboratory course to accompany CH 4353/6353

**CH 6353 Analytical Chemistry II: 3 hours.**

(Prerequisites: Grade of C or better in CH 3313). Three hours lecture. Three hours laboratory. A study of instrument-based methods in analytical chemistry

**CH 6413 Thermodynamics and Kinetics: 3 hours.**

(Prerequisites: PH 2213 or PH 1113, MA 1723, grade of C or better in CH 1223 or CH 1244). Three hours lecture. A study of the quantitative and theoretical properties of matter. Topics include chemical thermodynamics and kinetics, and solutions

**CH 6423 Quantum Mechanics and Spectroscopy: 3 hours.**

(Prerequisites: PH 2213 or PH 1113, MA 1723, grade of C or better in CH 1223 or CH 1244). Three hours lecture. Topics include solid state, surface chemistry, macromolecules, quantum mechanics, spectroscopy, and statistical thermodynamics

**CH 6461 Practical Optical Spectroscopy: 1 hour.**

(Prerequisite: Sophomore (4461) or Graduate standing (6461) or permission from instructor). One hour lecture and one hour lab. Practical applications of spectroscopy focused on techniques utilizing UV-vis spectroscopy, fluorescence spectroscopy, circular dichroism, and polarimetry. Students must illustrate fluency in data acquisition and extrapolation for professional presentation

**CH 6471 Practical Vibrational Spectroscopy: 1 hour.**

(Prerequisite: Sophomore (4471) or Graduate standing (6471) or permission from instructor). One hour lecture and one hour lab. Practical applications of spectroscopy focused on vibrational techniques utilizing infrared spectroscopy and Raman spectroscopy. Students must illustrate fluency in data acquisition and extrapolation for professional presentation

**CH 6511 Organic Chemistry Laboratory I: 1 hour.**

(Prerequisites: Grade of C or better in CH 1221 and CH 1223 or in CH 1244. Prior credit or concurrent enrollment in CH 4513). Three hours laboratory. A laboratory course to accompany CH 4513/6513

**CH 6513 Organic Chemistry I: 3 hours.**

(Prerequisites: Grade of C or better in CH 1223 or in CH 1244). Three hours lecture. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds

**CH 6521 Organic Chemistry Laboratory II: 1 hour.**

(Prerequisites: Grade of C or better in CH 4511/6511 and CH 4513/6513 or in CH 4554. Prior credit or concurrent enrollment in CH 4523). Three hours laboratory. A laboratory course to accompany CH 4523/6523

**CH 6523 Organic Chemistry II: 3 hours.**

(Prerequisite: Grade of C or better in CH 4513/6513 or in CH 4554). Three hours lecture. A systematic study of organic chemistry including aliphatic, aromatic, and heterocyclic compounds

**CH 6713 Study Abroad Tour: 3 hours.**

Three hour study abroad. Experiential learning through travel abroad focusing on specialized areas of study in Chemistry

**CH 6911 Practical Chemical Laboratory Instruction I: 1 hour.**

(Prerequisite: Senior undergraduate student or graduate standing). One hour lecture. This course teaches the appropriate methods and professionalism required for teaching lab experiments in a graduate level program

**CH 6990 Special Topics in Chemistry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CH 7000 Directed Individual Study in Chemistry: 1-6 hours.**

Hours and credits to be arranged

**CH 8101 Current Problems in Chemistry: 1 hour.**

One hour lecture. Introduction to chemistry research and the modern problems that are currently under investigation in the Department of Chemistry. Additional topics, including data management, best laboratory practices, laboratory management, and scientific communication skills will also be discussed to engage and empower new researchers

**CH 8111 Professional Chemistry: 1 hour.**

One hour lecture. Professionalism in chemistry as it applies to research, with emphasis on the different methods used for disseminating research results

**CH 8203 Advanced Inorganic Chemistry II: 3 hours.**

(Prerequisite: CH 4213/6213 and CH 4423/6423). Three hours lecture. A systematic study of coordination compounds with emphasis upon the techniques

**CH 8213 Organometallic Chemistry: 3 hours.**

Three hours lecture. The preparation, bonding, structure, spectroscopy and reactions of main group or transition metal organometallic compounds and catalysis involving organometallic intermediates

**CH 8223 Bioinorganic Chemistry: 3 hours.**

(Graduate standing or permission from instructor.) Three hours lecture. This course is focused on the role metal ions play in biology. Topics studied here include the biology of metal ions, biocatalysis and metal-based biological reactions, bio-inspired catalysis, and a discussion of (bio)inorganic spectroscopy and related physical methods

**CH 8313 Advanced Analytical Chemistry: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Basic principles and problems involved with chemical analysis

**CH 8323 Mass Spectrometry: 3 hours.**

(Prerequisite: Graduate standing or permission of the instructor). This course is an introduction to the instrumentation, fundamental principles, and experimental methods associated with mass spectrometry. Furthermore, the course will serve as a survey of applications of mass spectrometry to various fields of chemical research

**CH 8333 Advanced Instrumental Analysis: 3 hours.**

(Prerequisite: CH 4353/6353 or consent of instructor). Three hours lecture. Fourier transform and laser methods of spectroscopy, surface analysis and their application to current analytical problems

**CH 8343 Electroanalytical Chemistry: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Fundamentals of electrochemistry and application of electrochemical methods to analytical chemistry

**CH 8383 Advanced Environmental Chemistry: 3 hours.**

(Graduate standing or permission from instructor). Three hours lecture. This course is designed for graduate students in chemistry or other sciences interested in a systematic study of the basic concepts of environmental chemistry. Topics include air, water, soil chemistry, pollution, and environmental regulations

**CH 8423 Molecular Structure: 3 hours.**

(Prerequisites: consent of instructor). Three hours lecture. An introduction to various methods for studying molecular structure. Methods covered include quantum mechanics, statistical mechanics, molecular spectroscopy, and nuclear chemistry

**CH 8433 Theory of Solution NMR Spectroscopy: 3 hours.**

An introductory graduate-level course covering the quantum mechanics and physical origins behind NMR spectroscopy, including small and large molecules. Topics include multidimensional NMR, relaxation, and chemical exchange

**CH 8513 Synthetic Organic Chemistry: 3 hours.**

(Prerequisite: 12 credits in organic chemistry). Three hours lecture. The scope and limitations of commonly employed organic preparative methods. New and unusual reagents

**CH 8523 Modern Organic Reactions and Mechanisms: 3 hours.**

(Prerequisite: Eight credits in undergraduate organic chemistry). Three hours lecture. A study of the modern synthetic methodology and tactics with a short introduction to basic disconnection strategies, named reactions, and arrow-pushing mechanisms related to organic chemistry

**CH 8543 Organic Spectroscopy: 3 hours.**

(Prerequisite: Eight credits in undergraduate organic chemistry). Three hours lecture. A study of various spectroscopic and spectrometric methods used to elucidate structure of organic compounds. Both theory and applications of these techniques will be discussed

**CH 8553 Physical Organic Chemistry: 3 hours.**

(Prerequisite: 12 credits in organic chemistry). Three hours lecture. A study of the interrelationships between structure and reactivity in organic molecules, including chemical equilibrium, kinetics, and thermodynamics as related to organic chemistry

**CH 8613 Methods in Biophysical Chemistry: 3 hours.**

Three hours lecture. Discussion of physical methods and conceptual models used to describe the behavior of biological macromolecules and biochemical reactions

**CH 8711 Seminar: 1 hour.**

One hour lecture. Reports on recent literature by students and staff. All graduate students in chemistry required to attend. One credit for each semester's participation. Up to a total of six credits allowed for Ph.D. candidates, and three for M.S.

**CH 8721 Seminar: 1 hour.**

One hour lecture. Reports on recent literature by students and staff. All graduate students in chemistry required to attend. One credit for each semester's participation. Up to a total of six credits allowed for Ph.D. candidates, and three for M.S.

**CH 8731 Seminar: 1 hour.**

One hour lecture. Reports on recent literature by students and staff. All graduate students in chemistry required to attend. One credit for each semester's participation. Up to a total of six credits allowed for Ph.D. candidates, and three for M.S.

**CH 8990 Special Topics in Chemistry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CH 9000 Research in Chemistry: 1-13 hours.**

Hours and credits to be arranged

## Chemical Engineering Courses

**CHE 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**CHE 1101 Introduction to Chemical & Petroleum Engineering: 1 hour.**

(Prerequisites: Credit or registration in MA 1313, MA 1323, MA 1453 or MA 1713). One hour lecture. One hour laboratory. Study of fundamentals of chemical and petroleum engineering including unit conversions and stoichiometry

**CHE 2114 Mass and Energy Balances: 4 hours.**

(Prerequisites: C or better in CH 1223 and credit or registration in MA 1723). Three hours lecture. Two hours laboratory. Application of systems of units, material balances, heats of reaction, energy balances, and chemical equilibria to typical industrial problems

**CHE 2203 Introduction to Engineering with CHE and PTE Applications: 3 hours.**

(Prerequisite: Credit or registration in chemistry and calculus). Two hours lecture. Two hours laboratory. Taught on approved high school campuses. Introduction to engineering topics and analysis of engineering problems with applications to chemical and petroleum engineering

**CHE 2213 Chemical Engineering Analysis: 3 hours.**

(Prerequisite: Credit or registration in CH 1213 and MA 1323, MA 1453 or MA 1713; Must be freshman or sophomore). Three hours lecture. Introduction to the analysis of chemical & petroleum engineering processes using numerical and statistical techniques with application of modern computational tools available to engineers

**CHE 2990 Special Topics in Chemical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CHE 3113 Chemical Engineering Thermodynamics I: 3 hours.**

(Prerequisites: C or better in CH 1223 and PH 2213. Co-requisites: CHE 2114 and MA 2733). Three hours lecture. Thermodynamic properties, energy relationships, applications of the first and second law of thermodynamics, flow processes, power cycles, refrigeration and liquefaction

**CHE 3123 Chemical Engineering Thermodynamics II: 3 hours.**

(Prerequisites: C or better in MA 2743, CHE 2114 and CHE 3113). Three hours lecture. Treatment of non-ideal effects. High pressure behavior of pure substances. Thermodynamics of ideal and non-ideal mixtures, phase equilibria, and chemical equilibria

**CHE 3203 Fluid Flow Operations: 3 hours.**

(Prerequisites: C or better in PH 2213 and credit and registration in CHE 2114 and MA 1723). Three hours lecture. Fundamentals of fluid flow behavior in chemical processes emphasized by extensive calculations. Design of fluid flow systems

**CHE 3213 Heat Transfer Operations: 3 hours.**

(Prerequisites: C or better in MA 2743 and in either CHE 3203 or EM 3313 and credit or registration in CHE 3113 and MA 3253). Three hours lecture. Fundamentals of heat transfer in chemical engineering processes and process equipment

**CHE 3222 Chemical Engineering Laboratory I: 2 hours.**

(Prerequisites: Grade of C or better in CHE 3203 or EM 3313; Credit or registration in CHE 3213). Four hours laboratory. Experiments in chemical engineering operations related to fluid flow and heat transfer. Experimental design, statistics, health & safety concerns

**CHE 3223 Separation Processes: 3 hours.**

(Prerequisites: C or better in CHE 3203; Credit or registration in CHE 3213 and CHE 3123) Three hours lecture. Fundamentals of separation processes, including distillation, gas, absorption/stripping, liquid-liquid extraction, membrane-based processes. Analysis, evaluation, and synthesis of separation processes for binary/multi-component mixtures. Design and sizing of separation equipment

**CHE 3232 Chemical Engineering Laboratory II: 2 hours.**

(Prerequisites: C or better in CHE 3203, CHE 3213, and CHE 3223). Four hours laboratory. Experiments in chemical engineering unit operations related to heat transfer, mass transfer, kinetics and process control. Statistical design of experiments, instrumentation and data acquisition

**CHE 3331 Professional Development Seminar: 1 hour.**

(Prerequisites: Chemical Engineering majors with Junior Standing). One hour lecture. A seminar focused on professional development and topics of interest/concern to the chemical engineering professional. (Same as PTE 3331)

**CHE 3413 Engineering Materials: 3 hours.**

(Prerequisites: C or better in CH 1223 and PH 2213). Three hours lecture. The physical, chemical, and mechanical properties of engineering materials. The influence of these properties on the behavior of materials that have been placed in service

**CHE 4000 Directed Individual Study in Chemical Engineering: 1-6 hours.**

Hours and credits to be arranged

**CHE 4113 Chemical Reactor Design: 3 hours.**

(Prerequisites: Grade of C or better in CHE 3123 and MA 3253). Three hours lecture. The fundamentals of chemical reaction kinetics with applications

**CHE 4134 Process Design: 4 hours.**

(Prerequisite: Grade of C or better in CHE 3123, CHE 3213 and CHE 3223). Three hours lecture. Two hours laboratory. Design and analysis of chemical and environmental engineering processes utilizing momentum, energy, and mass transport principles

**CHE 4143 Advanced Polymeric and Multicomponent.: 3 hours.**

(Prerequisite: Junior standing; CHE 3413, ME 3403, EM 4133 or equivalent materials course.) Three hours lecture. Nomenclature, synthesis, characterization, processing, and properties of state-of-the-art polymeric and multicomponent materials

**CHE 4153 Introduction to Particle and Crystallization Technology: 3 hours.**

(Prerequisite: Junior standing, C or better in CHE 2114, MA 1723, PH 2213, and/or consent of instructor). Three hours lecture. Fundamentals of particle and crystallization technology including theory and practical applications that emphasize unit operations and their interaction with solids

**CHE 4163 Nanotechnology in Chemical Applications: 3 hours.**

(Prerequisite: Junior standing, C or better in CH 1223, PH 2213, MA 1723, and/or consent of instructor). Three hours lecture. Fundamental concepts, applications, and preparation and synthesis of colloidal systems. Includes characterization methods and applications in nanotechnology

**CHE 4173 Polymer Science & Technology: 3 hours.**

(Prerequisite: C or better in CH 4513 and MA 1723). Three hours lecture. Introduction to societally important polymeric materials and issues with a broad exposure to topics in polymer chemistry, properties, and processing

**CHE 4193 Automotive Engineering: 3 hours.**

Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as ECE 4193/6193, IE 4193/6193 and ME 4193/6193)

**CHE 4223 Process Instrumentation and Control: 3 hours.**

(Prerequisites: CHE 4113 and C or better in CHE 3223). Three hours lecture. Measurement of process variables; characteristics of control elements; automatic control instruments; dynamic behavior of process equipment; process control systems

**CHE 4233 Chemical Plant Design: 3 hours.**

(Prerequisites: CHE 4134 and CHE 4113 ) Three hours lecture. Application of scientific and engineering principles to the design and economic evaluation of industrial chemical plants

**CHE 4313 Transport Phenomena: 3 hours.**

(Prerequisites: Grade of C or better in CHE 3213 , MA 3253 and either CHE 3203 or EM 3313 ). Three hours lecture. Fundamental principles of momentum, heat and mass transport. Relationships between transport processes and the physical property distributions in fluids and solids

**CHE 4423 Fundamentals of Industrial Corrosion: 3 hours.**

(Co-requisite: CHE 3413). Three hours lecture. Identifying and eliminating the different types of corrosion that lead to the failure of engineering structures

**CHE 4441 Fundamentals of Engineering Seminar: 1 hour.**

One hour lecture. Review of general engineering and chemical engineering fundamentals in preparation for the Fundamentals of Engineering exam

**CHE 4513 Pulp and Paper Manufacturing Processes: 3 hours.**

(Prerequisite: CHE 2113 and consent of instructor). Three hours lecture. A study of pulping and paper making processes with emphasis on application of basic engineering techniques to special problems of the pulp and paper industry

**CHE 4523 Soft Materials: Theory and Characterization: 3 hours.**

(Prerequisites: Junior standing or greater, CHE 3413 or equivalent, ChE 3113, ChE 3203, and/or instructor consent). Three hours lecture. Theory and characterization of various soft materials such as polymer melts and solutions, elastomers, gels and biological networks, biofluids, and colloids/suspensions

**CHE 4613 Air Pollution Control Design: Theory and Practice: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. A study of the unit operations of air pollution control systems with a specific emphasis on air pollution dynamics, equipment design, and equipment operation

**CHE 4624 Experimental Methods in Materials Research: 4 hours.**

(Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or permission of instructors). Three hours lecture. Three hours laboratory. An introduction to research methodologies commonly used in the evaluation of treatments, and mechanical testing. (Same as ABE 4624/6624 and ME 4624/6624)

**CHE 4633 Chemical Process Safety: 3 hours.**

(Prerequisites: C or better in CHE 2114, CHE 3203, and MA 1723). Three hours lecture. Fundamentals of chemical process safety, including toxicology, industrial hygiene, source modeling, dispersion modeling, fires & explosion and the design of reliefs

**CHE 4673 Industrial Microbiology: 3 hours.**

Three hours lecture. Introduction to microbial anatomy, physiology, and genetics. Use of microorganisms and their by-products. Identification and control of biofouling, biocorrosion, and biodegradation of products and processes. (Same as BIO 4673/6673)

**CHE 4683 Fundamentals of Biofuels Production: 3 hours.**

Three hours lecture. Engineering and economic analysis of the chemical processes applied to produce biofuels

**CHE 4693 Fundamentals of Integrated Biorefineries: 3 hours.**

(Prerequisite: Junior standing or Instructor Permission). Three hours lecture. An introduction to Biorefineries, renewable feedstocks supplies and conversion, downstream processing, process evaluation and process improvements

**CHE 4793 Practical Application of Chemical Engineering Principles & Equipment: 3 hours.**

(Prerequisite: C or better in CHE 3113, CHE 3213 and CHE 3223) Three hours lecture. Introduction to practical application of chemical engineering principles and how this applies to the equipment used in the field of chemical engineering

**CHE 4800 Undergraduate Research: 1-13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**CHE 4990 Special Topics in Chemical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)



**CHE 6113 Chemical Reactor Design: 3 hours.**

(Prerequisites: Grade of C or better in CHE 3123 and MA 3253 ). Three hours lecture. The fundamentals of chemical reaction kinetics with applications

**CHE 6134 Process Design: 4 hours.**

(Prerequisite: Grade of C or better in CHE 3123, CHE 3213 and CHE 3223). Three hours lecture. Two hours laboratory. Design and analysis of chemical and environmental engineering processes utilizing momentum, energy, and mass transport principles

**CHE 6143 Advanced Polymeric and Multicomponent: 3 hours.**

(Prerequisite: Junior standing; CHE 3413, ME 3403, EM 4133 or equivalent materials course.) Three hours lecture. Nomenclature, synthesis, characterization, processing, and properties of state-of-the-art polymeric and multicomponent materials

**CHE 6153 Introduction to Particle and Crystallization: 3 hours.**

(Prerequisite: Junior standing, C or better in CHE 2114, MA 1723, PH 2213, and/or consent of instructor). Three hours lecture. Fundamentals of particle and crystallization technology including theory and practical applications that emphasize unit operations and their interaction with solids

**CHE 6163 Nanotechnology in Chemical Applications: 3 hours.**

(Prerequisite: Junior standing, C or better in CH 1223, PH 2213, MA 1723, and/or consent of instructor). Three hours lecture. Fundamental concepts, applications, and preparation and synthesis of colloidal systems. Includes characterization methods and applications in nanotechnology

**CHE 6173 Polymer Science & Technology: 3 hours.**

(Prerequisite: C or better in CH 4513 and MA 1723). Three hours lecture. Introduction to societally important polymeric materials and issues with a broad exposure to topics in polymer chemistry, properties, and processing

**CHE 6193 Automotive Engineering: 3 hours.**

Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as ECE 4193/6193, IE 4193/6193 and ME 4193/6193)

**CHE 6223 Process Instrumentation and Control: 3 hours.**

(Prerequisites: CHE 4113 and C or better in CHE 3223). Three hours lecture. Measurement of process variables; characteristics of control elements; automatic control instruments; dynamic behavior of process equipment; process control systems

**CHE 6233 Chemical Plant Design: 3 hours.**

(Prerequisites: CHE 4134 and CHE 4113 ) Three hours lecture. Application of scientific and engineering principles to the design and economic evaluation of industrial chemical plants

**CHE 6313 Transport Phenomena: 3 hours.**

(Prerequisites: Grade of C or better in CHE 3213 , MA 3253 and either CHE 3203 or EM 3313 ). Three hours lecture. Fundamental principles of momentum, heat and mass transport. Relationships between transport processes and the physical property distributions in fluids and solids

**CHE 6423 Fundamentals of Industrial Corrosion: 3 hours.**

(Co-requisite: CHE 3413). Three hours lecture. Identifying and eliminating the different types of corrosion that lead to the failure of engineering structures

**CHE 6513 Pulp and Paper Manufacturing Processes: 3 hours.**

(Prerequisite: CHE 2113 and consent of instructor). Three hours lecture. A study of pulping and paper making processes with emphasis on application of basic engineering techniques to special problems of the pulp and paper industry

**CHE 6523 Soft Materials: Theory and Characterization: 3 hours.**

(Prerequisites: Junior standing or greater, CHE 3413 or equivalent, CHE 3113, CHE 3203, and/or instructor consent). Three hours lecture. Theory and characterization of various soft materials such as polymer melts and solutions, elastomers, gels and biological networks, biofluids, and colloids/suspensions

**CHE 6613 Air Pollution Control Design: Theory and Practice: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. A study of the unit operations of air pollution control systems with a specific emphasis on air pollution dynamics, equipment design, and equipment operation

**CHE 6624 Experimental Methods in Materials Research: 4 hours.**

(Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or permission of instructors). Three hours lecture. Three hours laboratory. An introduction to research methodologies commonly used in the evaluation of treatments, and mechanical testing. (Same as ABE 4624/6624 and ME 4624/6624)

**CHE 6633 Chemical Process Safety: 3 hours.**

(Prerequisites: C or better in CHE 2114, CHE 3203, and MA 1723). Three hours lecture. Fundamentals of chemical process safety, including toxicology, industrial hygiene, source modeling, dispersion modeling, fires & explosion and the design of reliefs

**CHE 6673 Industrial Microbiology: 3 hours.**

Three hours lecture. Introduction to microbial anatomy, physiology, and genetics. Use of microorganisms and their by-products. Identification and control of biofouling, biocorrosion, and biodegradation of products and processes. (Same as BIO 4673/6673)

**CHE 6683 Fundamentals of Biofuels Production: 3 hours.**

Three hours lecture. Engineering and economic analysis of the chemical processes applied to produce biofuels

**CHE 6693 Fundamentals of Integrated Biorefineries: 3 hours.**

(Prerequisite: Junior standing or Instructor Permission). Three hours lecture. An introduction to Biorefineries, renewable feedstocks supplies and conversion, downstream processing, process evaluation and process improvements

**CHE 6793 Practical Application of Chemical Engineering Principles Equipment: 3 hours.**

(Prerequisite: C or better in CHE 3113, CHE 3213 and CHE 3223) Three hours lecture. Introduction to practical application of chemical engineering principles and how this applies to the equipment used in the field of chemical engineering

**CHE 6990 Special Topics in Chemical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CHE 7000 Directed Individual Study in Chemical Engineering: 1-6 hours.**

Hours and credits to be arranged

**CHE 8011 Chemical Engineering Seminar: 1 hour.**

(Prerequisite: Graduate standing). Library assignments and reports on the current chemical engineering literature

**CHE 8113 Advanced Chemical Engineering Thermodynamics: 3 hours.**

(Prerequisites: CHE 3123 and CHE 4113 or equivalent). Three hours lecture. Advanced study of fundamental laws of thermodynamics as applied to unit operations, nonideal fluids and solutions, chemical equilibria, electrochemistry and similar topics

**CHE 8123 Chemical Kinetics and Dynamics: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. Theory and interrelations of phenomenological chemical kinetics and molecular reaction dynamics

**CHE 8223 Advanced Process Computations: 3 hours.**

(Prerequisite: CHE 3223). Three hours lecture. Numerical methods. Numerical solution of ordinary and partial differential equations for process applications. Use of algebraic and matrix methods. Digital computer applications

**CHE 8523 Advanced Transport Phenomena: 3 hours.**

Three hours lecture. (Prerequisite: Graduate standing). Fundamental principles in momentum, heat, and mass transport. Conservation equations. Continuity, motion, energy equations, and multicomponent mass equation of change

**CHE 8713 Scientific Proposal Instruction and Development: 3 hours.**

(Prerequisites: CHE graduate student or consent of instructor). Three hours lecture. Detailed instruction in scientific research proposal preparation and review including, article and proposal reviewing, literature searches, broader impact statements, and full proposal development and defense. Introduce responsible conduct of research

**CHE 8990 Special Topics in Chemical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CHE 9000 Research in Chemical Engineering: 1-13 hours.**

Hours and credits to be arranged

**Computational Biology Courses****CMB 7000 Directed Individual Study in Computational Biology: 1-6 hours.**

Hours and credits to be arranged

**CMB 8011 Graduate Seminar: 1 hour.**

This course serves as an introduction to the graduate program in computational biology and will introduce students to common methods and current research in bioinformatics and computational biology

**CMB 8013 Applied Computational Biology: 3 hours.**

This course focuses on the application of computational methods and tools to explore biological processes and diversity

**CMB 8990 Special Topics in Computational Biology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**CMB 9000 Research in Computational Biology: 1-13 hours.**

Hours and credits to be arranged

**Computational Engineering Courses****CME 2990 Special Topics in Computational Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CME 4000 Directed Individual Study in Computational Engineering: 1-6 hours.**

Hours and credits to be arranged

**CME 4990 Special Topics in Computational Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CME 6990 Special Topics in Computational Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CME 7000 Directed Individual Study in Computational Engineering: 1-6 hours.**

Hours and credits to be arranged

**CME 8113 Computational Geometry: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. Computer aided geometric design techniques and their applications in engineering and general computational field simulation

**CME 8990 Special Topics in Computational Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CME 9000 Research in Computational Engineering: 1-13 hours.**

Hours and credits to be arranged

**Communication Courses****CO 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**CO 1003 Fundamentals of Public Speaking: 3 hours.**

Three hours lecture. The psychological processes and adjustments necessary in preparing, organizing, wording, and delivering effective speeches. Honors section available. Students may not receive credit for both CO 1003 and CO 1013

**CO 1013 Introduction to Communication: 3 hours.**

Three hours lecture. To sharpen the student's awareness and to facilitate growth in the human interaction process across a variety of communication situations. Students may not receive credit for both CO 1003 and CO 1013

**CO 1021 Overcoming Communication Apprehension: 1 hour.**

(Prerequisite: Consent of instructor). One hour lecture. Supplemental instruction for students identified as dealing with high levels of communication apprehension, covering strategies to cope with public speaking anxiety

**CO 1223 Introduction to Communication Theory: 3 hours.**

Three hours lecture. A comprehensive introduction to the bases of contemporary communication theory

**CO 1403 Introduction to the Mass Media: 3 hours.**

Three hours lecture. How American media are organized to collect and distribute news, editorial, entertainment material, and other forms of public information

**CO 1503 Introduction to the Theatre: 3 hours.**

Three hours lecture. A comprehensive view of the theatre, including plays, playwrights, directing, acting, theatres, and technicians

**CO 1533 Theatre Practicum #3: 3 hours.**

Nine hours laboratory. Preparation for and participation in department production activities

**CO 1542 Technical Theatre Practicum: 2 hours.**

(Prerequisite: Consent of instructor). The practice of technical theatre, including scenery construction, lighting installation, and costuming for campus productions. Repeatable four times

**CO 1553 Theatre Practicum #5: 3 hours.**

Nine hours laboratory. Preparation for and participation in department production activities

**CO 1563 Theatre Practicum #6: 3 hours.**

Nine hours laboratory. Preparation for and participation in department production activities

**CO 1903 Introduction to Cinema: 3 hours.**

Three hours lecture. A multidisciplinary study of the film, with emphasis on linguistics, psychological, philosophical, and general intellectual aspects

**CO 2253 Fundamentals of Interpersonal Communication: 3 hours.**

(Prerequisite: CO 1013 or CO 1223). Three hours lecture. Emphasis on two-person interactions to increase student's understanding and appreciation of communication principles

**CO 2333 Television Production: 3 hours.**

(Prerequisite: CO 1403). Two hours lecture. Two hours laboratory. Elementary principles, practices of television production in varied program formats

**CO 2413 Introduction to News Writing and Reporting: 3 hours.**

(Prerequisites: EN 1113 or EN 1173 with a C or better; Passage of the departmental GSP exam). Two hours lecture and two hours lab. Practice in writing and reporting news stories

**CO 2423 News Editing, Typography, and Makeup: 3 hours.**

(Prerequisite: CO 2413). Three hours lecture. Editing newspaper copy, writing headlines, and using type and pictures in makeup of newspaper pages

**CO 2503 Acting: 3 hours.**

Three hours lecture. Principles of character interpretation. Classroom projects involving presentation of scenes from plays

**CO 2512 Introduction to Theatrical Design: 2 hours.**

(Prerequisite: CO 1503). Four hours studio. Project-based study of design for live performance, focused on conceptual, analytical, and cooperative techniques and on the development of visual storytelling ideas

**CO 2523 Introduction to Stagecraft: 3 hours.**

(Prerequisite: CO 1503 or consent of instructor). Three hours lecture. Introduction to the fundamental skills, concepts, and nomenclature for the construction and use of scenery and theatre technology for live performance

**CO 2531 Voice and Articulation: 1 hour.**

Two hours studio. Training in the phonetic and acoustic features of speech

**CO 2551 Sound for the Stage and Screen: 1 hour.**

(Prerequisite: CO 2512 or CO 2523 or consent of instructor). Two hours studio. Introduction to live and recorded audio in theatre and film production, including sound design, effects creation, and technical execution

**CO 2561 Makeup for the Stage: 1 hour.**

(Prerequisite: CO 2512 or consent of instructor). Two hours studio. The art and techniques of theatrical makeup, focusing on creation and application practices

**CO 2574 Summer Theatre Workshop: 4 hours.**

Three hours lecture. Two hours laboratory. Daily observation and practice of acting and technical work in preparation of a production. May be repeated one semester

**CO 2591 Auditioning and Monologues: 1 hour.**

Two hours studio. Study and practice of auditioning techniques and monologue preparation for live or filmed performance

**CO 2613 Introduction to Oral Interpretation: 3 hours.**

(Prerequisite: CO 1503). Three hours lecture. Basic principles of comprehending and communicating literature to a listening audience

**CO 2701 Speech and Debate Practicum: 1 hour.**

Students participate in the MSU Speech and Debate Team, researching current events and other topics of relevance and developing critical thinking, argumentation, organization, and presentation skills. Repeatable

**CO 2711 Speaking Center Consultant Course: 1 hour.**

(Prerequisite: CO 1003 or CO 1013 or equivalent). One hour practicum. Students learn principles and strategies that will prepare them to act as a peer consultant for The Speaking Center at MSU. After training, consultants will work one-on-one with undergraduates to assist in improving public speaking skills. Repeatable

**CO 2904 Introduction to Film: 4 hours.**

Three hours lecture. Two hours lab. A basic introduction to the study of film language, history, and theory, emphasizing aesthetic, technological, and socio-cultural developments of film form. (Same as ART 2904 and EN 2904)

**CO 2990 Special Topics in Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CO 3213 Small Group Communication: 3 hours.**

(Prerequisite: CO 1003 or CO 1013 or CO 1223 and junior standing). Three hours lecture. A study of the problems and techniques of participation in and leadership of small groups

**CO 3221 Applied Communication & Media Studies: 1 hour.**

(Co-requisite: CO 3223). One hour lecture. Introduction to research policies, resources, and opportunities for students of Communication and Media Studies. Topics include rules governing ethical research practices, funding mechanisms, research archives and services, academic presentation and publication

**CO 3223 Communication & Media Research Methods: 3 hours.**

(Prerequisite: CO 1223 and CO 1403 and passage of the departmental GSP exam). Three hours lecture. An introduction to methods used to study communication problems and processes

**CO 3233 Communication and Media Ethics: 3 hours.**

(Prerequisite: CO 1223 or CO 1403). Three hours lecture. An introduction to the major concepts, theories, and issues related to human communication ethics in a variety of contexts and situations

**CO 3243 Advanced Public Speaking: 3 hours.**

(Prerequisite: CO 1003 or 1013). Three hours lecture. Focuses on theory and practice to develop, reinforce, sharpen, and critique public speaking skills. Advanced public speaking principles will be applied to a variety of real-world speaking opportunities

**CO 3293 Corporate Communication: 3 hours.**

(Prerequisite: Junior standing). Study of applied communication techniques related to the development and proficiency of oral corporate communications skills

**CO 3313 News Writing for the Electronic Media: 3 hours.**

(Prerequisite: CO 2413 with a C or better). Three hours lecture. Practice in analysis, gathering, writing, and delivering copy for various types of news programming

**CO 3333 Advanced Television Production: 3 hours.**

(Prerequisite: CO 2333 with a C or better). Two hours lecture. Two hours laboratory. Advanced principles and techniques of broadcast production

**CO 3343 Writing for the Media: 3 hours.**

(Prerequisite: EN 1113 or EN 1173 with a C or better). Three hours lecture. Study and practice of the principles and techniques of media writing

**CO 3353 Sports Announcing: 3 hours.**

(Prerequisites: CO 2413, CO 3313 or CO 3343). Three hours lecture. Course in announcing live sporting events and sports programs. This involves play-by-play and analysis. Subject matter will include reporting elements of writing, editing, interviewing and announcing. The course will include reporting for the WMSV student sports program

**CO 3363 Sports Broadcasting Production: 3 hours.**

Two hours lecture. Two hours laboratory. A study of the history of sports broadcasting and sports media partnerships and analysis of industry trends. This course trains students to produce live sports for digital and linear productions with the SEC Network

**CO 3383 Creative Services Video Production: 3 hours.**

(Prerequisite: CO 2333, CO 3333). Two hours lecture and two hours laboratory. Advanced techniques and principles in client-based video production

**CO 3403 Photographic Communication: 3 hours.**

(Prerequisite: Nine hours in Communication or consent of instructor). Two hours lecture. Two hours laboratory. Study and practice of techniques of photography and digital imaging as they relate to visual communication in journalism, public relations, mass media, and related fields

**CO 3423 Feature Writing: 3 hours.**

(Prerequisite: CO 2413 with a C or better). Three hours lecture. Feature markets and practice in preparing and writing features for print and digital media

**CO 3433 Editing and Design: 3 hours.**

(Prerequisite: CO 2413 with a C or better). Two hours lecture. Two hours lab. Editing copy, writing headlines, and using type, pictures, and graphics to digitally design newspapers and magazines

**CO 3443 Advanced News Writing and Reporting: 3 hours.**

(Prerequisite: CO 2413 with a C or better). Three hours lecture. Practice in writing more complex news stories and the responsibilities of the reporter in newsgathering and writing

**CO 3502 Costume Design: 2 hours.**

(Prerequisite: CO 2512 or consent of instructor). Four hours studio. The study and application of theatrical costume design, emphasizing creation and construction practices

**CO 3512 Scenic Design: 2 hours.**

(Prerequisite: CO 2512 or consent of instructor). Four hours studio. A project-based study of theatrical scenic design, including visual expression, creative techniques, and design execution

**CO 3522 Lighting for the Stage and Screen: 2 hours.**

(Prerequisite: CO 2512 or consent of instructor). Four hours studio. Introduction to entertainment lighting, with emphases on conceptual ideas, motivation, technologies, and execution

**CO 3532 Theatre for Change: 2 hours.**

(Prerequisites: CO 1503 and CO 2503). Four hours studio. Exploration of the history, theory, and current practice of public performance as tools for global, social-political transformation

**CO 3541 Theatre Performance Practicum: 1 hour.**

(Prerequisite: Consent of instructor). Practicum course for acting or other theatrical performance activities, organized around campus productions. Repeatable four times

**CO 3543 Improvisation: 3 hours.**

Three hours lecture. Course is designed to develop skills in improvisation with emphasis on exercises and performance

**CO 3552 Professional Practice for Theatre: 2 hours.**

(Prerequisite: CO 1503). Four hours studio. Project-based study of professional techniques necessary to start and manage a career in live entertainment

**CO 3563 Voice and Movement: 3 hours.**

Three hours lecture. Course is designed for technical training of actor in performance area with emphasis on exercises

**CO 3573 Script Analysis: 3 hours.**

(Prerequisite: CO 1503). Three hours lecture. In-depth study of evaluation techniques for Western drama, with emphases on conventions, structure, intention, and context

**CO 3583 Theatre for Young Audiences: 3 hours.**

(Prerequisite: CO 1503). Three hours lecture. An immersive introduction to theatre for young audiences and its place in the theatre world, in education, and in society

**CO 3693 Drawing for the Theatre: 3 hours.**

(Prerequisite: CO 2512 or CO 2523 or consent of instructor). Three hours lecture. Introduction to drafting and rendering techniques for live entertainment, including tools and equipment, CAD software, and graphic standards

**CO 3713 Digital Communication: 3 hours.**

(Prerequisites: CO 2413 with a C or better or consent of instructor). Two hours lecture. Two hours laboratory. Processes and methods of effective digital communication

**CO 3803 Principles of Public Relations: 3 hours.**

Three hours lecture. The role and origin of public relations in society, the identification and influence of publics, and applications of public relations principles to campaigns and organizations

**CO 3813 Public Relations Case Problems: 3 hours.**

(Prerequisite: Grade of C or better in CO 3803). Three hours lecture. The written analysis, presentation, and group discussion of specific and hypothetical cases using public relations theory as a base

**CO 3833 Interviewing in Communication: 3 hours.**

Three hours lecture. The communicative processes and adjustments necessary in preparing, organizing, wording, and participating in various types of interviews from both the interviewer and the interviewee perspectives

**CO 3843 Media Relations: 3 hours.**

(Prerequisite: CO 2413). Three hours lecture. Study of interviewing and communication skills for reporters and the issues, problems, and strategies employed by interviewees related to radio, television, and print interviews

**CO 3853 Public Relations Writing: 3 hours.**

(Prerequisites: Grade of C or better in CO 2413 and CO 3803). Three hours lecture. Practice of written communication for public relations. Emphasis on research, establishing communication goals, and writing for internal and external audiences via multiple channels

**CO 3863 Public Relations Production: 3 hours.**

(Prerequisites: Grade of C or better in CO 2413 and grade of C or better in CO 3803). Two hours lecture. Two hours laboratory. Detailed exercise in design and production of public relations materials for print, broadcast, and computer-based media

**CO 3873 Public Relations Multimedia: 3 hours.**

(Prerequisites: Grade of C or better in CO 2413 AND grade of C or better in CO 3803). Two hours lecture. Two hours laboratory. Detailed exercise in the use and influence of multimedia platforms and the expanded ability to hone skills in new media practices in public relations

**CO 3903 Advanced Cinema Studies: 3 hours.**

(Prerequisite: CO 1903 or EN 2434). Three hours lecture. A study of the forms, styles, and criticisms of cinema

**CO 4000 Directed Individual Study in Communication: 1-6 hours.**

Hours and credits to be arranged

**CO 4043 Communication and Leadership: 3 hours.**

Three hours lecture. A study of communication as related to the functions and styles of leadership

**CO 4053 Internship in Communication: 3 hours.**

(Prerequisites: Communication majors only, junior or senior standing, consent of instructor). Practical field experience in student's concentration area. For approval, the internship must be under the supervision of a skilled practitioner, appropriate to the major and meet departmental requirements

**CO 4063 Family Communication: 3 hours.**

(Prerequisite: CO 2253) Three hours lecture. An exploration of contemporary understandings of the communication patterns and dynamics that shape family relationships, and the central role families play in society, particular communities, and individual lives

**CO 4124 Topics in Film: 4 hours.**

Three hours lecture. Two hours lab. Repeatable under different subtitles with advisor approval. An advanced investigation of specific topics in Film, Film History, Directors, Genre, and/or approaches to its production. Readings and discussions, supplemented by lectures/labs and film screenings. (Same as ART 4124/6124, EN 4124/6124)

**CO 4203 Nonverbal Communication: 3 hours.**

(Prerequisite: CO 1223). Three hours lecture. Study of nonverbal cues as they affect the communication interface in numerous contexts including social events, political campaigns, and dramatic productions

**CO 4213 Political Communication: 3 hours.**

(Prerequisite: CO 1223 and CO 1403). Three hours lecture. Analysis and evaluation of the verbal and nonverbal dimensions of the creation dissemination, and reception of political communication in the United States

**CO 4223 Advanced Communication Theory: 3 hours.**

(Prerequisite: CO 1223). Three hours lecture. Analysis of twentieth century communication theories. A study of mass, interpersonal, and intrapersonal communication processes and effects

**CO 4233 Gender and Media: 3 hours.**

(Prerequisite: CO 1403 or GS 1173). Three hours lecture. A critical exploration of discourses of gender and its intersections with sexuality, race, and class as represented in popular forms of media. (Same as GS 4233/6233)

**CO 4243 Rhetorical Theory: 3 hours.**

(Prerequisite: CO 1223 and CO 1403). Three hours lecture. Survey and criticism of the major theories of rhetoric from antiquity and their application to contemporary contexts and scholarship

**CO 4253 Elements of Persuasion: 3 hours.**

(Prerequisite: CO 1223). Three hours lecture. A study of the motivation of audiences and techniques of persuasive campaigns and communications

**CO 4263 Gender Communication: 3 hours.**

(Prerequisite: CO 1223 or GS 1173). Three hours lecture. An investigation of the ways in which communication impacts the construction, performance, evaluation, and negotiation of gender. (Same as GS 4263/6263)

**CO 4273 Intercultural Communication: 3 hours.**

(Prerequisite: CO 1223 and Senior standing). Three hours lecture. A study of how communication behaviors differ between cultures. Frameworks for studying intercultural communication will be provided by studying one specific culture

**CO 4283 Health Communication: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. A study of health communication, the contexts in which it occurs, and techniques used to create health messages

**CO 4293 Communication & Media Studies Capstone: 3 hours.**

(Prerequisite: Senior standing and CO 3223). Three hours lecture. Synthesis of the major theories, research methods, and contexts taught in the Communication and Media Studies curriculum, culminating in an independent written or applied research project

**CO 4313 Mass Media Law: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Study and analysis of laws and regulations significantly affecting newspapers, magazines, motion pictures, broadcasting and digital media in America

**CO 4323 Mass Media and Society: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. The effects of mass communication on social and cultural institutions

**CO 4333 Radio News Reporting and Podcasting: 3 hours.**

(Prerequisites: CO 2413 Intro to News Writing and Reporting; CO 3313 News Writing for Electronic Media or CO 3343 Writing for the Media). Three hours lecture. Aspects of creating content (writing, editing, reporting, interviewing), anchoring, and producing for live radio newscasts, radio field news reports and podcasts

**CO 4343 Backpack Video Journalism: 3 hours.**

(Prerequisite: CO 3333 with a C or better). Two hours lecture and two hours lab. Learning advanced techniques as a multimedia journalist. Individually produce video stories from start to finish – learning to find topics, research stories, contact sources, shoot video, record audio, edit video, upload completed stories

**CO 4373 Practicum in Television News: 3 hours.**

(Prerequisites: CO 3333 with a C or better AND CO 3313 OR CO 3343 with a C or better). Two hours lecture, two hours laboratory. Theory and practice of producing a television news program

**CO 4393 Broadcast Performance: 3 hours.**

(Prerequisite: Junior Standing.) Two hours lecture. Two hours laboratory. Practice and theory of the mechanics, tools and techniques required to communicate successfully as a broadcaster

**CO 4394 Broadcast Capstone: 4 hours.**

(Prerequisite: CO 4343 with a C or better). Eight hours studio course. Practice of producing a television news program, including: broadcast writing, producing, reporting, video news gathering, anchoring, studio production, and dissemination of newscast via web and social media

**CO 4403 Journalism Ethics: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Examination of ethical problems in contemporary journalism

**CO 4423 Advanced Photo Communication: 3 hours.**

(Prerequisite: CO 3403 with a C or better). Two hours lecture. Two hours laboratory. Exploration of narrative and illustrative photography in PR and news. Evaluation of still vs. moving images and Web/multimedia presentation options

**CO 4433 Television Criticism: 3 hours.**

(Prerequisite: Junior standing or higher). Three hour lecture. Methods of television criticism

**CO 4494 Bulldog Online Newsroom: 4 hours.**

(Prerequisites: C or better in CO 3443 and CO 4713). Two hours lecture/two hours lab. Capstone course designed to synthesize knowledge, values and skills acquired in Print & Digital Journalism Concentration. Students produce a portfolio and contribute content, editing and promotion via social media to course news website

**CO 4503 History of Theatre 1: Classical: 3 hours.**

(Prerequisite: CO 3573 or consent of instructor). Three hours lecture. Survey of the history, context, and major works of global live performance from antiquity to the 19th century

**CO 4513 History of Theatre 2: Contemporary: 3 hours.**

(Prerequisite: CO 4503 or consent of instructor). Three hours lecture. Global survey of modern and contemporary dramatic works from the 19th century to the present

**CO 4523 Directing: 3 hours.**

(Prerequisite: CO 3573 or CO 3583 or consent of instructor). Three hours lecture. Exploration of directing for the stage, including evaluations of dramatic styles and analyses of stage compositions

**CO 4533 Advanced Acting: 3 hours.**

(Prerequisite: CO 2503). Three hours lecture. Intensive study of the theories and techniques of acting in the various dramatic styles

**CO 4563 Stage and Production Management: 3 hours.**

(Prerequisite: CO 3552 or consent of instructor). Three hours lecture. Study and practice of the organization, management, operation, and budgeting of theatrical production

**CO 4573 Theatre Management: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Business organization and management for the educational (secondary and university), community, and professional theatre, including budgeting, publicity, public relations, and box office principles

**CO 4583 Playwriting: 3 hours.**

(Prerequisite: Completion of freshman composition and CO 1503). Three hours lecture. Practice in the fundamentals of dramatic composition. Reading, discussion, and analysis of written work

**CO 4591 Theatre Capstone: 1 hour.**

(Prerequisites: Senior standing and consent of instructor). Capstone course for the Theatre Concentration. Requires assignment to a Theatre MSU production in the field of choice of the student

**CO 4643 Race and the Media: 3 hours.**

(Prerequisites: SO/AAS 2203, or CO 1403, or AAS 1063 or equivalent). Three hours lecture. Examines the relationship between society, race, and the media. An examination of the social influence of how racial representations are produced, distributed, and consumed. (Same as SO 4643 and AAS 4643)

**CO 4713 Multimedia Journalism: 3 hours.**

(Prerequisites: CO 3713, CO 3403, CO 3333, and either CO 3423 or CO 3313; all with a C or better.) Two hours lecture. Two hours lab. Combining journalistic writing with photo and video storytelling to create multimedia news stories that are published in a web-based platform

**CO 4803 Research in Public Relations and Advertising: 3 hours.**

(Prerequisite: Grade of C or better in CO 3813 and CO 3853, or Grade of C or better in MKT 4413, or graduate standing). Three hours lecture. Theory and practice of research methods in public relations

**CO 4813 Public Relations in Organizations: 3 hours.**

(Prerequisites: Grade of C or better in CO 3813, CO 3853, CO 3863, and CO 4803). Three hours lecture. Studies in using various communication techniques for image building and campaign development for profit and non-profit organizations

**CO 4821 Certificate in Principles of Public Relations Preparation Course: 1 hour.**

(Prerequisites: Grade of C or better in CO 3803, senior standing, and consent of instructor). One hour lecture. Detailed discussion and exercises to prepare students for the Certificate in Principles of Public Relations computer-based Exam

**CO 4823 Integrated Media Agency: 3 hours.**

(Prerequisite: CO 2413 and consent from the instructor). Three hours lecture. Focuses on enhancing communication skills (e.g., public relations, advertising, branding, storytelling, traditional content, and more) reaching across multiple platforms (e.g., web, print, audio, video) within an experiential learning environment

**CO 4833 Advanced Integrated Media Agency: 3 hours.**

(Prerequisite: CO 3863, CO 4803, CO 4823 and instructor consent). Three hours lecture. Focuses on enhancing advanced communication skills reaching across multiple platforms within an experiential learning environment

**CO 4924 Film Theory: 4 hours.**

Three hours lecture. Two hours lab. This course will introduce students to major theoretical positions and modes of analysis used to understand the various frameworks in which to view, criticize, analyze, and (re)contextualize film. (Same as ART 4924 and EN 4924/6924)

**CO 4990 Special Topics in Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CO 6043 Communication and Leadership: 3 hours.**

Three hours lecture. A study of communication as related to the functions and styles of leadership

**CO 6053 Internship in Communication: 3 hours.**

(Prerequisites: Communication majors only, junior or senior standing, consent of instructor). Practical field experience in student's concentration area. For approval, the internship must be under the supervision of a skilled practitioner, appropriate to the major and meet departmental requirements

**CO 6124 Topics in Film: 4 hours.**

Three hours lecture. Two hours lab. Repeatable under different subtitles with advisor approval. An advanced investigation of specific topics in Film, Film History, Directors, Genre, and/or approaches to its production. Readings and discussions, supplemented by lectures/labs and film screenings. (Same as ART 4124/6124, EN 4124/6124)

**CO 6203 Nonverbal Communication: 3 hours.**

(Prerequisite: CO 1223). Three hours lecture. Study of nonverbal cues as they affect the communication interface in numerous contexts including social events, political campaigns, and dramatic productions

**CO 6213 Political Communication: 3 hours.**

(Prerequisite: CO 1223 and CO 1403). Three hours lecture. Analysis and evaluation of the verbal and nonverbal dimensions of the creation dissemination, and reception of political communication in the United States

**CO 6223 Advanced Communication Theory: 3 hours.**

(Prerequisite: CO 1223). Three hours lecture. Analysis of twentieth century communication theories. A study of mass, interpersonal, and intrapersonal communication processes and effects

**CO 6233 Gender and Media: 3 hours.**

(Prerequisite: CO 1403 or GS 1173). Three hours lecture. A critical exploration of discourses of gender and its intersections with sexuality, race, and class as represented in popular forms of media. (Same as GS 4233/6233)

**CO 6243 Rhetorical Theory: 3 hours.**

(Prerequisite: CO 1223 and CO 1403). Three hours lecture. Survey and criticism of the major theories of rhetoric from antiquity and their application to contemporary contexts and scholarship

**CO 6253 Elements of Persuasion: 3 hours.**

(Prerequisite: CO 1223). Three hours lecture. A study of the motivation of audiences and techniques of persuasive campaigns and communications

**CO 6263 Gender Communication: 3 hours.**

(Prerequisite: CO 1223 or GS 1173). Three hours lecture. An investigation of the ways in which communication impacts the construction, performance, evaluation, and negotiation of gender. (Same as GS 4263/6263)

**CO 6273 Intercultural Communication: 3 hours.**

(Prerequisite: CO 1223 and Senior standing). Three hours lecture. A study of how communication behaviors differ between cultures. Frameworks for studying intercultural communication will be provided by studying one specific culture

**CO 6283 Health Communication: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. A study of health communication, the contexts in which it occurs, and techniques used to create health messages

**CO 6313 Mass Media Law: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Study and analysis of laws and regulations significantly affecting newspapers, magazines, motion pictures, broadcasting and digital media in America

**CO 6323 Mass Media and Society: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. The effects of mass communication on social and cultural institutions

**CO 6373 Practicum in Television News: 3 hours.**

(Prerequisites: CO 3333 with a C or better AND CO 3313 OR CO 3343 with a C or better). Two hours lecture, two hours laboratory. Theory and practice of producing a television news program

**CO 6403 Journalism Ethics: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Examination of ethical problems in contemporary journalism

**CO 6433 Television Criticism: 3 hours.**

(Prerequisite: Junior standing or higher). Three hour lecture. Methods of television criticism

**CO 6504 History of the Theater: 4 hours.**

(Prerequisite: Junior standing). Four hours lecture. A survey of the theatre with emphasis on the physical structure, production problems and theatrical personalities

**CO 6533 Advanced Acting: 3 hours.**

(Prerequisite: CO 2503). Three hours lecture. Intensive study of the theories and techniques of acting in the various dramatic styles

**CO 6573 Theatre Management: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Business organization and management for the educational (secondary and university), community, and professional theatre, including budgeting, publicity, public relations, and box office principles

**CO 6583 Playwriting: 3 hours.**

(Prerequisite: Completion of freshman composition and CO 1503). Three hours lecture. Practice in the fundamentals of dramatic composition. Reading, discussion, and analysis of written work

**CO 6803 Research in Public Relations and Advertising: 3 hours.**

(Prerequisite: Grade of C or better in CO 3813 and CO 3853, or Grade of C or better in MKT 4413, or graduate standing). Three hours lecture. Theory and practice of research methods in public relations

**CO 6813 Public Relations in Organizations: 3 hours.**

(Prerequisites: Grade of C or better in CO 3813, CO 3853, CO 3863, and CO 4803). Three hours lecture. Studies in using various communication techniques for image building and campaign development for profit and non-profit organizations

**CO 6924 Film Theory: 4 hours.**

Three hours lecture. Two hours lab. This course will introduce students to major theoretical positions and modes of analysis used to understand the various frameworks in which to view, criticize, analyze, and (re)contextualize film. (Same as ART 4924 and EN 4924/6924)

**CO 6990 Special Topics in Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CO 7000 Directed Individual Study in Communication: 1-6 hours.**

Hours and credits to be arranged

**CO 8013 Seminar in Communication and Leadership: 3 hours.**

Three hours seminar. This graduate-level seminar focuses on the intersections of communication and leadership, teaching students how to communicate effectively with different audiences and how to use logical, persuasive techniques in writing and presenting

**CO 8023 Health Communication and Campaigns: 3 hours.**

Three hours lecture. A study of how media and communication campaigns influence health

**CO 8043 Case Study Research: 3 hours.**

Three hours seminar. This graduate seminar will be an in-depth study of qualitative research, particularly the case study. Students will consider the value of case study research within communication and social sciences, explore various approaches to conducting case studies, and engage in conducting a case study

**CO 8063 International Communication: 3 hours.**

Three hours seminar. This graduate seminar examines the history of the field of international communication along with current theories of and research on international communication processes and effect and directions for future research

**CO 8203 Communication Theory: 3 hours.**

Three hours seminar. An exploration of major theoretical and research traditions in the field and study of communication

**CO 8223 Seminar in Communication Research: 3 hours.**

Three hours seminar. An exploration of the foundations and current practice in communication research, including quantitative, qualitative and rhetorical methods

**CO 8233 Seminar in Rhetoric: 3 hours.**

Three hours seminar. The study of classic and contemporary rhetorical theories, with a focus upon application, ethics and efficacy using varied media and social media platforms and with disparate audiences

**CO 8243 Communication Pedagogy: 3 hours.**

Three hours seminar. This graduate seminar introduces students to the theory and practice of engaged pedagogy in communication

**CO 8283 Seminar in Relational Communication: 3 hours.**

Three hours seminar. An exploration of the theories and skills of relationship development, maintenance, and repair; as well as the study of relationships and the critical role they play in shaping our lives, and the critical role that communication plays in shaping relationships and relational outcomes

**CO 8333 Seminar in Media: 3 hours.**

Three hours seminar. This graduate-level seminar focuses on the intersections of media, culture and society

**CO 8353 Seminar in Digital Media: 3 hours.**

Three hours seminar. The seminar will study the vast body of empirical research about both digital media content and media technology. The focus of the course will be on social and/or behavioral approaches of studying digital media

**CO 8393 Media Law for Leaders and Organizations: 3 hours.**

Three hours lecture. Study and analysis of laws and regulations significantly affecting media leadership and organizations, including newspapers, magazines, motion pictures, broadcasting, cablecasting, streaming and social media in America

**CO 8743 Political Communication: 3 hours.**

Three hours seminar. An exploration of the communication processes that shape and influence political messages and media coverage of politics and political campaigns. Theoretical and practical concerns of polling, political messages and messaging are included

**CO 8753 Special Project in Communication: 3 hours.**

Three hours lecture. The culmination of the M.A. in Communication Program. It offers students the opportunity to build upon and further develop the research, writing, and analytical thinking skills they acquired over the course of the program

**CO 8823 Seminar in Crisis Communication: 3 hours.**

Three hours seminar. Focus on the analysis of crises prior to situations occurring, during the crises, and the aftermath. Students will be introduced to methods to prevent crises, reduce volatile situations, and remedy long-term problems

**CO 8873 Managing Messages and Media Relations: 3 hours.**

Three hours lecture. Focus on the analysis, development, and implementation of messages with a focus on media

**CO 8990 Special Topics in Communication: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CO 9000 Research in Communication: 1-13 hours.**

Hours and credits to be arranged

## Counselor Education Courses

**COE 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**COE 1323 Career Planning: 3 hours.**

Three hours lecture. Provides students with a basis for making career decisions and selecting an academic major

**COE 2323 History, Heritage, and Campus Community of MSU: 3 hours.**

Three hours lecture. Overview of the history, culture, traditions, academics, athletics, research, people, buildings, community, points of pride, and etiquette of Mississippi State University (MSU). Offered to freshman, sophomore and junior students who have been selected as Maroon VIP campus tour guides

**COE 2990 Special Topics in Counselor Education & Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**COE 3313 Rehabilitation Services: 3 hours.**

Three hours lecture. Concepts, philosophies, and methods of rehabilitation services for physically, emotionally, or mentally disabled people

**COE 4000 Directed Individual Study in Counselor Education & Educational Psychology: 1-6 hours.**

Hours and credits to be arranged



**COE 4013 Facilitative Skills Development: 3 hours.**

Three hours lecture. Introduction to the theory and practice of helping with emphasis on the development of basic communication skills. Applicable to a variety of settings

**COE 4023 Introduction to Counseling: 3 hours.**

Three hours lecture. Overview of counseling as a profession including specialty areas. Theories and techniques used in counseling. This course is not for Counselor Education majors

**COE 4050 Seminar for Guidance Counselors: 1-6 hours.**

Three hours lecture. Hour to be arranged. A study of current issues and trends in the field of guidance

**COE 4303 Rehabilitation of Visually Impaired Persons: 3 hours.**

Three hours lecture. Special issues and procedures related to vocational rehabilitation of persons with visual impairments

**COE 4353 Assistive Technology in the Rehabilitation Process: 3 hours.**

(Prerequisites: Undergraduates: COE 3313. Graduates: COE 6393, COE 8373 or permission of the instructor). Three hours lecture. Diverse applications of technologies are reviewed for potential impact with all forms of disability. Examines various roles played by technology in total rehabilitation process

**COE 4363 Introduction to Sign Language: 3 hours.**

Development of basic sign language skills, study of special needs of deaf persons, and understanding use of interpreters. (Same as EDX 4953/6953)

**COE 4513 Paraprofessionals in Student Affairs: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Fundamental concepts and philosophies underlying the paraprofessional's role in college student affairs. Includes supervised and paraprofessional experience

**COE 4713 Issues in Aging: 3 hours.**

Three hours lecture. An examination and integration of gerontological issues related to mental health of the elderly

**COE 4743 Gender Issues in Counseling: 3 hours.**

Three hours lecture. Overview of gender issues and their relationship to the counseling process

**COE 4903 Developmental Counseling and Mental Health: 3 hours.**

Three hours lecture. One hour laboratory. Methods of identifying and meeting normal emotional and social needs of children and adults. Emphasis on maintaining better mental health conditions in the schools

**COE 4990 Special Topics in Counselor Education & Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**COE 6013 Facilitative Skills Development: 3 hours.**

Three hours lecture. Introduction to the theory and practice of helping with emphasis on the development of basic communication skills. Applicable to a variety of settings

**COE 6023 Introduction to Counseling: 3 hours.**

Three hours lecture. Overview of counseling as a profession including specialty areas. Theories and techniques used in counseling. This course is not for Counselor Education majors

**COE 6050 Seminar for Guidance Counselors: 1-6 hours.**

Three hours lecture. Hour to be arranged. A study of current issues and trends in the field of guidance

**COE 6303 Rehabilitation of Visually Impaired Persons: 3 hours.**

Three hours lecture. Special issues and procedures related to vocational rehabilitation of persons with visual impairments

**COE 6313 Resources for Visually Impaired Persons: 3 hours.**

Three hours lecture. Survey of issues, techniques, and resources for independent living, orientation and mobility, and communication of visually impaired persons

**COE 6323 Sensory Aid Technology: 3 hours.**

Three hours lecture. Survey of sensory devices. Includes practice with computer assistive devices designed to enhance employment and communication skills of persons with visual impairments

**COE 6353 Assistive Technology in the Rehabilitation Process: 3 hours.**

(Prerequisites: Undergraduates: COE 3313. Graduates: COE 6393, COE 8373 or permission of the instructor). Three hours lecture. Diverse applications of technologies are reviewed for potential impact with all forms of disability. Examines various roles played by technology in total rehabilitation process

**COE 6363 Introduction to Sign Language: 3 hours.**

Development of basic sign language skills, study of special needs of deaf persons, and understanding use of interpreters. (Same as EDX 4953/6953)

**COE 6373 Vocational Assessment of Special Needs Persons: 3 hours.**

Three hours lecture. Comprehensive vocational assessment, counseling, and individual planning for special needs persons. Job/training analysis, vocational interest/aptitude tests, work samples, and situational assessment

**COE 6513 Paraprofessionals in Student Affairs: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Fundamental concepts and philosophies underlying the paraprofessional's role in college student affairs. Includes supervised and paraprofessional experience

**COE 6713 Issues in Aging: 3 hours.**

Three hours lecture. An examination and integration of gerontological issues related to mental health of the elderly

**COE 6743 Gender Issues in Counseling: 3 hours.**

Three hours lecture. Overview of gender issues and their relationship to the counseling process

**COE 6903 Developmental Counseling and Mental Health: 3 hours.**

Three hours lecture. One hour laboratory. Methods of identifying and meeting normal emotional and social needs of children and adults. Emphasis on maintaining better mental health conditions in the schools

**COE 6990 Special Topics in Counselor Education & Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**COE 7000 Directed Individual Study in Counselor Education & Educational Psychology: 1-6 hours.**

Hours and credits to be arranged

**COE 8013 Counseling Skills Development: 3 hours.**

(Prerequisite: COE 6013 and COE 8023). Three hours lecture. Theory and practice of counseling with emphasis on development of advanced skills required for assisting clients

**COE 8023 Counseling Theory: 3 hours.**

Three hours lecture. Study of the major counseling theories and their applications to the counseling process

**COE 8043 Group Techniques and Procedures: 3 hours.**

(Prerequisite: COE 8013). Three hours lecture. Group counseling theory, dynamics, processes, and leadership functions

**COE 8053 Practicum: 3 hours.**

(Prerequisites: COE 8013, 8023, and consent of department). Seminar and supervised field experience

**COE 8063 Research Techniques for Counselors: 3 hours.**

Three hours lecture. Methods of research and evaluation in counseling

**COE 8073 Cultural Foundations in Counseling: 3 hours.**

Three hours lecture. Examination of individual differences due to socialization acquired in distinct cultural and socioeconomic environments. Implications for counseling

**COE 8083 Assessment Tech Coun.: 3 hours.**

Three hours lecture. Principles and techniques involved in selecting, administering, scoring and interpreting tests of personality, interest, vocational aptitude, achievement, and intelligence

**COE 8093 Seminar in Counseling: 3 hours.**

(Prerequisite: COE 8123 or equivalent). Seminar in counseling trends and approaches with application to various settings and problems

**COE 8143 Grief Counseling for Loss and Bereavement: 3 hours.**

Three hours lecture. This course is designed to provide students with understanding of grief and loss responses, and counseling approaches for working with bereaved and grieving individuals

**COE 8150 Academic School Year Field Experience Practicum: 1-9 hours.**

Prerequisite: COE 8043, COE 8903, and EPY 8263). First semester of the supervised academic year field experience in school counseling. (Variable credit)

**COE 8163 Spirituality in Counseling: 3 hours.**

Three hours lecture. Didactic instruction of developmental models and clinical interventions related to the interface of spirituality and counseling

**COE 8173 Counseling Gifted Students: 3 hours.**

Three hours lecture. Counseling functions that relate to the total development of gifted students. Directed Individual Study and utilization of resources necessary for optimal growth

**COE 8183 Utilizing Art and Art Therapy in Counseling: 3 hours.**

Three hours lecture. Didactic instruction of development models, theoretical approaches and practical intervention related to the interface of creative arts and counseling practice

**COE 8203 Placement and Career Development Counseling: 3 hours.**

Three hours lecture. Studies of career development and academic/job placement; occupational classification schemes; trends in the world of work; compiling and utilizing career information in counseling

**COE 8293 Supervised Project: 3 hours.**

(Prerequisite: Consent of department). Study of a topic in counseling or student development

**COE 8303 Family Counseling Theory: 3 hours.**

Three hours lecture. (Prerequisite: COE 8023). Study of the theory and practice of family counseling

**COE 8353 Vocational Rehabilitation Counseling: 3 hours.**

Three hours lecture. Rehabilitation legislation and the rehabilitation counseling process

**COE 8363 Psychological Aspects of Disability: 3 hours.**

Three hours lecture. Psychological and social factors influencing adjustment of disabled persons

**COE 8373 Medical Aspects of Disability: 3 hours.**

Three hours lecture. Involves a detailed survey of physical disabilities, their resulting functional limitations and rehabilitation implications. Also includes discussion of appropriate rehabilitation technology

**COE 8383 Job Placement in Rehabilitation: 3 hours.**

Three hours lecture. Process of job placement for disabled persons

**COE 8533 Literature of Student Affairs: 3 hours.**

Three hours lecture. Provides an overview of student affairs in higher education through extensive reading in the field and individual study of specific aspects

**COE 8573 College Counseling Services: 3 hours.**

Three hours lecture. Counseling, prevention and student development services on the university and community college campus

**COE 8623 Advanced and Ethical Issues in Counseling: 3 hours.**

(Prerequisite: COE 8023). Three hours lecture. Advanced study of professional, legal, and ethical issues in counseling

**COE 8633 Psychosocial Rehabilitation: 3 hours.**

Three hours lecture. Counseling techniques that assist in the community adjustment of seriously mentally ill clients

**COE 8703 Principles of Clinical Mental Health Counseling: 3 hours.**

Three hours lecture. Overview of the history, philosophy, trends, and practice of mental health counseling

**COE 8730 Internship: 1-9 hours.**

(Prerequisite: COE 8053.) Supervised field experience

**COE 8740 Academic Year Field Experience Semester II-Internship: 1-9 hours.**

Second semester of the supervised academic year field experience in school counseling. (Variable credit)

**COE 8743 Counseling LGBTQ: Awareness, Mental Health & Advocacy: 3 hours.**

Three hours lectures. This course addresses knowledge, skills, and advocacy for counselors who work with lesbian, gay, bisexual, queer, intersex, questioning, and gender-non conforming individuals and communities

**COE 8750 Internship: 1-9 hours.**

(Prerequisite: Consent of department). Supervised field experience for Ed.S students

**COE 8753 Stress Management Counseling: 3 hours.**

Three hours lecture. Course content includes cognitive behavioral assessment and application of relaxation and stress management strategies as a mental health/counseling intervention

**COE 8763 Counseling the Sexually Abused Client: 3 hours.**

(Prerequisite: COE 8023). Three hours lecture. Diagnosis and treatment of persons who have been sexually abused

**COE 8773 Counseling the Chemically Dependent Client: 3 hours.**

Three hours lecture. Information about the etiology, diagnosis, and treatment of chemical dependence

**COE 8783 Counseling the Chemically Dependent Family: 3 hours.**

(Prerequisite: COE 8773.) Three hours lecture. Provide information on the effects of chemical dependence on the family and counseling programs for this disorder

**COE 8803 Crisis Response in Counseling: 3 hours.**

(Prerequisite: COE 8013, COE 8023, or consent of instructor). Three hours lecture. Exposure to theory and practice in crisis response in counseling. Therapeutic strategies for intervening in crisis situations on an individual, group, and systems level

**COE 8813 Counseling Elderly Clients: 3 hours.**

Three hours lecture. Concepts, attitudes, and skills needed to provide counseling for elderly clients

**COE 8903 School Counseling Services: 3 hours.**

Three hours lecture. Overview of a comprehensive school counseling program

**COE 8913 Counseling Children: 3 hours.**

Three hours lecture. Didactic instruction and discussion of counseling techniques useful in community and school settings to work with early school-aged children

**COE 8923 Seminar in School Counseling: 3 hours.**

(Prerequisites: COE 8903). Three hours lecture. Overview of effective, comprehensive school counseling programs, program accountability, and best practice models in school counseling

**COE 8990 Special Topics in Counselor Education & Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**COE 9000 Research in Counselor Education: 1-13 hours.**

Hours and credits to be arranged

**COE 9013 Counseling Supervision: 3 hours.**

Three hours lecture. (Prerequisite: COE 8730 and 8013). The theory and practice of providing counseling supervision for practicing counselors and student development professionals

**COE 9023 Advanced Counseling Theory: 3 hours.**

(Prerequisite: COE 8023). Three hours lecture. Study of selected counseling strategies. Development of a personal approach to counseling

**COE 9033 Advanced Seminar: 3 hours.**

Three hours lecture. Advanced study of a topic in counseling

**COE 9043 Advanced Group Work and Systems: 3 hours.**

(Prerequisites: COE 8023, COE 8013, COE 8043 and Educational Specialist or Doctoral Standing, or consent of instructor). One hour lecture. Four hours laboratory. Advanced studies in group counseling theory, systems theory, group leadership, and standards of training and practice for group workers

**COE 9053 Advanced Multicultural Counseling: 3 hours.**

(Prerequisites: COE 8013, COE 8023, COE 8043, COE 8053, COE 8063 or an equivalent course, COE 8073 or an equivalent course, COE 8730, Educational Specialist or Doctoral standing or consent of the instructor). Three hours lecture. The course emphasizes advanced multicultural knowledge, skill development, and research competencies for counselors

**COE 9063 Leadership and Advocacy in Counseling: 3 hours.**

(Prerequisite: Educational Specialist or Doctoral standing or permission of the instructor). Three hours lecture. Emphasis on the development of leadership and advocacy skills in critical areas of work for counselor education doctoral students including professional identity, counseling practice and supervision, teaching and research

**COE 9073 Teaching in Counselor Education: 3 hours.**

(Prerequisite: Educational Specialist or Doctoral standing or consent of the instructor). Three hours lecture. Emphasis on knowledge, skills dispositions, and competencies for teaching in counselor education

**COE 9083 Advanced Assessment Techniques for Counseling: 3 hours.**

(Prerequisites: COE 8063 and EPY 8124 or equivalent courses; Educational Specialist or Doctoral standing or consent of instructor). Advanced knowledge, skill and practice in selecting, administering, scoring and interpreting personality, behavioral, career, and family assessments

**COE 9740 Advanced Doctoral Practicum: 1-9 hours.**

(Prerequisite: Consent of department). First supervised field experience for doctoral students

**COE 9750 Internship: 1-9 hours.**

(Prerequisite: Consent of department). Second supervised field experience for doctoral students

## Cooperative Education Program Courses

**CP 2103 First Work Semester: 3 hours.**

(Prerequisite: Approval of the Cooperative Education Office, acceptance by employing organization, and admission to the University)

**CP 2203 Second Work Semester: 3 hours.**

(Prerequisite: CP 2103)

**CP 3303 Third Work Semester: 3 hours.**

(Prerequisite: CP 2203)

**CP 3403 Fourth Work Semester: 3 hours.**

(Prerequisite: CP 3303)

**CP 4503 Fifth Work Semester: 3 hours.**

(Prerequisite: CP 3403)

**CP 4603 Sixth Work Semester: 3 hours.**

(Prerequisite: CP 4503)

**CP 4703 Seventh Work Semester: 3 hours.**

(Prerequisite: CP 4603)

**CP 4803 Eighth Work Semester: 3 hours.**

(Prerequisite: CP 4703)

**CP 8013 First Work Semester: 3 hours.**

(Prerequisite: Approval of the Cooperative Education Office, acceptance by employing organization, and admission to the University and Graduate School)

**CP 8023 Second Work Semester: 3 hours.**

(Prerequisite: CP 8013)

**CP 8033 Third Work Semester: 3 hours.**

(Prerequisite: CP 8023)

**CP 8043 Fourth Work Semester: 3 hours.**

(Prerequisite: CP 8033)

**CP 8053 Fifth Work Semester: 3 hours.**

(Prerequisite: CP 8043)

## Criminology Courses

**CRM 1003 Crime and Justice in America: 3 hours.**

Three hours lecture. A survey of the basic concepts and approaches in criminology, including patterns of crime, causes of crime, and an examination of the criminal justice system

**CRM 2003 Crime, Justice, and Inequality: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Survey of issues pertaining to race, class, gender, and crime, focusing on discrimination, structural barriers, and the place of inequality within the criminal justice system

**CRM 2990 Special Topics in Criminology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CRM 3033 Criminology Internship: 3 hours.**

(Prerequisite: 24 hours of coursework within the criminology major and a minimum GPA of 2.5 and consent of instructor). Three hours practicum. Practicum within selected corrections agencies, individually supervised performance and self-development in relation to clients, agency workers, and provisions of correctional services. May be repeated one time

**CRM 3103 Contemporary Issues in Criminal Justice: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003). Three hours lecture. The interrelationships of law enforcement, prosecution, and the courts, particularly how each affects the correctional process

**CRM 3113 Community Crime Prevention and Policy: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An in-depth analysis of crime control policy and community sanctions, focusing on policy implementation, effectiveness, alternatives and prevention efforts

**CRM 3123 Policing and Society: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003). Three hours lecture. An overview of police functions and responsibilities at all levels from a sociological perspective. Focuses on symbiotic roles of policing and other societal organizations

**CRM 3313 Deviant Behavior.: 3 hours.**

(Prerequisite: SO 1003 and CRM 1003 or its equivalent or consent of instructor). Three hours lecture. Introduction to the social and cultural factors related to human deviance. Special attention given to the study of various theories of deviance. Same as SO 3313)

**CRM 3320 Field Work: 1-6 hours.**

(Prerequisites: CRM 3316). One to six hours practicum within selected Corrections agencies, individually supervised performance and self-development in relation to clients, agency workers, and provisions of Correctional services

**CRM 3343 Gender, Crime, and Justice: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Gender differences in criminal behavior, victimization, and criminal justice processing, emphasizing the unique experiences of women in all of these areas. (Same as SO 3343 and GS 3343)

**CRM 3353 Race, Crime and Justice: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Racial differences in criminal behavior, victimization, and criminal processing, emphasizing the unique experiences of racial minorities in these areas (Same as SO 3353 and AAS 3353)

**CRM 3363 Globalization and Crime: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Examines the international differences in crime and justice, exploring topics such as illegal immigration, human trafficking, organized crime and terrorism

**CRM 3503 Violence in the United States: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. In-depth study of violence, including types of violence, categories of offenders and victims, its social consequences, and potential solutions. (Same as SO 3503)

**CRM 3603 Criminological Theory: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Survey of the major sociological and criminological explanations of crime. (Same as SO 3603)

**CRM 4000 Directed Individual Study in Criminology: 1-6 hours.**

Hours and credits to be arranged

**CRM 4153 Mentoring for At-Risk Youths: 3 hours.**

(Prerequisite: JR/SR Standing and Permission of Instructor). One hour lecture, four hours practical experience. This course trains students to mentor at-risk juveniles to facilitate their successful transition to productive community roles. (Same as SO 4153 and SLCE 4153)

**CRM 4233 Juvenile Delinquency: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Critical study of problems, causes, ways of handling; attitudes, roles and relationships of persons involved, including youthful offenders, social workers, court and law enforcement officials. (Same as SO 4233/6233)

**CRM 4243 Drugs, Crime and Control: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Focus on the social factors which give rise to illicit drug use, patterns and trends in drug crime and strategies to control drug crime. (Same as SO 4243/6243)

**CRM 4253 White Collar and Computer Crime: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An overview of the sociological and criminological literature in the area defined as White Collar Crime and Computer Crime. (Same as SO 4253/6253)

**CRM 4323 Victimology: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. A critical study of victims, examining theories of victimization, the social construction of victimization, the relationship between victims and offenders, and victim prevention efforts. (Same as SO 4323/6323)

**CRM 4343 Media, Crime and Justice: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003). An overview of the role media plays in shaping criminal justice policy, as well as public knowledge about crime and the criminal justice system

**CRM 4453 Power, War, and Peace: 3 hours.**

Three hours lecture. Introduction to three major topics in sociology/criminology: power, war and peace. Minor topics include: power and organizations, the relationship between power and war, terrorism, torture, ethnic conflict, reconstruction and reconciliation, and social movements (same as SO 4453)

**CRM 4513 Correctional Systems: 3 hours.**

(Prerequisites: CRM 1003 and CRM 3603 or consent of instructor). Three hours lecture. Survey of contemporary correctional systems and practices. Emphasis placed on the formal organization and functioning of penal systems (same as SO 4513/6513)

**CRM 4523 Law and Society: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Explores the social origins of law and how law can both maintain social order and bring about social change (Same as SO 4523/6523)

**CRM 4803 Senior Seminar in Criminology: 3 hours.**

(Prerequisites: CRM 3603 or consent of instructor). Three hours lecture. A capstone course which integrates knowledge from criminology course work. Students will apply their knowledge of criminological theory and policy to crime and justice issues

**CRM 4990 Special Topics in Criminology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CRM 6233 Juvenile Delinquency: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Critical study of problems, causes, ways of handling; attitudes, roles and relationships of persons involved, including youthful offenders, social workers, court and law enforcement officials. (Same as SO 4233/6233)

**CRM 6243 Drug, Crime and Control: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Focus on the social factors which give rise to illicit drug use, patterns and trends in drug crime and strategies to control drug crime. (Same as SO 4243/6243)

**CRM 6253 White Collar and Computer Crime: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An overview of the sociological and criminological literature in the area defined as White Collar Crime and Computer Crime. (Same as SO 4253/6253)

**CRM 6323 Victimology: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. A critical study of victims, examining theories of victimization, the social construction of victimization, the relationship between victims and offenders, and victim prevention efforts. (Same as SO 4323/6323)

**CRM 6513 Correctional Systems: 3 hours.**

(Prerequisites: CRM 1003 and CRM 3603 or consent of instructor). Three hours lecture. Survey of contemporary correctional systems and practices. Emphasis placed on the formal organization and functioning of penal systems (same as SO 4513/6513)

**CRM 6523 Law and Society: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Explores the social origins of law and how law can both maintain social order and bring about social change (Same as SO 4523/6523)

**CRM 6990 Special Topics in Criminology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Computer Science Engineering Courses

**CSE 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**CSE 1011 Introduction to CSE: 1 hour.**

(Prerequisites: Freshman standing, Major in CS or SE). One hour lecture. Introduction to the computer science and software engineering curricula, profession, and career opportunities. Historical perspective; support role of the department. Ethics, team building, problem solving

**CSE 1013 CSE AP Credit: 3 hours.**

Credit for Advanced Placement Computer Science Principles. Requires a score of 3 or higher on the AP Computer Science Principles exam

**CSE 1233 Computer Programming with C: 3 hours.**

(Prerequisite: MA 1313 or equivalent). Three hours lecture. Problem-solving methods, algorithm development, debugging and documentation in the C Programming language; applications. ( Not recommended to students with credit in CSE 1213 or CSE 1233 or equivalent)

**CSE 1273 Computer Programming with Java: 3 hours.**

(Prerequisite:MA 1313 or equivalent). Three hours lecture Problem-solving methods, algorithm development, debugging and documentation in the Java programming language; applications.(Not recommended to students with credit in CSE 1213 or CSE 1233 or equivalent)

**CSE 1284 Introduction to Computer Programming: 4 hours.**

(Prerequisite:MA 1313 or equivalent).Three hours lecture Three hours laboratory. Introductory problem solving and computer programming using object-oriented techniques. Theoretical and practical aspects of programming and problem solving. Designed for CSE,CPE and SE majors

**CSE 1384 Intermediate Computer Programming: 4 hours.**

(Prerequisite: CSE 1284 with grade of C or better). Three hours lecture.Three hour laboratory. Object-oriented problem solving, design,and programming. Introduction to data structures, algorithm design and complexity. Second course in sequence designed for CSE,CPE and SE majors

**CSE 2213 Methods and Tools in Software Development: 3 hours.**

(Prerequisite: CSE 1384 with a grade of C or better). Three hours lecture. Intro to key concepts, methods, and tools in software development not introduced in the introductory programming courses. Includes techniques for team-based SW development, agile design, implementation, testing patterns and strategies, and data retrieval using SQL

**CSE 2383 Data Structures and Analysis of Algorithms: 3 hours.**

(Prerequisite :Grade C or better in CSE 1384 and MA 1713). Three hours lecture. Non-linear data structures and their associated algorithms. Trees, graphs, hash tables, relational data model, file organization. Advanced software design and development

**CSE 2813 Discrete Structures: 3 hours.**

(Prerequisites:Grade of C or better in CSE 1284 and MA 1313 or equivalent). Three hours lecture. Concepts of algorithms, induction, recursion,proofs, topics from logic,set theory, combinatorics, graph theory fundamental to study of computer science

**CSE 2990 Special Topics in Computer Science and Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses.(Courses limited to two offerings under one title with two academic years)

**CSE 3183 Systems Programming: 3 hours.**

(Prerequisite: Grade of C or better in CSE 2383). Three hours lecture. Overview of contemporary systems programming concepts, tools, and techniques. Shell programming, systems administration tools, distributed systems, and internet concepts

**CSE 3213 Software Engineering Senior Project I: 3 hours.**

(Prerequisite: CSE 4214 with grade of C or better). Six hour laboratory. Software requirements elicitation and specification, cost estimation, scheduling, development of project management and quality assurance plans, reviews

**CSE 3223 Software Engineering Senior Project II: 3 hours.**

(Prerequisite: CSE 4214 with grade of C or better). Six hour laboratory. Teamwork, software design, construction, implementation of project management and quality assurance plans, and configuration management

**CSE 3324 Distributed Client/Server Programming: 4 hours.**

(Prerequisite: All majors: Grade of C or better in CSE 2383. CS/SE majors: CSE 4503 with a grade of C or better). Three hours lecture. Three hours laboratory. Design of software systems for distributed environments. Multithreaded and server-side programming, client/server

**CSE 3713 Introduction to Cybersecurity: 3 hours.**

(Prerequisites: CSE 1284, CSE 1233, or equivalent). Three hours lecture. A student who received credit in CSE 4253, CSE 4243, CSE 4363, CSE 4173, or CSE 4383 may not receive credit for this class. Basic security concepts and analysis. Cryptography basics. Computer and network attacks and defense techniques

**CSE 3724 Computer Organization: 4 hours.**

(Prerequisites: C in CSE 1384). Three hours lecture, two hours laboratory. How computer programs are executed by stored program computers. Topics include Boolean logic, design of combinational and sequential logic circuits, number systems and computer arithmetic, HW design and organization of a CPU, machine and assembly language programming

**CSE 3763 Ethical and Legal Issues in Computing: 3 hours.**

(Prerequisite: Junior Standing). Three hours lecture. Exploration of how and why information security laws and policies are developed and managed. Students learn about existing state and federal laws and explore social and ethical issues related to information technology and computing in society

**CSE 3813 Introduction to Formal Languages and Automata: 3 hours.**

(Prerequisites: Grade of C or better in CSE 2383 and CSE 2813). Three hour lecture. Theoretical foundations of computer science; formal languages and automata, parsing of context-free languages; Turing machines; introduction to computability and complexity

**CSE 3981 Social and Ethical Issues in Computing: 1 hour.**

(Prerequisite: Senior standing) One hour lecture. Study of major social and ethical issues in computing, impact of computers on society, and the computer professional's code of ethics

**CSE 4000 Directed Individual Study in Computer Science and Engineering: 1-6 hours.**

Hours and credits to be arranged

**CSE 4153 Data Communications and Computer Networks: 3 hours.**

(Prerequisites: Grade of C or better in CSE 3723 or ECE 3724). Three hours lecture. The concepts and practices of data communications and networking to provide the student with an understanding of the hardware

**CSE 4163 Designing Parallel Algorithms: 3 hours.**

(Prerequisites: Grade of C or better in CSE 3183). Three hours lecture. Techniques for designing algorithms to take advantage efficiently of different parallel architectures. Includes techniques for parallelizing sequential algorithms and techniques for matching algorithms to architectures

**CSE 4173 Cryptography: 3 hours.**

(Prerequisite: CSE 2383 Data Structures and Algorithms). Three hours lecture. Discrete probability, Information theory, Symmetric Cryptography, Introductory Number Theory, Asymmetric Cryptography, Standard Cryptographic Primitives, Cryptographic Protocols

**CSE 4214 Introduction to Software Engineering: 4 hours.**

(Prerequisite: CSE 2383 with a grade of C or better). Three hours lecture. Two hours laboratory. Introduction to software engineering; planning, requirements, analysis and specification, design; testing; debugging; maintenance; documentation. Alternative design methods, software metrics, software project management, reuse, and reengineering

**CSE 4223 Managing Software Projects: 3 hours.**

(Prerequisite: CSE 4214/6214 with grade of C or better). Three hours lecture. Concepts in software project management functions such as planning, organizing, staffing, directing and control, estimating, scheduling, monitoring, risk management, and use of tools

**CSE 4233 Software Architecture and Design Paradigms: 3 hours.**

(Prerequisite: Grade of C or better in CSE 4214/6214). Three hours lecture. Topics include software architectures, methodologies, model representations, component-based design, patterns, frameworks, CASE-based designs, and case studies

**CSE 4243 Information and Computer Security: 3 hours.**

(Prerequisite: Credit in CSE 3183). Three hours lecture. Topics include encryption systems, network security, electronic commerce, systems threats, and risk avoidance procedures

**CSE 4253 Secure Software Engineering: 3 hours.**

(Prerequisite: CSE 2213 and CSE 2383 both with a grade of C or better). Three hours lecture Principles, techniques, and practices involved in building security into software systems including security requirements analysis, secure design, secure coding and security testing, verification and risk

**CSE 4263 Web Application Security: 3 hours.**

(Prerequisites: CSE 2213 and CSE 3183 with a grade of C or better). Three hours lecture. Introduction to web application security and penetration testing, including the basics of software security, common vulnerabilities and attacks, and hands-on practice in both exploitation techniques and strategies for protecting and hardening applications

**CSE 4273 Introduction to Computer Forensics: 3 hours.**

(Prerequisite: Senior standing in CSE/SE/CPE/MIS/CJ) Three hours lecture. Introduction to computer crime and the study of evidence for solving computer-based crimes. Topics: computer crime, computer forensics and methods for handling evidence

**CSE 4283 Software Testing and Quality Assurance: 3 hours.**

(Prerequisite: Grade of C or better in CSE 4214/6214). Three hour lecture. Topics include methods of testing, verification and validation, quality assurance processes and techniques, methods and types of testing, and ISO 9000/SEI CMM process evaluation

**CSE 4293 AI for Cybersecurity: 3 hours.**

Three hours lecture. Prerequisite: CSE 4633 with a grade of C or better. The use of artificial intelligence and machine learning to solve cybersecurity problems, including advanced topics in applying these techniques to real-world datasets to learn about Cyber Threat Intelligence (CTI), malware analysis, and classification

**CSE 4353 Applications of Literate Programming in Software Development: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724 or CSE 3724 and junior or graduate standing or consent of instructor). Two hours lecture and two hours laboratory. Techniques for software development and embedded systems, with an emphasis on interleaved documentation for code longevity. (Same as ECE 4793/6793)

**CSE 4363 Software Reverse Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CSE 3183). Three hours of lectures per week. Software specification recovery and malicious software analysis. Tools and techniques for analyzing compiled programs and communications without documentation

**CSE 4383 Network Security: 3 hours.**

(Prerequisites: CSE 4173/6173 Cryptography; and credit or registration in CSE 4153/6153). Three hours lecture. Basic and advanced concepts in cryptography and network security: symmetric and asymmetric cryptography, key management, wired and wireless network security protocols, network systems security

**CSE 4413 Principles of Computer Graphics: 3 hours.**

(Prerequisites: MA 3113 and grade of C or better in CSE 2383). Three hours lecture. Graphics hardware; algorithms, graphics primitives, windowing and clipping, transformations, 3D graphics, shading, hidden surfaces; standards

**CSE 4423 Data Visualization: 3 hours.**

Three hours lecture. Course providing theoretical foundation for data visualization. Deals with external representation and interactive manipulation of information, data, or artifacts using digital tools to enhance communication, analytical reasoning, and decision-making. (Same as DSCI 4013)

**CSE 4433 Virtual and Extended Reality Development: 3 hours.**

Three hours lecture. Course covers applications, methods, research, and technologies used in development of interactive/virtual and extended reality environments. Students develop immersive environments and interactive experiences using industry standard technologies. Topics include virtual reality, mixed/augmented reality, human factors, motion capture, 3D content authoring, scientific applications, and current trends

**CSE 4453 Game Design: 3 hours.**

(Prerequisites: All majors: junior standing, Design-oriented majors: courses in digital art and/or sound design, CSE/SE/CPE majors: CSE 2213 and CSE 2383 with a grade of C or better). Three hours lecture. Principles of computer game design: Game mechanics, structure, narrative, character/environment/level design

**CSE 4503 Database Management Systems: 3 hours.**

(Prerequisites: CSE 2383 and CSE 2813, both with a grade of C or better). Three hours lecture. Modern database models; basic database management concepts; query languages; database design through normalization; advanced database models; extensive development experience in a team environment

**CSE 4613 Bio-computing: 3 hours.**

Three hours lecture. Essential programming skills for computational biology. Problem-solving and use of specialized bio-computing libraries. (Credit will not be given to students matriculating in Computer Science, Computer Engineering, or Software Engineering degree programs)

**CSE 4623 Computational Biology: 3 hours.**

(Prerequisite: BCH 4113/6113 or equivalent and CSE 1384 or CSE 4613/6613). Three hours lecture. Computational analysis of gene sequences and protein structures on a large scale. Algorithms for sequence alignment, structural and functional genomics, comparative genomics, and current topics

**CSE 4633 Artificial Intelligence: 3 hours.**

(Prerequisite: Grade of C or better in CSE 2383 and CSE 2813) Three hours lecture. Study of the computer in context with human thought processes. Heuristic programming; search programming; search strategies; knowledge representation; natural language understanding; perception; learning

**CSE 4643 AI Robotics: 3 hours.**

(Prerequisites: Grade of C or better in CSE 2383 or CSE 1233 or with consent of instructor). Three hours lecture. Introduction to artificial intelligence methods for mobile robots. Focus on the theory and practice of robot sensing, localization, navigation, and intelligent task execution

**CSE 4653 Cognitive Science: 3 hours.**

(Prerequisite: PSY 3713 or CSE 4633 or PHI 4143/6143 or AN 4623/6623). Three hours lecture. The nature of human cognition from an interdisciplinary perspective, primarily utilizing a computational model, including insights from philosophy, psychology, linguistics, artificial intelligence, anthropology, and neuroscience. (Same as PSY 4653/6653)

**CSE 4663 Human-Computer Interaction: 3 hours.**

(Prerequisite: Junior class standing or consent of instructor). Three hours lecture. Conceptual models formed by users, aspects of computer systems which affect users, interface design and evaluation, and examples and critiques of specific interfaces

**CSE 4683 Machine Learning and Soft Computing: 3 hours.**

(Prerequisite: IE 4613 Engineering Statistics I or MA 4543 Intro Math Stat I or MA 4523 Intro to Probability or equivalent). An introduction to the field of machine learning and soft computing. Covers rule based expert systems, fuzzy expert systems, artificial neural networks, evolutionary computation, and hybrid systems

**CSE 4693 Introduction to Machine Learning: 3 hours.**

(Prerequisites: CSE 1284 with a C or better, and IE 4613 Eng Statistics I, MA 4543 Intro to Math Stat I, or MA 4523 Intro to Probability). Provides an overview of the most important machine learning and data mining methods, and how to apply to large data sets

**CSE 4714 Theory & Implementation of Programming Languages: 4 hours.**

(Prerequisites: CSE 2383 and CSE 3723 with a grade of C or better). Three hours lecture. Two hours laboratory. An introduction to programming language specification and analysis. Additional topics include control structures, data types, and structures, run-time environments, binding strategies, compilers, and interpreters

**CSE 4723 Compiler Construction: 3 hours.**

(Prerequisite: Credit or registration in CSE 4713/6713). Formal treatment of context-free programming language translation and compiler design concepts, including: lexical, syntactic and semantic analysis, machine-dependent code generation and improvement, and error processing

**CSE 4733 Operating Systems I: 3 hours.**

(Prerequisites: C or better in CSE 3723 and CSE 3183, or C or better in CSE 2383 and ECE 3724). Three hours lecture. Historical development of operating systems to control complex computing systems; process management, communication, scheduling techniques; file systems concepts and operation; data communication, distributed process management

**CSE 4743 Operating Systems II: 3 hours.**

(Prerequisites: CSE 4733/6733 with grade of C or better). Three hours lecture. Integrated treatment of hardware and software concepts in operating systems design; procedure implementation; creation and control of processes; name and space management

**CSE 4763 Ethical and Legal Issues in Computing: 3 hours.**

Three hours lecture. This course will provide students with an advanced understanding of how and why information security laws and policies are developed and managed. Students will learn about existing state and federal laws and explore social and ethical issues related to information technology and computing

**CSE 4773 Introduction to Cyber Operations: 3 hours.**

Three hours lecture. This course is designed to develop the students' knowledge of basic cyberspace operations concepts and methodologies. Graduates should be able to assist in the analysis, synthesis, and evaluation of management, engineering, and operational approaches to solve complex problems within cyberspace, defensive and offensive

**CSE 4783 Cloud Computing and Security: 3 hours.**

(Prerequisite: CSE 2383 with a grade C or better). Three hours lecture. Topics include cloud architecture, service models, deployment modes, cloud security, and attack mitigation techniques

**CSE 4800 Undergraduate Research: 13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**CSE 4833 Introduction to Analysis of Algorithms: 3 hours.**

(Prerequisites: CSE 2383 and CSE 2813 with a grade of C or better). Three hours lecture. Study of complexity of algorithms and algorithm design. Tools for analyzing efficiency; design of algorithms, including recurrence, divide-and-conquer, dynamic programming and greedy algorithms

**CSE 4990 Special Topics in Computer Science and Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CSE 6153 Data Communications and Computer Networks: 3 hours.**

(Prerequisites: Grade of C or better in CSE 3723 or ECE 3724). Three hours lecture. The concepts and practices of data communications and networking to provide the student with an understanding of the hardware

**CSE 6163 Designing Parallel Algorithms: 3 hours.**

(Prerequisites: Grade of C or better in CSE 3183). Three hours lecture. Techniques for designing algorithms to take advantage efficiently of different parallel architectures. Includes techniques for parallelizing sequential algorithms and techniques for matching algorithms to architectures

**CSE 6173 Cryptography: 3 hours.**

(Prerequisite: CSE 2383 Data Structures and Algorithms). Three hours lecture. Discrete probability, Information theory, Symmetric Cryptography, Introductory Number Theory, Asymmetric Cryptography, Standard Cryptographic Primitives, Cryptographic Protocols

**CSE 6214 Introduction to Software Engineering: 4 hours.**

(Prerequisite: CSE 2383 with a grade of C or better). Three hours lecture. Two hours laboratory. Introduction to software engineering; planning, requirements, analysis and specification, design; testing; debugging; maintenance; documentation. Alternative design methods, software metrics, software project management, reuse, and reengineering

**CSE 6223 Managing Software Projects: 3 hours.**

(Prerequisite: CSE 4214/6214 with grade of C or better). Three hours lecture. Concepts in software project management functions such as planning, organizing, staffing, directing and control, estimating, scheduling, monitoring, risk management, and use of tools

**CSE 6233 Software Architecture and Design Paradigms: 3 hours.**

(Prerequisite: Grade of C or better in CSE 4214/6214). Three hours lecture. Topics include software architectures, methodologies, model representations, component-based design, patterns, frameworks, CASE-based designs, and case studies

**CSE 6243 Information and Computer Security: 3 hours.**

(Prerequisite: Credit in CSE 3183). Three hours lecture. Topics include encryption systems, network security, electronic commerce, systems threats, and risk avoidance procedures

**CSE 6253 Secure Software Engineering: 3 hours.**

(Prerequisite: CSE 2213 and CSE 2383 both with a grade of C or better). Three hours lecture Principles, techniques, and practices involved in building security into software systems including security requirements analysis, secure design, secure coding and security testing, verification and risk

**CSE 6263 Web Application Security: 3 hours.**

(Prerequisites: CSE 2213 and CSE 3183 with a grade of C or better). Three hours lecture. Introduction to web application security and penetration testing, including the basics of software security, common vulnerabilities and attacks, and hands-on practice in both exploitation techniques and strategies for protecting and hardening applications

**CSE 6273 Introduction to Computer Forensics: 3 hours.**

(Prerequisite: Senior standing in CSE/SE/CPE/MIS/CJ) Three hours lecture. Introduction to computer crime and the study of evidence for solving computer-based crimes. Topics: computer crime, computer forensics and methods for handling evidence

**CSE 6283 Software Testing and Quality Assurance: 3 hours.**

(Prerequisite: Grade of C or better in CSE 4214/6214). Three hour lecture. Topics include methods of testing, verification and validation, quality assurance processes and techniques, methods and types of testing, and ISO 9000/SEI CMM process evaluation

**CSE 6293 AI for Cybersecurity: 3 hours.**

Three hours lecture. Prerequisite: CSE 4633 with a grade of C or better. The use of artificial intelligence and machine learning to solve cybersecurity problems, including advanced topics in applying these techniques to real-world datasets to learn about Cyber Threat Intelligence (CTI), malware analysis, and classification

**CSE 6353 Applications of Literate Programming in Software Development: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724 or CSE 3724 and junior or graduate standing or consent of instructor). Two hours lecture and two hours laboratory. Techniques for software development and embedded systems, with an emphasis on interleaved documentation for code longevity. (Same as ECE 4793/6793)



**CSE 6363 Software Reverse Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CSE 3183). Three hours of lectures per week. Software specification recovery and malicious software analysis. Tools and techniques for analyzing compiled programs and communications without documentation

**CSE 6383 Network Security: 3 hours.**

(Prerequisites: CSE 4173/6173 Cryptography; and credit or registration in CSE 4153/6153). Three hours lecture. Basic and advanced concepts in cryptography and network security: symmetric and asymmetric cryptography, key management, wired and wireless network security protocols, network systems security

**CSE 6413 Principles of Computer Graphics: 3 hours.**

(Prerequisites: MA 3113 and grade of C or better in CSE 2383). Three hours lecture. Graphics hardware; algorithms, graphics primitives, windowing and clipping, transformations, 3D graphics, shading, hidden surfaces; standards

**CSE 6433 Virtual and Extended Reality Development: 3 hours.**

Three hours lecture. Course covers applications, methods, research, and technologies used in development of interactive/virtual and extended reality environments. Students develop immersive environments and interactive experiences using industry standard technologies. Topics include virtual reality, mixed/augmented reality, human factors, motion capture, 3D content authoring, scientific applications, and current trends

**CSE 6453 Game Design: 3 hours.**

(Prerequisites: All majors: junior standing, Design-oriented majors: courses in digital art and/or sound design, CSE/SE/CPE majors: CSE 2213 and CSE 2383 with a grade of C or better). Three hours lecture. Principles of computer game design: Game mechanics, structure, narrative, character/environment/level design

**CSE 6503 Database Management Systems: 3 hours.**

(Prerequisites: CSE 2383 and CSE 2813, both with a grade of C or better). Three hours lecture. Modern database models; basic database management concepts; query languages; database design through normalization; advanced database models; extensive development experience in a team environment

**CSE 6613 Bio-computing: 3 hours.**

Three hours lecture. Essential programming skills for computational biology. Problem-solving and use of specialized bio-computing libraries. (Credit will not be given to students matriculating in Computer Science, Computer Engineering, or Software Engineering degree programs)

**CSE 6623 Computational Biology: 3 hours.**

(Prerequisite: BCH 4113/6113 or equivalent and CSE 1384 or CSE 4613/6613). Three hours lecture. Computational analysis of gene sequences and protein structures on a large scale. Algorithms for sequence alignment, structural and functional genomics, comparative genomics, and current topics

**CSE 6633 Artificial Intelligence: 3 hours.**

(Prerequisite: Grade of C or better in CSE 2383 and CSE 2813) Three hours lecture. Study of the computer in context with human thought processes. Heuristic programming; search programming; search strategies; knowledge representation; natural language understanding; perception; learning

**CSE 6643 AI Robotics: 3 hours.**

(Prerequisites: Grade of C or better in CSE 2383 or CSE 1233 or with consent of instructor). Three hours lecture. Introduction to artificial intelligence methods for mobile robots. Focus on the theory and practice of robot sensing, localization, navigation, and intelligent task execution

**CSE 6653 Cognitive Science: 3 hours.**

(Prerequisite: PSY 3713 or CSE 4633 or PHI 4143/6143 or AN 4623/6623). Three hours lecture. The nature of human cognition from an interdisciplinary perspective, primarily utilizing a computational model, including insights from philosophy, psychology, linguistics, artificial intelligence, anthropology, and neuroscience. (Same as PSY 4653/6653)

**CSE 6663 Human-Computer Interaction: 3 hours.**

(Prerequisite: Junior class standing or consent of instructor). Three hours lecture. Conceptual models formed by users, aspects of computer systems which affect users, interface design and evaluation, and examples and critiques of specific interfaces

**CSE 6683 Machine Learning and Soft Computing: 3 hours.**

(Prerequisite: IE 4613 Engineering Statistics I or MA 4543 Intro Math Stat I or MA 4523 Intro to Probability or equivalent). An introduction to the field of machine learning and soft computing. Covers rule based expert systems, fuzzy expert systems, artificial neural networks, evolutionary computation, and hybrid systems

**CSE 6693 Introduction to Machine Learning: 3 hours.**

(Prerequisites: CSE 1284 with a C or better, and IE 4613 Eng Statistics I, MA 4543 Intro to Math Stat I, or MA 4523 Intro to Probability). Provides an overview of the most important machine learning and data mining methods, and how to apply to large data sets

**CSE 6714 Theory & Implementation of Programming Languages: 4 hours.**

(Prerequisites: CSE 2383 and CSE 3723 with a grade of C or better). Three hours lecture. Two hours laboratory. An introduction to programming language specification and analysis. Additional topics include control structures, data types, and structures, run-time environments, binding strategies, compilers, and interpreters

**CSE 6723 Compiler Construction: 3 hours.**

(Prerequisite: Credit or registration in CSE 4713/6713). Formal treatment of context-free programming language translation and compiler design concepts, including: lexical, syntactic and semantic analysis, machine-dependent code generation and improvement, and error processing

**CSE 6733 Operating Systems I: 3 hours.**

(Prerequisites: C or better in CSE 3723 and CSE 3183, or C or better in CSE 2383 and ECE 3724). Three hours lecture. Historical development of operating systems to control complex computing systems; process management, communication, scheduling techniques; file systems concepts and operation; data communication, distributed process management

**CSE 6743 Operating Systems II: 3 hours.**

(Prerequisites: CSE 4733/6733 with grade of C or better). Three hours lecture. Integrated treatment of hardware and software concepts in operating systems design; procedure implementation; creation and control of processes; name and space management

**CSE 6753 Foundations in Computation: 3 hours.**

(Prerequisite: CSE 1213 or CSE 1233 or CSE 1273 or CSE 1284 with a grade of C or better, or permission of instructor). Three hours lecture. Foundational concepts of computational algorithm design and analysis. (No credit for student in Computer Science, Computer Engineering, or Software Engineering degree programs)

**CSE 6763 Ethical and Legal Issues in Computing: 3 hours.**

Three hours lecture. This course will provide students with an advanced understanding of how and why information security laws and policies are developed and managed. Students will learn about existing state and federal laws and explore social and ethical issues related to information technology and computing

**CSE 6773 Introduction to Cyber Operations: 3 hours.**

Three hours lecture. This course is designed to develop the students' knowledge of basic cyberspace operations concepts and methodologies. Graduates should be able to assist in the analysis, synthesis, and evaluation of management, engineering, and operational approaches to solve complex problems within cyberspace, defensive and offensive

**CSE 6783 Cloud Computing and Security: 3 hours.**

(Prerequisite: CSE 2383 with a grade C or better). Three hours lecture. Topics include cloud architecture, service models, deployment modes, cloud security, and attack mitigation techniques

**CSE 6833 Introduction to Analysis of Algorithms: 3 hours.**

(Prerequisites: CSE 2383 and CSE 2813 with a grade of C or better). Three hours lecture. Study of complexity of algorithms and algorithm design. Tools for analyzing efficiency; design of algorithms, including recurrence, divide-and-conquer, dynamic programming and greedy algorithms

**CSE 6990 Special Topics in Computer Science and Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CSE 7000 Directed Individual Study in Computer Science and Engineering: 1-6 hours.**

Hours and credits to be arranged

**CSE 8011 Graduate Seminar: 1 hour.**

One hour seminar. Reports on recent advances and problems in computer science by guest speakers, faculty, and students; student participation, general discussion

**CSE 8080 Directed Project in Computer Science: 1-3 hours.**

Hours and credits to be arranged. An individual professional project open only to candidates for the Master of Science degree (project option). Formal written and oral project reports are required

**CSE 8153 Advanced Data Communications: 3 hours.**

(Prerequisite: CSE 4153/6153 or equivalent). Three hours lecture. A study of advanced concepts and practices of data communications with particular emphasis on Local Area Networks and Transmission Control Protocol/Internet Protocol (TCP/IP)

**CSE 8163 Parallel and Distributed Scientific Computing: 3 hours.**

(Prerequisite: CSE 4163/6163). Three hours lecture. Algorithms for distributed scientific computing; performance evaluation; scheduling and load balancing issues for scientific applications; architectural issues affecting performance

**CSE 8233 Software Engineering Project Management: 3 hours.**

(Prerequisites: CSE 4214/6214). Three hours lecture. Management of the engineering of software products including estimating, planning, process management, and special topics

**CSE 8243 Software Specification: 3 hours.**

(Prerequisites: CSE 4214/6214). Three hours lecture. Writing software specifications, transforming specifications into code, and verifying transformations using formal methods

**CSE 8253 Software Design: 3 hours.**

(Prerequisite: CSE 4214/6214). Three hours lecture. Software design principles, attributes, models, and methodologies; object-oriented designs; real-time system design; user interface design; design verification; reusability issues; tools; current issues

**CSE 8273 Software Requirements Engineering: 3 hours.**

(Prerequisites: CSE 4214/6214 with grade of C or better). Three hours lecture. An in-depth study of current research and practice in requirements elicitation, requirements analysis, requirements specification, requirements verification and validation, and requirements management

**CSE 8283 Empirical Software Engineering: 3 hours.**

(Prerequisite: CSE 4214/6214). Three hours lecture. Basics of empirical software engineering, metrics, and modeling of the software development process, validation and comparing software engineering methods, and methods for data analysis

**CSE 8413 Visualization: 3 hours.**

(Prerequisites: CSE 4413/6413). Three hours lecture. Essential algorithms for three-dimensional rendering and modeling techniques; viewing transformations, illumination, surface modeling; methodologies for visualization of scalar and vector fields in three dimensions

**CSE 8423 Data Science Concepts and Practice: 3 hours.**

Three hours lecture. This course introduces the fundamental concepts of data science, covering data representation and transformation, visual data analysis, statistical modeling, tidy and relational data, functional data-flow programming, and communicating results. The course introduces the practice of data science, using standard data science tools and languages

**CSE 8433 Advanced Computer Graphics: 3 hours.**

(Prerequisites: CSE 4413/6413). Three hours lecture. Realistic, three-dimensional image generation; modeling techniques for complex three-dimensional scenes; advanced illumination techniques; fractal surface modeling; modeling and rendering of natural phenomena

**CSE 8613 Cognitive Models of Skill: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. Introduction to cognitive modeling, with a focus on computational models of skill acquisition and expert skill. (Same as PSY 8723)

**CSE 8673 Machine Learning: 3 hours.**

(Prerequisite: CSE 4633/6633). Three hours lecture. Introduction to machine learning, including computational learning theory, major approaches to machine learning, evaluation of models, and current research

**CSE 8713 Advanced Cyber Operations: 3 hours.**

Three hours lecture. This course is designed to develop the students' knowledge of cyberspace operations concepts and methodologies. Graduates should be able to analyze, synthesize, and evaluate management, engineering, and operational approaches to solve complex problems within cyberspace, defensive and offensive

**CSE 8723 Cyber Law and Policy: 3 hours.**

Three Hours Lecture. This course will provide students with an advanced understanding of how and why information security laws and policies are developed and managed. Students will be exposed to existing laws at the state and federal level, as well as security policies of successful organizations

**CSE 8743 Advanced Network Security: 3 hours.**

Three Hours Lecture: This course explores advanced topics in Network Security, to include: Internet of Things, Wireless Networks, Low Complexity Cryptographic Models, Network System Models, Tamper Resistant Network Components

**CSE 8753 Wireless Networks: 3 hours.**

Three hours lecture. Wireless network protocol design, theoretical analysis, and security and privacy. (Same as ECE 8823)

**CSE 8813 Theory of Computation: 3 hours.**

(Prerequisite: CSE 3813). Three hours lecture. Study of abstract models of computation, unsolvability, complexity theory, formal grammars and parsing, and other advanced topics in theoretical computer science

**CSE 8833 Algorithms: 3 hours.**

(Prerequisites: CSE 4833/6833). Three hours lecture. Advanced techniques for designing and analyzing algorithms, advanced data structures, case studies, NP-completeness including reductions, approximation algorithms

**CSE 8843 Complexity of Sequential and Parallel Algorithms: 3 hours.**

(Prerequisite: CSE 4833/6833). Three hours lecture. Complexity of sequential algorithms, theory of complexity, parallel algorithms

**CSE 8990 Special Topics in Computer Science and Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CSE 9000 Research in Computer Science and Engineering: 1-13 hours.**

Hours and credits to be arranged

**CSE 9133 Topics in High Performance Computing: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Reading and study of current work related to the area of high performance computing. Intended for doctoral students. (May be taken for credit more than once)

**CSE 9633 Topics in Artificial Intelligence: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Reading and study of current work related to the area of artificial intelligence. Intended for doctoral students. (May be taken for credit more than once)

**Veterinary Medicine Courses****CVM 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**CVM 2443 Essentials of Biotechnology: 3 hours.**

Three hours lecture. An introduction to principles and applications of biotechnology. (Same as FO 2443)

**CVM 2990 Special Topics in Veterinary Medicine: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CVM 3013 Small Animal Diseases and Management: 3 hours.**

(Prerequisites: admission to the junior year of the veterinary medical technology program). Three hours lecture. Pathophysiology, transmission, diagnostic process, clinical management and prevention of canine and feline diseases as well as emergency and critical care

**CVM 3014 Applied Anatomy and Physiology for Veterinary Technologists: 4 hours.**

Three hours lecture. Three hours laboratory. Study of anatomical and physiological systems of animals commonly encountered by veterinary technologists with emphasis of species differences and clinical applications. (Offered to students enrolled in the Veterinary Technology Program ONLY)

**CVM 3022 Small Animal Technical Skills & Nursing Care: 2 hours.**

(Prerequisite: Admissions to the junior year of the Veterinary Medical Technology Program). One hour lecture. Two hours laboratory. Principles of small animal medical management topics and techniques, behavior, and an overview of critical care techniques for small animals

**CVM 3031 Food Animal Technical Skills & Nursing Care: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology program). Two hours laboratory. Fundamentals of handling of the food animal species. Breed identification, specimen collection, physical exam, medication administration and other nursing care procedures relevant to the species

**CVM 3032 Food Animal Diseases and Management: 2 hours.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology program). Two hours lecture. Diseases, husbandry, preventative health care, epidemiology, public health and client education for the food animal species

**CVM 3041 Equine Technical Skills & Nursing Care: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture/laboratory. Fundamentals of handling of the equine species. Breed identification, specimen collection, physical exam, medication administration and other nursing care procedures relevant to the species

**CVM 3042 Equine Diseases and Management: 2 hours.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology program). Two hours lecture. Diseases, husbandry, preventative health care and client education for the equine species

**CVM 3051 Laboratory Animal Health Management: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). One hour lecture. Diseases, husbandry and preventative health care for the Laboratory animal species

**CVM 3061 Laboratory Animal Technical Skills: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours laboratory. Fundamentals of the handling of the laboratory animal species. Species and breed identification, specimen collection, physical exam, medication administration and other nursing care procedures

**CVM 3101 Veterinary Technology Medical Terminology: 1 hour.**

One hour lecture. Veterinary medical terminology, focusing on fundamental recognition, interpretation and usage of medical terms

**CVM 3111 Parasitology for Veterinary Technologists: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hour lecture/laboratory. Parasites of veterinary and public health importance, including gross and microscopic morphology, transmission, and control

**CVM 3112 Animal Handling, Husbandry, and Nutrition: 2 hours.**

(Prerequisites: admission to the veterinary medical technology program). One hour lecture. Two hours laboratory. General handling and restraint, basic husbandry techniques, and the nutritional needs for companion animals and production animals

**CVM 3121 Hematology for Veterinary Technologists: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program) One hour lecture. Structure and function of normal blood cells, cellular and humoral immunity, mechanisms of hemostasis, blood group serology, transfusion medicine and vaccinology

**CVM 3132 Clinical Pathology Laboratory Techniques: 2 hours.**

(Prerequisites: admission to the junior year of the veterinary medical technology program). One hour lecture. Two hours laboratory. Procedures in hematology, serology, and ELISA methodology, cytology, urology, chemistries, and microbiology (culture and sensitivity)

**CVM 3141 Anatomical Pathology Laboratory Techniques: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary Medical Technology Program). Two hours lecture/laboratory. Veterinary anatomical pathology laboratory including necropsy, sample collection and submission, and disposal of animal tissues

**CVM 3201 Dental Principles for Veterinary Technologists: 1 hour.**

(Prerequisite: Admission to the junior year of the Veterinary medical Technology program). One hour laboratory. Students are expected to become proficient in dental techniques of all small animal species, instrumentation, and dental radiology positioning in additions to common dental disorders

**CVM 3202 Diagnostic Imaging for Veterinary Technologists: 2 hours.**

(Prerequisite: Admission to the junior year of the Vet Tech program) One hour lecture. Two hours laboratory. Diagnostic imaging (x-ray, CT, MRI, ultrasound), production of images, use of screens and grids, handling film, imaging quality, film processing, patient positioning, and radiation safety

**CVM 3212 Anesthesiology for Veterinary Technologists: 2 hours.**

(Prerequisite: Admission to the junior year of the Vet Tech Program). Two hours lecture. Pharmacologic action of pre-anesthetic and anesthetic drugs. Principles and techniques of induction, maintenance, monitoring, and recovery of the patient. Humane methods of euthanasia

**CVM 3221 Surgical Nursing & Anesthetic Management Laboratory: 1 hour.**

(Prerequisite: Admission to the junior year of Vet Med Tech Program). Two hours laboratory. Principles and techniques in veterinary surgical nursing and anesthesia

**CVM 3222 Surgical Skills & Nursing Care for Veterinary Technologists: 2 hours.**

(Prerequisite: Admission to the junior year Vet Med Tech Prog) Two hours lecture. Role of the veterinary technician as a member of the veterinary surgical team

**CVM 3232 Pharmacology & Toxicology for Veterinary Technologists: 2 hours.**

(Prerequisite: Admission to junior year of Vet Med Tech Prog) Two hours lecture. Characteristics, classification and usage of veterinary pharmaceuticals. Introduction to and application of dosage and formulation calculations. Overview of common toxins, clinical signs and associated treatments

**CVM 3243 Basics of Practice Procedures and Management: 3 hours.**

(Prerequisite: Admission to junior year of Vet Med Prog). Three hours lecture. Veterinary practice economics, personnel management, professional and client communications, inventory control, and marketing techniques

**CVM 4000 Directed Individual Study in Veterinary Medicine: 1-6 hours.**

Hours and credits to be arranged

**CVM 4003 Internship Experience: 3 hours.**

(Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). Three hours practicum. Students choose a facility to complete a three week internship. Choices include zoos, laboratory, research, equine, emergency, and small animal. Facility is approved by director

**CVM 4101 Veterinary Technology Academic Elective: 1 hour.**

(Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One hour practicum. The student will work one on one with a faculty member in areas of academic standard, course design, laboratory/lecture preparation, and other aspects of undergraduate programs

**CVM 4102 Professional Development for Veterinary Technologists: 2 hours.**

(Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). Two hours lecture. Professional, ethical, and legal considerations of clinical practice. Professional development, career opportunities, and advancements in veterinary technology. Interdisciplinary, teams and human-animal bond in community and practice

**CVM 4103 Large Animal Clinical Experience: 3 hours.**

(Prerequisites: admission to the senior year of the veterinary medical technology program). Three hour practicum. Supervised rotation through the MSU-CVM Large Animal Clinics (Equine and Food Animal) and Large Animal Ambulatory Rotation

**CVM 4113 Large Animal Clinical Elective: 3 hours.**

(Prerequisite: Admission into the senior year of the Veterinary Medical Technology Program). Lecture/Practicum. Lecture component on an advanced large animal topic. Practicum component consists of rotating through one of the large animal services

**CVM 4134 Aquatic Animal Health Management: 4 hours.**

Three hours lecture. Three hours laboratory. (Prerequisite: One course in microbiology and one course in physiology). Fundamentals concepts of preventing, diagnosing and treating economically important diseases in wild and cultured stocks and invertebrates through didactic and laboratory instruction

**CVM 4180 Emergency Prep for Animal Health: 1-5 hours.**

Introduction to emergency preparedness concerning health/well-being of animals. Incident Command System (ICS) leading to subjects pertinent to animal health during natural/man-made disasters

**CVM 4193 Medical Pharmacology: 3 hours.**

(Prerequisites for undergraduates: BIO 3014 or BIO 4514 and BCH 4013 or 4603; Prerequisites for graduates: graduate standing and instructor's consent). Three hours lecture. This course is an introduction to basic and clinical pharmacology with an emphasis on major drug groups, their mechanisms of action, and therapeutic use

**CVM 4201 Clinical Experience Elective: 1 hour.**

(Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One hour practicum. This course allows senior students in an elected clinical experience, either within MSU-CVM or at an outside approved facility; animal clinic/hospital, laboratory, research

**CVM 4206 Small Animal Clinical Experience: 6 hours.**

(Prerequisites: admission to the junior year of the veterinary medical technology program). Six hour practicum. Students will rotate through 3 weeks in Community Veterinary Services, 1 week in laboratory animal, 1 week in shelter medicine, and 1 week in radiology

**CVM 4214 Small Animal Surgery & Anesthesia Clinical Experience: 4 hours.**

(Prerequisite: Admission into the Senior year of the Veterinary Medical Technology Program). Four hours practicum. Students will manage anesthetic cases at MSU-CVM. The practicum includes all technical aspects of patient care including but not limited to OR preparations, induction and monitoring anesthesia, pre/post-operative care

**CVM 4223 Small Animal Clinical Elective: 3 hours.**

(Prerequisite: Admission to the senior year of the Veterinary Medical Technology Program). Lecture/Practicum. Lecture component on an advanced small animal topic. Practicum component consists of rotating through one of the small animal services

**CVM 4333 Emergency/ICU Clinical Experience: 3 hours.**

(Prerequisite: Admission to Senior year of Vet Med Tech Prog) Three hours practicum. Supervised rotation through the Small Animal Emergency/Critical Care Unit. Students participate in all technical aspects of the patient's care

**CVM 4501 Diagnostic Laboratory Experience: 1 hour.**

(Prerequisites: Admission to the senior year of the veterinary medical technology program). One hour practicum. Supervised rotation through the State Diagnostic Laboratory in Pearl, MS

**CVM 4511 Biomedical Research Experience Elective: 1 hour.**

(Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One week rotation at the Laboratory Animal Facilities, University of Mississippi Medical Center. Principles of animal research and application animal welfare regulations

**CVM 4513 Environmental Toxicology: 3 hours.**

(Prerequisites: 8 hours biological sciences and 8 hours chemistry). Three hours lecture. The disposition and toxicological effects of environmentally-relevant toxicants (such as agrochemicals, petroleum and industrial pollutants) within organisms, and aquatic and terrestrial ecosystems

**CVM 4601 Animal Emergency & Referral Center Elective: 1 hour.**

(Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One week practicum. Supervised rotation through the Animal Emergency and referral Center in Flowood. Students participate in technical aspects of referral center and emergency and critical care nursing

**CVM 4701 Application & Process for VTNE: 1 hour.**

(Prerequisite: admission to the senior year of the Veterinary Medical Technology Program). One hour lecture. VTNE application process and how to review for the national board examination

**CVM 4903 Tropical Veterinary Medicine and One Health: 3 hours.**

This is a three weeks study abroad course in tropical veterinary medicine and One Health. The course meets face to face in Uganda and will cover a variety of topics and include lectures, laboratories, and hands on experiential learning in both indoor and outdoor field conditions

**CVM 4905 Pre-Uganda Study Abroad: 5 hours.**

Five hours lecture. This course addresses several topics over the spring semester aimed at preparing students for the CVM 5906 and CVM 4906/6906 Tropical Veterinary Medicine and One Health summer study abroad In Uganda course

**CVM 4990 Special Topics in Veterinary Medicine: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CVM 4991 Preparations for Study Abroad in Uganda: 1 hour.**

(One hour lecture). This course is designed to prepare students for CVM 4906/6906 – Tropical Veterinary Medicine and One Health study abroad in Uganda. It will cover a broad variety of topics to prepare students for international travel and experiences. to discuss the various course topics

**CVM 5000 Directed Individual Study in CVM: 1-6 hours.**

Hours and credits to be arranged

**CVM 5011 Professional Development I: 1 hour.**

(Prerequisite: Enrollment in the professional veterinary degree program). One hour lecture. This course will include a variety of topics currently relevant to the profession of veterinary medicine

**CVM 5013 Veterinary Neuroscience: 3 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Two hours lecture. One hour laboratory. Basic anatomic and physiologic concepts foundational to understanding animal behaviors and veterinary neurology

**CVM 5021 Professional Development II: 1 hour.**

(Prerequisite: Enrollment in the professional veterinary degree program). One hour lecture. This course will include a variety of topics currently relevant to the veterinary profession

**CVM 5022 Veterinary Epidemiology: 2 hours.**

Prerequisite: Enrollment in professional veterinary degree program. Two hours lecture. Presentation of basic concepts and principles of epidemiology and the relationship to animal and human health

**CVM 5023 Infectious Agents I: 3 hours.**

(Prerequisites: Enrollment in the professional veterinary degree program). Three hours lecture. Principles regarding the classification, pathophysiological mechanisms, control, diagnosis, and zoonotic potential of bacteria of importance in veterinary medicine

**CVM 5032 Immunology: 2 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Presentation of the principles regarding immune responses in health and disease

**CVM 5033 Immunology: 3 hours.**

(Prerequisites: Enrollment in the professional veterinary degree program). Three hours lecture. Presentation of the principles regarding immune responses in health and disease . Introduction to Veterinary Immunology

**CVM 5036 Veterinary Physiology: 6 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Six hours lecture. Presentation of fundamental concepts, principles, and issues in veterinary physiology specifically related to cellular physiology, muscle and nerve function, cardiovascular, respiratory, urinary, digestive, endocrine and reproductive physiology

**CVM 5044 Veterinary Pathology: 4 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program.) Four hours lecture. Introduction to the host response to endogenous and exogenous injury. Emphasis will be on general and systematic anatomic pathology

**CVM 5046 Veterinary Anatomy I: 6 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Eight hours lecture-lab combination. Study of gross anatomy through dissection with intergration of embryological and radiographic anatomy. Hindlimb/forelimb, vertebral column, head, and the neck. Canine and equine models primarily

**CVM 5072 Veterinary Anatomy II: 2 hours.**

(Prerequisite: CVM 5046 and enrollment in professional veterinary degree program). Three hours lecture and laboratory. Study of anatomy through dissection with integration of embryological/radiographic anatomy. Alimentary system/abdomen, urogenital system, pelvic cavity, and mammary gland. Canine, equine, and bovine models primarily

**CVM 5073 Veterinary Histology: 3 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. Basic microscopic anatomy cells, tissues, organs, and organ systems

**CVM 5106 First Year CVM Medicine: 6 hours.**

Six hours non-gradable course. This course is used in summer terms (only) to establish First Year CVM students fall enrollment eligibility

**CVM 5111 Professional Development III: 1 hour.**

(Prerequisite: Enrollment in the professional veterinary degree program). One hour lecture. Application of evidence based medicine and quantitative skills in veterinary medicine

**CVM 5121 Professional Development IV: 1 hour.**

(Prerequisite: Enrollment in the professional veterinary degree program). One hour lecture. Application of evidence based medicine and quantitative skills in veterinary medicine

**CVM 5123 Veterinary Clinical Pathology: 3 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program.) Three hours lecture. This course covers the basic concepts of hematology, clinical chemistry, and cytology. The interpretation of laboratory methods in evaluation will also be covered

**CVM 5130 VNI Clinical Rotation: 2-6 hours.**

(Prerequisite: enrollment in the CVM professional curriculum). Two to six (2-6) credit hours practicum. Clinical rotation at Veterinary Neurology & Imaging, where students participate in the care of patients referred to specialists in the field of veterinary neurology/neurosurgery

**CVM 5132 Anes & Pharm II: 2 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Two hours lecture. Principles of anesthetic techniques in various species along with systems oriented anesthesia. Mechanisms of antimicrobial action with an emphasis on antimicrobial therapy

**CVM 5133 Veterinary Preventive Medicine: 3 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Three hours lecture. Management and prevention of animal diseases that impact animal and human health

**CVM 5143 Theriogenology: 3 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Two hours lecture. Two hours laboratory. The pathogenesis, diagnosis, pathology, medical and surgical treatment, and prevention of diseases related to the urogenital system of domestic species

**CVM 5152 Toxicology: 2 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) One hour lecture. Two hours laboratory. Diagnosis and management of animal intoxications

**CVM 5153 Equine Medicine & Surgery I: 3 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Three hours lecture/lab. Clinical reasoning, principles of diagnosis and the medical and surgical management of multi-systemic disorders involving the equine cardiovascular, endocrine, gastrointestinal, immune and urinary systems

**CVM 5162 Diagnostic Imaging: 2 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Two hours lecture. This course introduces the fundamental principles of radiographic diagnosis of abnormal body systems. Included are the physics and principles of interpretation and visual perception

**CVM 5163 Veterinary Parasitology: 3 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Two hours lecture. Two hours laboratory. Presentation of principles essential to understanding the classification, pathophysiological mechanisms, control and diagnosis of parasites of importance in veterinary medicine

**CVM 5173 Equine Medicine & Surgery II: 3 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Three hours lecture/lab. The principles of diagnosis and management of disorders involving the cardiovascular, endocrine, gastrointestinal, respiratory, nervous, immune and urinary systems

**CVM 5175 Food Animal Medicine and Surgery: 5 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Four hours lecture. Two hours laboratory. Disease and common surgical conditions of food animals including history, clinical signs, diagnostic methods, medical treatment, surgical correction, prognosis, and prevention

**CVM 5182 Veterinary Disaster Management: 2 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program. Not open to students who have completed CVM 4180/CVM 6180). Veterinary disaster management concerning animal health and well-being before, during, and after disasters. Includes general incident management training for local, state and federal levels

**CVM 5183 Special Species: 3 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Three hours lecture. This course will cover applied anatomy, physiology, husbandry and common diseases in avian, aquatic, reptiles, amphibians, rodents and other minor species

**CVM 5186 Small Anim Med & Surgery I: 6 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Five hours lecture. Two hours laboratory. This course covers diagnosis and treatment of medical and surgical conditions of the urogenital, gastrointestinal, cardiorespiratory, hematologic, and nervous systems, plus emergency medicine

**CVM 5193 Veterinary Agents of Infectious Disease II: 3 hours.**

(Prerequisite: C or better in CVM 5023). Three hours lecture. A systematic presentation of viruses and fungi and their features of importance in veterinary medicine including disease synonyms morphology, classification, and character of the disease

**CVM 5195 Small Anim Med & Surgery II: 5 hours.**

(Prerequisite: Enrollment in professional veterinary degree program.) Four hours lecture. Two hours laboratory. Course covers diagnosis and treatment of medical and surgical conditions of the musculoskeletal, digestive, and endocrine systems

**CVM 5196 Small Animal Medicine and Surgery II: 6 hours.**

(prerequisite: Enrollment in professional veterinary degree program.) Five hours lecture. Two hours laboratory. This course covers diagnosis and treatment of medical and surgical conditions of the musculoskeletal, endocrine, and integumentary systems, plus selected topics in small animal oncology

**CVM 5206 Second Year Vet. Medicine: 6 hours.**

Six hours non-gradable course. This course is used in summer terms (only) to establish Second Year CVM students fall enrollment eligibility

**CVM 5210 Advanced Clinical Rotation - Comparative Ophthalmology.: 2-6 hours.**

Advanced clinical rotation in comparative ophthalmology. Veterinary students will actively participate in care and examination of referred ophthalmology patients

**CVM 5213 Introduction to Veterinary Anesthesiology: 3 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. This course is an introduction to principles of anesthesia for the common veterinary species, and includes equipment, drugs, methods of administration, monitoring, and methods for specific disease states

**CVM 5214 Laboratory Services: 4 hours.**

Four hours practicum. Supervised rotation through the Diagnostic Laboratory of the Animal Health Center. Responsibilities include diagnostic techniques and data interpretation in clinical pathology, pathology, parasitology and bacteriology

**CVM 5221 Elective Rotation in Shelter Medicine: 1 hour.**

(One Week). One hour practicum. This elective rotation will serve as introduction to discipline of shelter medicine and to provide students with real world, hands on learning experiences including, but not limited to, the medical, behavioral, and surgical problems encountered in animals confined to shelters and rescue groups

**CVM 5222 Small Animal Clinical Nutrition: 2 hours.**

(Prerequisite: Eligible to take 4th year electives.) Two hours lecture. Applied clinical nutrition focusing on the nutritional needs of the healthy and diseased small animal patient and utilization of current diets to impact patient health

**CVM 5223 Veterinary Pharmacology I: 3 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Three hours lecture. Molecular basis for absorption, mechanism of action, metabolism, excretion and toxicity focusing on pharmaceuticals used to treat hemostatic, neoplastic, parasitic, and inflammatory disorders

**CVM 5224 Radiology: 4 hours.**

Four hours practicum. Supervised rotation in Radiology. Areas of study include radiographic and ultrasound techniques and interpretation and radiotherapy

**CVM 5234 Anesthesiology: 4 hours.**

Four hours practicum. Supervised rotation in Anesthesiology. Areas of study include preanesthetic patient evaluation, anesthetic induction, maintenance and monitoring and postanesthetic patient management

**CVM 5242 Small Animal Dermatology: 2 hours.**

(Prerequisite: Enrollment in Phase II of the DVM curriculum and have completed the Community Veterinary Services rotation in third year). Two hours lecture

**CVM 5254 Large Animal Intensive Care Rotation: 4 hours.**

(Four weeks). Four hours practicum. This is a 4-week clinical rotation covering large animal (equine and food animal) emergency and intensive care. Students will participate in the daily maintenance and discussion of clinical cases that are presented to the College of Veterinary Medicine Animal Health Center

**CVM 5264 Equine Medicine & Surgery: 4 hours.**

(Four weeks). Four hours practicum. This is a four weeks third year clinical rotation that covers all aspects of equine internal medicine, surgery, and equine emergency medicine. Students will participate in the daily maintenance and discussion of clinical cases that are presented to the College of Veterinary Medicine

**CVM 5274 Food Animal Practice: 4 hours.**

(Four weeks). Four hours practicum. This is a four weeks clinical rotation covering food animal medicine and surgery, and theriogenology for all species. Additionally, this rotation will introduce ambulatory medicine. Students participate in case management, emergency clinical care, and introduction to health maintenance programs

**CVM 5282 Ambulatory/Large Animal Primary Care: 2 hours.**

(Prerequisite: Enrollment in professional veterinary degree program). Two hours practicum. Supervised clinical rotation through the Ambulatory/Large Animal Primary Care service. Students participate in large animal medicine and surgery in a field setting

**CVM 5292 Flowood/MVRDL Externship: 2 hours.**

(Prerequisite: Enrollment in the CVM professional curriculum). Two credit hours practicum. Supervised clinical rotation at the Animal Emergency and Referral Center, Flowood, MS where veterinary students will actively participate in all aspects of patient care. Additional clinical experiences will be provided at the Mississippi Veterinary Research and Diagnostic Laboratory

**CVM 5294 Enhanced Clinical Practicum: 4 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Four credit hours practicum. Supervised clinical rotation at approved practices throughout the US where veterinary students will participate in all aspects of veterinary practice to enhance their understanding of previously learned medical concepts and skills. (May be repeated)

**CVM 5301 Clinicopathological Conference: 1 hour.**

One hour lecture. One hour laboratory. Advanced communication skills. Professional writing and public speaking to the scientific audience

**CVM 5304 Community Veterinary Services: 4 hours.**

(Four weeks). Four hours practicum. This is a clinical rotation for third year veterinary students in a teaching environment that closely simulates a high-quality small animal private practice. This service sees a variety of routine cases including basic wellness, routine medicine, elective and routine surgeries, dentistry, and dermatology

**CVM 5310 Small Animal Emergency and Critical Care Medicine: 4-6 hours.**

Variable hours, four to six hours practicum. Supervised clinical rotation in the small animal intensive care and emergency services. Emphasis on the evaluation and management of the critically ill or injured animal

**CVM 5314 Small Animal Surgery: 4 hours.**

(Four weeks). Four hours practicum. This is a four weeks clinical rotation for third year veterinary students covering small animal surgery

**CVM 5316 Specialty Medicine Rotation: 6 hours.**

(Six hours practicum). This is a 6-week clinical rotation in which the student will spend time in Dermatology, Oncology and Ophthalmology sections

**CVM 5332 Shelter Medicine Spay/Neuter Rotation: 2 hours.**

(Two hours practicum). This is a two weeks clinical rotation providing in depth understanding and practical experience in dealing with issues surrounding pet over population, responsible pet ownership, shelter medicine and surgery

**CVM 5364 Veterinary Neurology/Neurosurgery Rotation: 4 hours.**

(Four weeks). Four hours practicum. This is a four weeks clinical rotation for fourth year veterinary students covering Medical & Surgical Neurology and Neurologic Rehabilitation

**CVM 5382 Cytology Elective: 2 hours.**

The students will learn how to systematically review different cytology samples and will be exposed to many examples of cases submitted to the College of Veterinary Medicine diagnostic laboratory

**CVM 5392 Pharmacy: 2 hours.**

Two hours practicum. Supervised clinical rotation in the pharmacy of the Animal Health Center. Students participate in all activities of these units

**CVM 5414 Small Animal Internal Medicine: 4 hours.**

(Four weeks). Four hours practicum. The Small Animal Internal Medicine rotation where students participate in the receiving, analysis, and management of patients referred for medical care

**CVM 5420 Advanced Rotation in Radiology: 1-6 hours.**

Two to four hours practicum. (Prerequisite: CVM 5204). (May be repeated for credit). Areas of study include advanced radiographic and ultrasound techniques and interpretation and use of radioisotopes in therapy

**CVM 5430 Advanced Rotation in Anesthesiology: 1-6 hours.**

Variable hours practicum. (Prerequisite: CVM 5414). (May be repeated for credit). Advanced rotation in Anesthesiology. Areas of study include pre-anesthetic patient evaluation, and advanced techniques in anesthetic induction, anesthetic maintenance, patient monitoring and post-anesthetic care

**CVM 5452 Small Animal Physical Rehabilitation: 2 hours.**

(Prerequisite: Consent of instructor). Two hours clinical instruction. Practical application of physical rehabilitation in the small animal patient

**CVM 5454 Advanced Rotation in Small Animal Surgery: 4 hours.**

Four hours practicum. (Prerequisite: Consent of Instructor). (May be repeated for credit). Students assume primary responsibility for the receiving, diagnosis, treatment and management of small animal surgery patients

**CVM 5460 Advanced Rotation in Equine Medicine and Surgery: 4 hours.**

(Prerequisite:CVM 5266). Variable hours 0-4. Practicum .Students assume primary responsibility for the resloving, diangosis, treatment and management of equine patients. May be repeated for credit

**CVM 5464 Adv Rot Eq Med & Surg: 4 hours.**

Four hours practicum. (Prerequisite: CVM 5266). (May be repeated for credit). Students assume primary responsibility for the resolving, diagnosis, treatment and management of equine patients

**CVM 5474 Advanced Rotation in Food Animal Practice: 4 hours.**

Four hours practicum. (Prerequisite: CVM 5276). (May be repeated for credit). Students assume primary responsibility in problem analysis, case management and development of health maintenance programs for food animals

**CVM 5510 Veterinary Medicine/Animal Industry Externship 1: 1-6 hours.**

Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation

**CVM 5520 Veterinary Medicine/Animal Industry Externship 2: 1-6 hours.**

Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, swine, dairy, beef or other commercial animal operation

**CVM 5530 Veterinary Medicine/Animal Industry Externship 3: 1-6 hours.**

Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation

**CVM 5540 Veterinary Medicine/Animal Industry Externship 4: 1-6 hours.**

Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation

**CVM 5550 Veterinary Medicine/Animal Industry Externship 5: 1-6 hours.**

Variable hours practicum. Rotation through private industry dealing with one of the major animal commodities. Rotation may include poultry, catfish, swine, dairy, beef or other commercial animal operation

**CVM 5552 Veterinary Cardiology: 2 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Senior year elective class focusing on the diagnosis, treatment, management and prevention of diseases or conditions affecting the cardiovascular system of veterinary patients

**CVM 5553 Pharmacology II: 3 hours.**

Three hours lecture. There is an emphasis on antimicrobial therapy. The course also addresses regulatory issues, vaccinology, and the management of disease syndromes

**CVM 5560 Advanced Clinical Rotation 1: 1-6 hours.**

Variable hours practicum. (May be repeated for credit). Supervised rotation through one of the defined units of the Animal Health Center. Students assume primary responsibility for patient diagnosis and care

**CVM 5570 Advanced Clinical Rotation 2: 1-6 hours.**

Variable hours practicum. (May be repeated for credit). Supervised rotation through one of the defined units of the Animal Health Center. Students assume primary responsibility for patient diagnosis and care

**CVM 5580 Advanced Clinical Rotation 3: 1-6 hours.**

Variable hours practicum. (May be repeated for credit). Supervised rotation through one of the defined units of the Animal Health Center. Students assume primary responsibility for diagnosis and care

**CVM 5602 Comparative Endocrinology: 2 hours.**

(Prerequisite:Enrollment in Phase II of the professional veterinary degree program). Two week practicum. An in-depth analysis including the pathophysiology,diagnosis, and treatment of endocrine disease in veterinary species,with emphasis on small animal patients

**CVM 5652 Equine Podiatry: 2 hours.**

(Prerequisite: Enrollment in CVM professional curriculum). One hour lecture. Two hours laboratory. Includes fundamental of horseshoeing, anatomy, diseases of the equine digit, and therapeutic techniques

**CVM 5662 Clinical Neurology: 2 hours.**

(Prerequisite: Consent of instructor). Two hours lecture. Phase 2 elective emphasizes basic procedures and concepts required to diagnose and manage neurologic diseases

**CVM 5672 Veterinary Dentistry: 2 hours.**

Two hours practicum. (Prerequisite: Consent of instructor). Phase 2 elective emphasizing diagnostic and therapeutic approach to dentistry in small animals and equine species

**CVM 5674 Population Medicine: 4 hours.**

(Four hours practicum). The Population Medicine is a four-week rotation that provides hands-on experiences with assessing and improving health of populations of multiple species. Didactic lectures and labs will help students understand how animal population systems influence health and performance and strategies to prevent and control disease

**CVM 5682 Veterinary Ophthalmology: 2 hours.**

(Prerequisite: Consent of instructor). Two hours lecture. Phase 2 elective emphasizing the diagnosis and treatment of ophthalmic diseases

**CVM 5692 Veterinary Art and Business Management: 2 hours.**

(Prerequisites:Consent of Instructor). Two hours lecture. Lecture, group discussion, and focused independent study of the art and business of veterinary medicine. This course will emphasize non-technical veterinary skills. ( Phase 2 elective )



**CVM 5702 Clin Hematology & Immunology: 2 hours.**

(Prerequisite: Enrollment in Phase II of the professional veterinary degree program). Two week practicum. Assessment of clinical disease in small animal patients suffering from hematologic and immunologic disorders, with an emphasis on case management with interactive discussions

**CVM 5722 Small Ruminant Production Medicine: 2 hours.**

(Prerequisite: CVM 5276). Two hours practicum. An elective focused on sheep and goat production. Experience in common surgery/treatment procedures provided. Small ruminant production medicine topics and current literature review discussed

**CVM 5754 Advanced Small Animal Surgery: 4 hours.**

One hour lecture. Three hours laboratory. Exercises to provide additional understanding and "hands-on" experience for students interested in orthopedic surgery, neurosurgery, plastic and reconstructive surgery, and other selected soft tissue procedures

**CVM 5764 Advanced Equine Reproduction: 4 hours.**

(Prerequisite: Consent of instructor). Four hours lecture. Phase 2 elective emphasizing review of basic equine reproduction and exposure to advanced diagnostic and therapeutic modalities

**CVM 5772 Canine Theriogenology: 2 hours.**

(Prerequisite: Consent of instructor.) Two hour practicum. Advanced study of canine reproduction. Review of basic diagnostics and procedures followed by an introduction to assisted reproductive technology (ART)

**CVM 5784 Clinical Behavioral Medicine: 4 hours.**

(Prerequisite: Consent of instructor). Four hours lecture and discussion. Case oriented study of normal and abnormal behaviors and underlying influences in domestic animals, with focus on dogs, cats, and horses

**CVM 5802 Practical Small Animal Oncology: 2 hours.**

(Prerequisites: Enrollment in the professional veterinary degree program ). Two week practicum. Practical clinical oncology at the general practice level to include an overview of individual disease behaviors and diagnostic techniques and an introduction to therapy modalities

**CVM 5812 Behavior for the Companion Animal Veterinarian: 2 hours.**

Introduction of learning theory, reducing stress in the veterinary hospital, normal and abnormal behavior, treatment and prevention of behavioral problems for the companion animal veterinarian

**CVM 5814 The Feline Patient: 4 hours.**

Four hours lecture. Lecture, group discussion, and focused independent study on a variety of feline-related topics, with emphasis on medical problems which are unique to the cat

**CVM 5840 Veterinary Student Research Initiative: 2-6 hours.**

(Prerequisite: Enrollment in DVM curriculum or consent of instructor). Two to six hours research instruction. Veterinary Student Research Initiative (VSRI) course allows veterinary students opportunity to earn credit for participation in research projects. (Repeatable for up to 6 total credits)

**CVM 5842 Clinical Pharmacology: 2 hours.**

Two hours lecture. Use of pharmacologic agents in the treatment of disease syndromes. Emphasis will be placed on therapeutic alternatives for the treatment of specific diseases or syndromes

**CVM 5854 Aquarium Health Management: 4 hours.**

(Prerequisite: Consent of instructor). Concepts and techniques for the maintenance of common aquarium species. This course will provide students opportunities to develop selected skills relating to aquarium medicine

**CVM 5862 Equine Lameness: 2 hours.**

Two hours practicum. Advanced study of equine lameness. Provides opportunities to develop and use problem-solving skills in the diagnosis, treatment, and management of lameness and related topics

**CVM 5864 Bovine Production Medicine: 4 hours.**

(Prerequisite: Enrollment in the CVM professional curriculum). Four hours lecture. Reproductive and nutritional management, record-keeping, data analysis, herd health programs, and other advanced bovine production topics will be covered, building on student's core veterinary education

**CVM 5874 Bovine Theriogenology: 4 hours.**

(Prerequisites: Consent of Instructor). Four hours practicum. Advanced study of bovine theriogenology. Review of basic diagnostics, surgical procedures, and obstetrics followed by an introduction to assigned reproductive technology (ART)

**CVM 5882 Small Animal Gastroenterology: 2 hours.**

(Prerequisite: Enrollment in Phase II of the DVM curriculum or instructor consent). Two hours lecture. Through lectures and case-based discussions and assignments, this elective course will provide in-depth understanding of many gastrointestinal, hepatic, and pancreatic disorders in small animal patients. (Same as CVM 6882)

**CVM 5903 Tropical Veterinary Medicine and One Health: 3 hours.**

This is a three weeks study abroad course in tropical veterinary medicine and One Health. The course meets face to face and will cover a variety of topics and include lectures, laboratories, and hands on experiential learning in both indoor and outdoor field conditions

**CVM 5990 Special Topics in CVM: 1-6 hours.**

Variable hours practicum. (May be repeated for credit). Special topics in veterinary medicine offers the opportunity to explore selected veterinary topics in depth

**CVM 5991 Preparations for Study Abroad: 1 hour.**

This course addresses several topics including: personal security, documentation, health, financial support, communication, travel arrangements, history, cuisine, culture, and various attractions; over the spring semester aimed at preparing students for summer study abroad

**CVM 6021 Essentials of Research Practice & Professions: 1 hour.**

One hour lecture. An introduction to fundamental research methodologies, compliance, communication, and basic research ethics to prepare students for becoming a member of a research team

**CVM 6023 Infectious Agents I: 3 hours.**

(Prerequisites: Enrollment in the professional veterinary degree program and enrollment in a Ph.D program). Two hours lecture. Two hours laboratory. Completion of project assigned by course leader required. Principles regarding immune responses and classification, pathophysiological mechanisms, control/diagnosis of viruses, bacteria, and fungi in veterinary medicine

**CVM 6033 Immunology: 3 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program and enrollment in a Ph.D program). Three hours lecture. Completion of project assigned by course leader required. Presentation of the principles regarding Immune responses in health and medicine

**CVM 6036 Veterinary Physiology: 6 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program and enrollment in a PhD program). Completion of project assigned by course leader required. Six hours lecture. Fundamental concepts, principles, and details of veterinary physiology specifically related to cellular, membrane, muscle, cardiovascular, respiratory, urinary, gastrointestinal, endocrine, and reproductive systems

**CVM 6134 Aquatic Animal Health Management: 4 hours.**

Three hours lecture. Three hours laboratory. (Prerequisite: One course in microbiology and one course in physiology). Fundamentals concepts of preventing, diagnosing and treating economically important diseases in wild and cultured stocks and invertebrates through didactic and laboratory instruction

**CVM 6163 Veterinary Parasitology: 3 hours.**

(Prerequisite: Enrollment in the professional veterinary degree program). Two hours lecture. Two hours laboratory. Completion of project assigned by course leader required. Presentation of principles essential to the classification, pathophysiological mechanisms, control/diagnosis of parasites of importance in veterinary medicine

**CVM 6180 Emergency Prep for Animal Health: 1-5 hours.**

Introduction to emergency preparedness concerning health/well-being of animals. Incident Command System (ICS) leading to subjects pertinent to animal health during natural/man-made disasters

**CVM 6193 Medical Pharmacology: 3 hours.**

(Prerequisites for undergraduates: BIO 3014 or BIO 4514 and BCH 4013 or 4603; Prerequisites for graduates: graduate standing and instructor's consent). Three hours lecture. This course is an introduction to basic and clinical pharmacology with an emphasis on major drug groups, their mechanisms of action, and therapeutic use

**CVM 6223 Pharmacology I: 3 hours.**

(Prerequisites: Enrollment in the professional veterinary degree program and enrollment in a Ph.D program). Three hours lecture. Completion of project assigned by course leader required. Molecular basis for absorption, mechanisms of action, metabolism, excretion and toxicity focusing on pharmaceuticals used to treat haemostatic, neoplastic, parasitic, and inflammatory disorders

**CVM 6263 Wildlife Diseases: 3 hours.**

Two hours lecture. Four hours laboratory, alternate weeks. Effects and management of parasites and diseases in wild bird and mammal populations. (Same as WF 4263/6263)

**CVM 6513 Environmental Toxicology: 3 hours.**

(Prerequisites: 8 hours biological sciences and 8 hours chemistry). Three hours lecture. The disposition and toxicological effects of environmentally-relevant toxicants (such as agrochemicals, petroleum and industrial pollutants) within organisms, and aquatic and terrestrial ecosystems

**CVM 6602 Comparative Endocrinology II: 2 hours.**

(Prerequisite: Enrollment in a veterinary graduate degree program; instructor approval). Two week practicum. An in-depth analysis including the pathophysiology, diagnosis, and treatment of endocrine disease in veterinary species, with emphasis on small animal patients

**CVM 6882 Small Animal Gastroenterology: 2 hours.**

(Prerequisite: Enrollment in graduate program). Two hours lecture. Through lectures and case-based discussions and assignments, this elective course will provide in-depth understanding of many gastrointestinal, hepatic, and pancreatic disorders in small animal patients. Same as CVM 5882

**CVM 6903 Tropical Veterinary Medicine and One Health: 3 hours.**

This is a three weeks study abroad course in tropical veterinary medicine and One Health. The course meets face to face in Uganda and will cover a variety of topics and include lectures, laboratories, and hands on experiential learning in both indoor and outdoor field conditions

**CVM 6905 Pre-Uganda Study Abroad: 5 hours.**

Five hours lecture. This course addresses several topics over the spring semester aimed at preparing students for the CVM 5906 and CVM 4906/6906 Tropical Veterinary Medicine and One Health summer study abroad In Uganda course

**CVM 6990 Special Topics in Veterinary Medicine: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CVM 6991 Preparations for Study Abroad in Uganda: 1 hour.**

(One hour lecture). This course is designed to prepare students for CVM 4906/6906 – Tropical Veterinary Medicine and One Health study abroad in Uganda. It will cover a broad variety of topics to prepare students for international travel and experiences. to discuss the various course topics

**CVM 7000 Directed Individual Study in Veterinary Medicine: 1-6 hours.**

Hours and credits to be arranged

**CVM 8011 Seminar: 1 hour.**

One hour lecture. A seminar which provides the student with a forum for presentation of current topics in veterinary medical research

**CVM 8013 Poultry Virology: 3 hours.**

Description of the viruses of importance. Topics on individual agents: morphology, classification, character of disease, epizootiology, pathogenesis, immunity, cultivation, diagnosis, prevention, control, and zoonotic potential

**CVM 8031 Current Topics in Molecular Mechanisms of Disease: 1 hour.**

1.5 hours discussion. The molecular biology of pathogens, hosts and their interactions are covered by students presenting recently published papers. This course can be taken six times

**CVM 8033 Poultry Histopathology: 3 hours.**

Three hours lecture. Microscopic Anatomy and diagnosis of major poultry diseases. Tissues histologic reactions to injury from physical-mechanical, genetic-base, metabolic, viral, bacterial, protozoan insults. Writing histopathology reports

**CVM 8041 Advanced Clinical Radiology Seminar: 1 hour.**

(May be repeated for credit). (Prerequisite: Course leader approval). A Bi-weekly seminar to present, discuss, and interpret radiographic, ultrasound, CT scan, and other advanced diagnostic imaging findings of current and archived clinical cases

**CVM 8051 Advanced Clinical Pathology Seminar: 1 hour.**

(May be repeated for credit). (Prerequisite: Course leader approval). Bi-weekly seminar to present, discuss, and interpret body fluid analysis, cytology, biopsy, toxicology, and /or necropsy findings and other findings of current and archived clinical cases

**CVM 8061 Small Animal Surgery Literature Seminar: 1 hour.**

One hour seminar. Weekly seminar focusing on current literature pertaining to small animal surgery

**CVM 8071 Small Animal Internal Medicine: 1 hour.**

(Prerequisite: Enrollment in the M.S. or Ph.D. program in Veterinary Medical Sciences.) One hour credit per semester. Repeatable course (students are able to repeat the course a total of 9 times). Graduate students and faculty in the Clinical Sciences Department will review and study physiology, pathophysiology, diagnostics, and treatments of commonly encountered small animal internal medicine diseases and medical conditions enhance the training of the graduate students

**CVM 8081 Clinical Sciences Journal Review: 1 hour.**

(Prerequisite: Enrollment in the M.S. or Ph.D. program in Veterinary Medical Sciences). One hour of credit per semester. Repeatable course (students are able to repeat the course a total of 9 times). Graduate students and faculty in the Clinical Sciences Department will review and study current and relevant peer-reviewed journal articles to enhance the learning and training of the graduate students

**CVM 8091 Current Topics in Production Animal Medicine: 1 hour.**

(Prerequisite: Consent of Instructor). 1.5 hour discussion. A weekly seminar to address issues of current interest in production animal medicine (i.e., cattle, swine, poultry, aquaculture). May be repeated four times for credit

**CVM 8101 Case Studies in Scientific Research Ethics: 1 hour.**

One hour seminar. Practical application of research ethics using case scenarios to direct discussions on data ownership plagiarism, authorship, conflict of interest, and other regulatory compliance related issues. (Same as PHI 8101 )

**CVM 8105 Avian Externship: 5 hours.**

(Prerequisite: Consent of instructor). Extensive field experience with poultry companies is provided. Breeder, pullet, layer, and broiler management, ration formulation, poultry inspection, and hatchery practices are emphasized

**CVM 8113 Advanced Diseases of Poultry: 3 hours.**

Three hours lecture. Advanced study of the major poultry diseases; the mechanisms of each disease, diagnosis, prevention and control

**CVM 8134 Advanced Fish Diseases: 4 hours.**

Prerequisite: CVM 6134 or permission). Three hours lecture. Three hours laboratory. Detailed investigations into the mechanisms involved in the development and management of infectious and non-infectious diseases in fish

**CVM 8153 Histopathology of Fish Diseases: 3 hours.**

(Prerequisite: CVM 4134/6134 or equivalent). Three hours seminar. Study of the pathophysiology response of fish to a variety of environmental, infectious, parasitic, and neoplastic diseases based upon histologic interpretation of case materials

**CVM 8190 Aquatic Diagnostic Investigation: 1-9 hours.**

(Prerequisite: CVM 6134, equivalent, or consent of instructor). Variable hours practicum. (May be repeated for credit). A practical exercise in diagnosis and therapeutic recommendation for health management and maintenance in aquatic animal medicine

**CVM 8201 Medical Physics I: 1 hour.**

(Prerequisite: DVM or equivalent or instructor approval). One credit hour. Course will cover medical physics, including X-ray production, interaction with matter, grids and collimators, film systems, digital systems, and fluoroscopy. Classes will consist of lecture and discussion, with student participation expected

**CVM 8211 Medical Physics II: 1 hour.**

(Prerequisite: CVM 8201 or instructor approval). One hour lecture. Course will cover medical physics, including MRI physics, image weighing, sequences, artifacts, and safety. Classes will consist of lecture and discussion, with in class participation expected

**CVM 8301 Advanced Topics in Comparative Immunology: 1 hour.**

1.5 hours discussion. Current controversies, discoveries, and experimental approaches in comparative immunology will be covered by students' presentations. This course can be taken 4 times for repeated credit

**CVM 8303 Advanced Immunology: 3 hours.**

(Prerequisite: BIO 6413 or equivalent or consent from the instructor). Three hours lecture. Advanced theory and concepts of immunology, structure and function of immune mechanisms are discussed in detail

**CVM 8323 Zoonotic Disease in Public Health: 3 hours.**

Three hours lecture. Major zoonotic diseases affecting humans, their role in bioterrorism and CDC category A and B disease are studied, with focus on epidemiology and prevention

**CVM 8333 Food Safety and Security in Public Health: 3 hours.**

(Prerequisite: enrolled in graduate school, MPH program, or consent of instructor.) Three hours lecture. Epidemiology and risk factors of illness from microbial food contaminants. Pre and post-harvest interventions will be addressed. (Same as FNH 8333)

**CVM 8343 Biosecurity in Environmental Health: 3 hours.**

(Prerequisite: Enrolled in graduate school or permission of instructor). Three hour lecture. Application of biosecurity principles, focusing on food producing animals, especially relating to bioterrorism and foreign animal disease

**CVM 8403 Principles of Pharmacology and Pharmacokinetics: 3 hours.**

Three hours lecture. This course addresses basic principles of how the body reacts to the presence of a drug or toxin and the mathematical expression of drug residues

**CVM 8503 Epidemiology/Biostatistics: 3 hours.**

(Prerequisite: ST 8114) Three hours lecture. Fundamental principles of descriptive and analytical epidemiology

**CVM 8513 Applied Veterinary Epidemiology: 3 hours.**

Three hours lecture. Applications of qualitative veterinary epidemiology in animal and human health. Includes uses of epidemiologic methodology in field investigations and disease control programs

**CVM 8523 Organ Systems Toxicology I: 3 hours.**

Three hours lecture. The course covers an in depth understanding of toxic responses of the liver, kidney, lung, cardiovascular, blood, and immune system

**CVM 8533 Organ Systems Toxicology II: 3 hours.**

Three hours lecture. The course covers an in depth understanding of toxic responses of the nervous, reproductive, endocrine, eye and skin systems

**CVM 8543 Mechanisms of Toxic Action: 3 hours.**

Three hours lecture. The course covers the basic mechanisms underlying the toxicity of chemicals in animals

**CVM 8552 Foreign and Emerging Animal Diseases: 2 hours.**

(Prerequisites: not open to students who have completed CVM 5133). Study of the recognition, treatment, and prevention of economically important animal diseases considered foreign to the US. Overview of factors affecting emerging animal diseases

**CVM 8614 Helminthology: 4 hours.**

(Prerequisite: BIO 1144 or consent of instructor). Three hours lecture. Three hours laboratory. This course will cover current concepts in morphology and identification, life cycle, and host-parasite relationships of helminthic parasites

**CVM 8624 Protozoology: 4 hours.**

(Prerequisite: BIO 1504 or equivalent). Three hours lecture, two hours laboratory. This course will cover the morphology and identification, life cycles, epidemiology and control of protozoans in vertebrates

**CVM 8701 Veterinary Histopathology Seminar: 1 hour.**

(Prerequisite: CVM 5044 or consent of instructor). (Course can be repeated for credit). One hour lecture. A weekly seminar to present and discuss current topics relevant to veterinary pathology and diagnostic medicine. Emphasis on the characterization of disease using histopathology

**CVM 8721 Gross Veterinary Pathology Seminar: 1 hour.**

(Prerequisite: CVM 5044 or consent of instructor). One hour seminar. Weekly seminar on the gross pathologic lesions of diseases. Emphasis will be on classical diseases and gross changes encountered and brief discussion of pathogenesis and etiology. (May be repeated for credit)

**CVM 8733 Pathological Basis of Disease: 3 hours.**

(Prerequisite: Acceptance to Dual Degree DVM/MS Program or Consent of instructor). Three hour lecture. The course covers basic mechanisms of disease in mammals. Topics include cellular and organism response to inflammatory, hemodynamic, genetic, immunological, and neoplastic disorders

**CVM 8743 Emerging Infectious Diseases and Zoonoses: 3 hours.**

(Prerequisite: Acceptance to dual degree program or consent of instructor). Three hours seminar. An advanced discussion of emerging and currently relevant veterinary health issues with emphasis on zoonoses

**CVM 8790 Laboratory Diagnostic Services: 1-9 hours.**

Variable hours practicum. (May be repeated for credit). Experimental training in laboratory investigation of animal health-related problems to include pathological, microbiological, parasitic, and toxicological problems

**CVM 8801 Seminars in Veterinary Anesthesiology: 1 hour.**

(Prerequisite: DVM or equivalent degree, or permission from instructor). One hour seminar. Topics include physiology and pharmacology in veterinary anesthetic practice, anesthesia equipment, and anesthetic techniques. (May be repeated nine times)

**CVM 8802 Canine Theriogenology: 2 hours.**

(Prerequisite: Consent of instructor.) Two hours practicum. Advanced study of canine reproduction. Review of basic diagnostics and procedures followed by an introduction to assisted reproductive technology (ART)

**CVM 8805 Adv Sm Anim Clinic Neuro: 5 hours.**

(Prerequisite: Must already have registerable veterinary degree and consent of instructor). Five hours practicum. Advanced-level study of neurologic disease in small animals, with an emphasis on case management, oral and written presentation skills, and student teaching

**CVM 8812 Equine Reproductive Ultrasound: 2 hours.**

(Prerequisite: Consent of instructor.) One hour lecture. Two hours laboratory. Advanced study of ultrasound diagnostics of the equine urogenital systems in the male and female

**CVM 8822 Advanced Surgical Techniques: 2 hours.**

(Prerequisite: Consent of instructor). Four hours laboratory. Study of advanced principles and surgical skills in the management of clinical patients and the application of advanced surgical skills in veterinary medicine

**CVM 8824 Advanced Veterinary Anatomy I: 4 hours.**

(Prerequisites: DVM degree and appointment as Resident in the CVM.) Two hours lecture/four hours lab. First of a 2 semester course covering advanced surgical and radiographic anatomy of the forelimb, axial skeleton, thorax, abdomen, head, and neck of domestic animals as applicable to specialty surgical or radiology practice

**CVM 8825 Large Animal Urogenital Surgery: 5 hours.**

(Prerequisite: Consent of instructor.) Three hours lecture. Four hours laboratory. Urogenital surgery of the male and female in the equine and bovine species

**CVM 8832 Advanced Veterinary Anatomy II: 2 hours.**

(Prerequisites: CVM 8824, DVM degree and current appointment as Resident in the CVM). One hour lecture. One hour lab. Second of a 2 semester course covering the surgical and radiographic anatomy of the hindlimb, pelvic cavity, and reproductive system of domestic animals, applicable to specialty surgical/radiology practice

**CVM 8890 Economic and Performance Medicine: 1-9 hours.**

Variable hours practicum. (May be repeated for credit). (Prerequisite: Consent of instructor). Advanced training in the identification and management of health related problems in commercial food animal production units

**CVM 8961 Nobel Topics in Physiology/Medicine and Chemistry: 1 hour.**

(Prerequisite: Graduate standing or consent of instructor). One hour seminar. The course will provide historic and current understanding of topics awarded with a Nobel Prize. (Same as GNS 8961 and FO 8961). May be repeated three times for credit)

**CVM 8971 Current Topics in Vector Borne and Tropical Diseases: 1 hour.**

(Prerequisite: Graduate standing and consent of instructor). One-hour lecture with discussion. Students will critically analyze peer-reviewed publications on current research in vector-borne and tropical diseases caused by agents including bacteria, viruses, protozoa and helminths. This course can be repeated for credit up to four times

**CVM 8973 Scientific Writing: 3 hours.**

(Prerequisite: Graduate standing and consent of instructor) Three hours lecture. The course provides advanced training in research proposal, grant proposal, and manuscript writing. (Same as ADS 8973 and FO 8973)

**CVM 8983 Advanced Biotechnology: 3 hours.**

(Prerequisite: BCH 6603, BCH 6613, BCH 6713 or consent of instructor). Three hours lecture. Advanced biotechnology course with an emphasis on environmental, biopharmaceutical, industrial, and medical technologies. (Same as FO 8983)

**CVM 8990 Special Topics in Veterinary Medicine: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**CVM 8991 Principles of Polychromatic Flow Cytometry: 1 hour.**

(Prerequisite: BIO 4413/6413 Immunology, CVM 5033 Immunology, or CVM 8303 Advanced Immunology, or by permission of instructor). One hour lecture. An introduction to the basic theory and skills necessary to successfully design, conduct, and analyze a typical polychromatic flow cytometry experiment

**CVM 8992 Principles of Polychromatic Flow Cytometry: 2 hours.**

(Prerequisite: BIO 4413/6413 Immunology, CVM 5033 Immunology, or CVM 8303 Advanced Immunology, or by permission of instructor). Two hours lecture. An introduction to the basic theory and skills necessary to successfully design, conduct, and analyze a typical polychromatic flow cytometry experiment

**CVM 8993 Functional Genomics: 3 hours.**

(Prerequisites: BCH 6713 Molecular Biology and ST 6243 Data analysis or consent of instructor). Three hours lecture. Fundamental concepts, technology, and applications of functional genomics, such as microarray, yeast hybrid systems, and RNA inference, emphasizing experimental design, analysis, and applications in biomedical research

**CVM 9000 Research in Veterinary Medicine: 1-13 hours.**

Hours and credits to be arranged

**Data Science Courses****DSCI 2012 Data Science Lab: Data Wrangling: 2 hours.**

Four hours laboratory. Practical application of data science tools to clean, format, and work with data

**DSCI 2013 Data Science Literacy: 3 hours.**

Three hours lecture. Introduction to data science as a field that represents the world and society through data objects, extracts new knowledge from these data objects, and creates artificially intelligent systems that perform tasks while producing further insights that improve the performance of institutions, organizations, businesses, and society

**DSCI 2022 Data Science Lab: Cloud, High-Performance, and Quantum Computing: 2 hours.**

(Prerequisite: DSCI 2012). Four hours laboratory. Hands-on use of cloud GPU/TPU, high-performance, or quantum computing platforms to perform computing tasks for big data analysis tasks

**DSCI 3012 Data Science Lab: Description, Analysis, and Inference: 2 hours.**

(Prerequisite: MA 3123). Four hours laboratory. Hands-on programming work to use descriptive, inferential, predictive, and prescriptive statistical techniques with a variety of data types

**DSCI 3013 Fundamentals of Data Acquisition: 3 hours.**

Three hours lecture. An introduction to the fundamentals of data and data acquisition for data science

**DSCI 3022 Data Science Lab: Data Visualization: 2 hours.**

(Prerequisite: DSCI 2012). Four hours laboratory. Hands-on use of tools and programming libraries to visualize data using common approaches to the visual display of numerical, conceptual, and geospatial information

**DSCI 3032 Data Science Lab: Artificial Intelligence: 2 hours.**

(Prerequisite: DSCI 2012). Four hours laboratory. Hands-on use of artificial intelligence and machine-learning libraries to train models in areas such as natural language processing, computer vision, and classification

**DSCI 4013 Data Visualization: 3 hours.**

Three hours lecture. Course providing theoretical foundation for data visualization. Deals with external representation and interactive manipulation of information, data, or artifacts using digital tools to enhance communication, analytical reasoning, and decision-making. (Same as CSE 4423)

**DSCI 4553 Data Science Capstone 1: 3 hours.**

(Prerequisite: Senior Standing). The first of two, three-hour capstone courses. An individual, project-based course open only to candidates for the Bachelor of Science in Data Science degree. Formal written and oral project reports are required

**DSCI 4663 Data Science Capstone 2: 3 hours.**

(Prerequisites: Senior Standing, DSCI 4553). The second of two, three-hour capstone courses. An individual, project-based course open only to candidates for the Bachelor of Science in Data Science degree. Formal written and oral project reports are required

**DSCI 8013 Data Science Literacy Pedagogy 1: Governance, Ethics, and Data Science Applications: 3 hours.**

Three hours lecture. General subject-matter introduction to the field of data science and data science instruction with a focus on governance, ethics, and data science applications in many fields

**DSCI 8023 Data Science Literacy Pedagogy 2: Technical Overview of Data Science Methods & Strategies: 3 hours.**

Three hours lecture. General subject-matter introduction to the field of data science and data science instruction with a focus on data science methods and strategies

**DSCI 8033 Data Science Classroom Integration: 3 hours.**

Three hours lecture. Applying and integrating principles of data science into the context of the classroom. Topics include importance of data science across the domain; digital citizenship; career exploration; and an historical perspective on analyzing, posing, and solving problems using data

**DSCI 8990 Introduction to Data Science Literacy Instruction: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Technology Foundations Courses****DTF 4000 Directed Individual Study in Technology Foundations: 1-6 hours.**

Hours and credits to be arranged

**DTF 4923 Technology Career Seminar: 3 hours.**

(Prerequisite: DTF 4613). Three hours lecture. Critical evaluation of current issues in technology, examination of career opportunities and approved project completion status

**DTF 4936 Technology Field Practicum I: 6 hours.**

(Corerequisite: DTF 4926). The course provides students opportunities to apply contemporary practices by completing a minimum of 340 supervised hours in an approved industry

**DTF 4946 Technology Field Practicum II: 6 hours.**

(Prerequisite: DTF 4936 or concurrent enrollment in DTF 4936). The course provides students opportunities to apply contemporary practices by completing a minimum of 340 supervised hours in an approved industry

**DTF 4990 Special Topics in Division of Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Manufacturing Courses****DTM 4000 Directed Individual Study in Division of Technology Manufacturing: 1-6 hours.**

Hours and credits to be arranged

**DTM 4113 Manufacturing Methods: 3 hours.**

Three hours lecture. A study of historical and contemporary manufacturing techniques. Emphasis on the scientific and conceptual analysis of applied manufacturing methods and value added alternatives

**DTM 4213 MFG Reg Agencies: 3 hours.**

Three hours lecture. An introduction to the effects that regulatory agencies, both public and private, have on contemporary manufacturing operations

**DTM 4313 Transp & Packaging: 3 hours.**

Three hours lecture. A study of internal and external product transportation for a manufacturing facility. Emphasis on the reduction of time and cost to include protective packaging

**DTM 4413 Facility Operations: 3 hours.**

Three hours lecture. An introduction to the many facets of manufacturing facility operations. Emphasis on key areas such as maintenance, employee services and public utility optimization

**DTM 4553 Prod Stds & Meas: 3 hours.**

Three hours lecture. A study to focus upon the application of theoretical and contemporary methods of manufacturing production standards and appropriate measurement techniques

**DTM 4990 Special Topics in Division of Technology Manufacturing: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## DegreeWorks Compliance Use Courses

**DW 6013 Approved Graduate Course: 3 hours.**

**DW 6023 Approved Graduate Course: 3 hours.**

**DW 6033 Approved Graduate Course: 3 hours.**

**DW 6043 Approved Graduate Course: 3 hours.**

**DW 6053 Approved Graduate Course: 3 hours.**

**DW 8003 Approved Graduate Course: 3 hours.**

**DW 8013 Approved Graduate Course: 3 hours.**

**DW 8023 Approved Graduate Course: 3 hours.**

**DW 8033 Approved Graduate Course: 3 hours.**

**DW 8043 Approved Graduate Course: 3 hours.**

**DW 8053 Approved Graduate Course: 3 hours.**

**DW 8063 Approved Graduate Course: 3 hours.**

**DW 8073 Approved Graduate Course: 3 hours.**

**DW 8083 Approved Graduate Course: 3 hours.**

**DW 8093 Approved Graduate Course: 3 hours.**

**DW 8103 Approved Graduate Course: 3 hours.**

**DW 8113 Approved Graduate Course: 3 hours.**

## English for Academic Purposes Courses

**EAP 5323 Academic Research and Writing: 3 hours.**

(Prerequisites: EAP 5120, TOEFL iBT score between 69-78, or IELTS score of 6). An English language course designed to prepare second language speakers for university-level course work. This course is designed to improve students' research and writing skills. (Does not count toward any degree)

**EAP 5333 Critical Reading: 3 hours.**

(Prerequisites: ESL 5120, TOEFL iBT score between 69-78, or IELTS score of 6). Three hours lecture. An English language course designed to prepare second-language speakers for university-level course work. This course is designed to improve reading, comprehension, and critical thinking skills. (Does not count toward any degree)

## Economics Courses

**EC 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**EC 1033 Economics of Social Issues: 3 hours.**

Three hours lecture. Basic economic principles introduced and developed through the study of important social issues such as unemployment, health care, poverty, crime, pollution, inflation, and government debt. (Not open to students with prior credit in Principles of Economics)

**EC 2113 Principles of Macroeconomics: 3 hours.**

Three hours lecture. Introduction to macroeconomics: free enterprise principles, policies, institutions; national income, employment, output, inflation, money, credit, business cycles, and government finances

**EC 2123 Principles of Microeconomics: 3 hours.**

Three hours lecture. Introduction to microeconomics: emphasizes American industrial structure, demand and supply, pricing and output, income distribution, factor pricing, international trade

**EC 2990 Special Topics in Economics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EC 3113 Intermediate Macroeconomics: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Measurement and determination of national income, employment, and output; economic significance of consumption, saving, investment, foreign trade, money and prices, fiscal and monetary policy

**EC 3123 Intermediate Microeconomics: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Theory and application of microeconomics; demand, supply, optimal consumer choice, production, cost, profit-maximizing pricing and output decisions, employment of resources, externalities, efficiency and welfare

**EC 3333 Managerial Economics: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. The application and use of economic models in analyzing and solving selected problems of the firm such as product pricing, product mix, demand forecasting, market analysis

**EC 3423 Economics of Regulation and Antitrust: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. Examination of the evolution and composition of the economic relationship between government and business in the U.S., focusing on regulation and antitrust

**EC 3513 Comparative Economic Policy: 3 hours.**

(Prerequisites: EC 2113 and EC 2123 or consent of instructor). Three hours lecture. Comparative analysis of major government policies, economic structure, institutions around the world, emphasis on the organization of production and distribution of good and resources

**EC 4000 Directed Individual Study in Economics: 1-6 hours.**

Hours and credits to be arranged

**EC 4043 Survey of Economics: 3 hours.**

(Prerequisite: Senior or Graduate standing). Three hours lecture. Introduction to macro and microeconomics, national income accounts, monetary system, macroeconomic policy, international trade, supply and demand, distribution of income, markets, pricing, and output. (Not open to BACC or BBA Business majors )

**EC 4183 U.S. Economic History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of economic change in the United States and its impact on political and social development. (Same as HI 4183/6183)

**EC 4213 Personnel Economics: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. Economic analysis of human resource issues within business organizations. Theoretical examination of hiring standards, productivity, compensation schemes, training, teamwork, incentives, benefits, worker empowerment, and evaluation

**EC 4223 Labor Law and Employment Policy: 3 hours.**

(Prerequisites: Three hours credit of economics or consent of instructor). Three hours lecture. Examination of the legal and regulatory environment of the employment relationship in today's American economy; including, unionization, equal employment opportunity, occupational health and safety

**EC 4233 Labor Economics: 3 hours.**

(Prerequisites: EC 2113, EC 2123, and EC 3123). Three hours lecture. Labor Market behavior of households and firms. Emphasizes wage determination, optimal employment decision, income distributions, unionization, human capital, and discrimination

**EC 4303 International Economic Development: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. An analysis of problems facing developing economies and policies designed to promote economic growth with an emphasis on income distribution, trade, agriculture, industry, and technology

**EC 4323 International Economics: 3 hours.**

(Prerequisite: EC 2113 and EC 2123). Three hours lecture. The nature of international trade. International theory. Economic analysis of the movement of goods, resources, and financial assets across national borders

**EC 4423 Public Finance: 3 hours.**

(Prerequisites: EC 2113, EC 2123 and EC 3123). Three hours lecture. Economics of the public sector. Analysis of government's influence on distribution, allocation, and stabilization functions. Emphasis on public goods, externalities, social insurance, and taxation

**EC 4433 State and Local Finance: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. Fiscal and economic effects of state and local budgets; alternative tax and expenditure models; fiscal administration and budgeting with emphasis on local economic development

**EC 4443 Economics of Education: 3 hours.**

(Prerequisites: EC 2123 or instructor consent). Three hours lecture. Examines provision of education using economic theory. Topics include research methods, education production functions, school finance, labor market outcomes, economic growth, teacher quality, school accountability, equity, and access to higher education

**EC 4523 History of Economic Thought: 3 hours.**

(Prerequisites: EC 2113 and EC 2123 or consent of instructor). Three hours lecture. Survey of economic ideas from Ancient Greece to present, emphasizing the changing foci and methodologies of economics relative to economic problems perceived at the time

**EC 4643 Economic Forecasting and Analysis: 3 hours.**

(Prerequisites: EC 2113, EC 2123, and BQA 2113 (or equivalent) or consent of the instructor). Three hours lecture. Forecasting tools and econometric estimation techniques utilizing regression, exponential smoothing, decomposition, frontier analysis, etc. Real-world data, business applications, and model building are emphasized

**EC 4713 Industrial Organization: 3 hours.**

(Prerequisites: EC 2113, EC 2123 and EC 3123). Three hours lecture. Behavior of firms in imperfectly competitive market. Analysis of market structure, strategic interaction, price and non-price competition with emphasis on the implication for public policy

**EC 4990 Special Topics in Economics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EC 6183 U.S. Economic History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of economic change in the United States and its impact on political and social development. (Same as HI 4183/6183)

**EC 6213 Personnel Economics: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. Economic analysis of human resource issues within business organizations. Theoretical examination of hiring standards, productivity, compensation schemes, training, teamwork, incentives, benefits, worker empowerment, and evaluation

**EC 6223 Labor Law and Employment Policy: 3 hours.**

(Prerequisites: Three hours credit of economics or consent of instructor). Three hours lecture. Examination of the legal and regulatory environment of the employment relationship in today's American economy; including, unionization, equal employment opportunity, occupational health and safety

**EC 6303 International Economic Development: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. An analysis of problems facing developing economies and policies designed to promote economic growth with an emphasis on income distribution, trade, agriculture, industry, and technology

**EC 6323 International Economics: 3 hours.**

(Prerequisite: EC 2113 and EC 2123). Three hours lecture. The nature of international trade. International theory. Economic analysis of the movement of goods, resources, and financial assets across national borders

**EC 6423 Public Finance: 3 hours.**

(Prerequisites: EC 2113, EC 2123 and EC 3123). Three hours lecture. Economics of the public sector. Analysis of government's influence on distribution, allocation, and stabilization functions. Emphasis on public goods, externalities, social insurance, and taxation

**EC 6433 State and Local Finance: 3 hours.**

(Prerequisites: EC 2113 and EC 2123). Three hours lecture. Fiscal and economic effects of state and local budgets; alternative tax and expenditure models; fiscal administration and budgeting with emphasis on local economic development

**EC 6443 Economics of Education: 3 hours.**

(Prerequisites: EC 2123 or instructor consent). Three hours lecture. Examines provision of education using economic theory. Topics include research methods, education production functions, school finance, labor market outcomes, economic growth, teacher quality, school accountability, equity, and access to higher education

**EC 6523 History of Economic Thought: 3 hours.**

(Prerequisites: EC 2113 and EC 2123 or consent of instructor). Three hours lecture. Survey of economic ideas from Ancient Greece to present, emphasizing the changing foci and methodologies of economics relative to economic problems perceived at the time

**EC 6643 Economic Forecasting and Analysis: 3 hours.**

(Prerequisites: EC 2113, EC 2123, and BQA 2113 (or equivalent) or consent of the instructor). Three hours lecture. Forecasting tools and econometric estimation techniques utilizing regression, exponential smoothing, decomposition, frontier analysis, etc. Real-world data, business applications, and model building are emphasized

**EC 6990 Special Topics in Economics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EC 7000 Directed Individual Study in Economics: 1-6 hours.**

Hours and credits to be arranged

**EC 8063 Foundations of Microeconomic Theory: 3 hours.**

(Prerequisite: Graduate standing.) Three hours lecture. Exposition of the theoretical foundations to microeconomic theory: market process, price mechanism, exchange and production, cost and supply, non-market decision making, and the international economy

**EC 8103 Economics for Managers: 3 hours.**

(Prerequisites: Graduate Standing and FIN 3123 or equivalent). Three hours lecture. Primarily for masters level candidates. Exposition of the fundamental theoretical and analytical tools of economics used by business managers engaged in decision making

**EC 8113 Labor Theory and Analysis: 3 hours.**

(Prerequisites: Graduate Standing). Three hours lecture. Theoretical and empirical examination of labor market processes and policy; Wage determination, resource allocation, labor mobility, human capital investment, discrimination and income distribution

**EC 8123 Mathematics for Economists: 3 hours.**

(Prerequisite: Graduate standing.) Three hours lecture. The course covers topics in linear algebra, logic and set theory, topology, real analysis, and optimization theory

**EC 8133 Econometrics I: 3 hours.**

(Prerequisite: AEC 8413 or consent of instructor). Econometric theory and methods. Topics include the classical linear regression model, maximum likelihood estimation, generalized least squares, and estimation with panel data. equations

**EC 8143 Econometrics II: 3 hours.**

(Prerequisite: EC 8133). A continuation of EC 8133. Topics include advanced theories of simultaneous equations estimation methods, time series econometrics, and estimation with qualitative and limited dependent variables

**EC 8163 Microeconomics I: 3 hours.**

(Prerequisite: EC 3123 or EC 8103 or equivalent). Three hours lecture. Survey of demand analysis, production, cost, and supply relationships, analysis of pricing under competitive and noncompetitive conditions, analysis of income distribution with emphasis on input pricing

**EC 8173 Macroeconomics I: 3 hours.**

(Prerequisites: EC 3113, EC 3123, and one semester of calculus, or consent on instructor). Three hours lecture. Synthesis of short and long run analysis of the macroeconomy with special emphasis on the role of fiscal and monetary policy

**EC 8263 Microeconomics II: 3 hours.**

(Prerequisite: EC 8163 ). Three hours lecture. An exposition of general equilibrium theory, the theory of welfare economics and the economics of information

**EC 8273 Macroeconomics II: 3 hours.**

(Prerequisites: EC 8173 or equivalent). Three hours lecture. Examination of the modern macroeconomic synthesis. Studies in dynamic economic growth, rational expectations, monetarism, disequilibrium analysis, and open market economies

**EC 8313 Regional Economic Analysis: 3 hours.**

(Prerequisites: EC 4313/6313 and EC 8133 or equivalent or consent of instructor). Three hours lecture. Theories and tools. Includes economic base, recursive and simultaneous equation econometric models, input-output analysis, and mixed models

**EC 8403 Game Theory: 3 hours.**

(Prerequisite: AEC 8163 or EC 8163 or consent of instructor). Three hours lecture. An exploration of how agencies interact strategically. (Same as AEC 8403)

**EC 8423 Public Finance: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. Foundations of public finance: the role of government, major government expenditures, optimal taxation, and applied research methods

**EC 8473 Public Choice: 3 hours.**

(Prerequisite: Graduate Standing). Three hours lecture. A survey of public choice, also known as political economy, rational choice theory, or the economics of politics. The goal is to provide students with a general framework within which public sector policies and decisions can be evaluated

**EC 8643 Applied Economic Skills: Advanced Estimation and Diagnostics of Econometric Models: 3 hours.**

(Prerequisites: EC 8133 and EC 8143 or consent of the instructor). Advanced econometric tools, diagnostics, and estimation techniques with an emphasis on applied economic model building. Application of econometric theory to real-world problems and issues

**EC 8653 Microeconometrics: 3 hours.**

(Prerequisite: Graduate standing.) Topics include discrete choice models, truncated and censored regression models, sample selection models, duration models, variance estimation, matching and propensity score methods, measurement error, and panel data models. The econometric concepts are illustrated using economic applications

**EC 8990 Special Topics in Economics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EC 9000 Research in Economics: 1-13 hours.**

Hours and credits to be arranged

## Electrical Computer Engineer Courses

**ECE 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members



**ECE 1013 Foundations in ECE: 3 hours.**

(Prerequisite: Credit or registration in CSE 1284). Two hours lecture. Two hours laboratory. Introduction to the profession, college, department, and program. Survey of ECE technical knowledge and tools crucial in early ECE courses. Introduction to engineering design, teaming, and technical communication

**ECE 1022 Foundations in Design: 2 hours.**

(Prerequisite: Grade of C or better in both ECE 1013 and CSE 1284.). One hour lecture. Two hours laboratory. Technical communication (including engineering team communication) and engineering ethics. Project planning and management. Documenting, designing, prototyping, testing, and oral presentations of an engineering design project

**ECE 2990 Special Topics in Electrical and Computer Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ECE 3183 Electrical Engineering Systems: 3 hours.**

(For non-Electrical Engineering majors). (Prerequisite: MA 2743). Three hours lecture. Definitions and laws relating to electrical quantities; circuit element descriptions; development of techniques in network analysis; semiconductor devices; integration of devices into digital networks

**ECE 3213 Introduction to Solid State Electronics: 3 hours.**

(Prerequisite: grade of C or better in ECE 3424). Three hours lecture. Introduction to quantum mechanics, semiconductor physics and solid state electronics. Energy band structure and charge carriers in semiconductors. Junctions, diodes and transistors

**ECE 3244 Electronics I: 4 hours.**

(Prerequisite: Grade of C or better in ECE 3421 and either ECE 3423 or ECE 3413 and MA 3253). Three hours lecture. Three hours laboratory. DC and small-signal models for diodes, basic principles of BJT and FET, analysis and operation of circuit models of diodes, BJTs, and FETs

**ECE 3253 Electronics II: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3244). Three hours lecture. Differential and multistage amplifiers. Power amplifiers and converters. Non-ideal op-amps and macro-models. Feedback and stability. Active filters. Noise analysis

**ECE 3283 Electronics: 3 hours.**

(For non-Electrical Engineering majors). (Prerequisites: Grade of C or better in ECE 3413 or ECE 3183). Three hours lecture. Fundamentals of active devices, linear amplifiers, digital logic, digital and microprocessors

**ECE 3313 Electromagnetics I: 3 hours.**

(Prerequisite: Credit in MA 3253 and PH 2223; Credit or registration in ECE 3413 or ECE 3423). Three hours lecture. Introduction to engineering electromagnetics with applications. Vector analysis, static and time-varying electromagnetic fields, wave propagation, and transmission lines

**ECE 3323 Electromagnetics II: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3313). Three hour lecture. Waveguides and cavity resonators, fiber optics, antennas, electromagnetic compatibility, analytical and numerical solution techniques in electromagnetics

**ECE 3413 Introduction to Electronic Circuits: 3 hours.**

(Prerequisites: Grade of C or better in both MA 1723 and PH 2223). Three hours lecture. Fundamentals of electric circuits and network analysis. DC and AC circuits. AC power. Ideal transformers. Frequency response of networks. Ideal operational amplifiers and circuits

**ECE 3421 Circuits I Lab: 1 hour.**

(Prerequisite: Credit or registration in MA 3113 and either ECE 3413 or 3423). Three hours laboratory. Applications of electrical circuits including circuit analysis for DC and AC circuits, simulation tools, breadboarding, and basic circuit components. Accompanies ECE 3423

**ECE 3423 Circuits I: 3 hours.**

(Prerequisite: MA 3113 or concurrent enrollment in MA 3113). Three hours lecture. Fundamentals of electrical circuits. Circuit analysis techniques, resistance, sources, AC circuits, sinusoidal steady-state power calculations, and balanced three-phase circuits and transformers. Accompanies ECE 3421

**ECE 3424 Intermediate Electronic Circuits: 4 hours.**

(Prerequisites: Grade of C or better in both ECE 3413 and MA 3253). Three hours lecture. Three hours laboratory. First-order and second-order transient analysis. Operation circuit models and application of diodes and field-effect and bipolar junction transistors. Electronic instrumentation

**ECE 3433 Circuits II: 3 hours.**

(Prerequisite: Grade of C or better in MA 3253 and ECE 3421 and either ECE 3423 or ECE 3413). Three hours lecture. Operational amplifiers, frequency responses of RL, RC, and RLC circuits. Laplace transforms, active and passive filters

**ECE 3434 Advanced Electronic Circuits: 4 hours.**

(Prerequisites: Grade of C or better in ECE 3424; and credit or registration in ECE 1022). Three hours lecture. Three hours laboratory. Feedback and stability. Operational-amplifier and data-converter circuits. Introduction to CMOS logic circuits. Filters and tuned amplifiers. Signal generator circuits. Power amplifiers

**ECE 3443 Signals and Systems: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424 or ECE 3433). Three hours lecture. Modeling of analog and discrete-time signals and systems, time domain analysis. Fourier series, continuous and discrete-time Fourier transforms and applications, sampling, z-transform, state variables

**ECE 3614 Fundamentals of Energy Systems: 4 hours.**

(Prerequisite: Grade of C or better in either ECE 3423 or ECE 3413 and credit or registration in ECE 3313). Three hours lecture. Three hours laboratory. Synchronous generators; power transmission lines and cables; power transformers; induction and direct current motors; power electronic and programmable controllers; National Electric Code

**ECE 3714 Digital Devices and Logic Design: 4 hours.**

(Prerequisite: Credit or registration in CSE 1213, CSE 1233, or CSE 1284 ). Three hours lecture. Three hours laboratory. Binary codes, Boolean, algebra, combinational logic design, flip-flops, counters, synchronous sequential logic, programmable logic devices, MSI logic devices, adder circuits

**ECE 3724 Microprocessors: 4 hours.**

(Prerequisites: Grade of C or better in ECE 3714, CSE 1384, and credit or registration in CSE 2383). Three hour lecture. Three hour laboratory. Architecture of microprocessor-based systems. Study of microprocessor operation, assembly language, arithmetic operations, and interfacing

**ECE 4000 Directed Individual Study in Electrical and Computer Engineering: 1-6 hours.**

Hours and credit to be arranged

**ECE 4193 Automotive Engineering: 3 hours.**

Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as CHE/IE/ME 4193/6193 )

**ECE 4243 Introduction to Physical Electronics: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Introduction to quantum mechanics and solid state physics. Physical principles of pn junctions, bipolar transistors, field effect transistors. Applications include electro-optics, integrated circuits, gaseous electronics

**ECE 4263 Principles of VLSI Design: 3 hours.**

(Prerequisites: Grade of C or better in both ECE 3724 and ECE 3424). Two hours lecture. Three hours laboratory. Classic and dynamic CMOS circuit design using state-of-the-art CAD tools, with emphasis on digital system cells and architecture

**ECE 4273 Microelectronics Process Design: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Theory of semiconductors in equilibrium and non-equilibrium, advanced theory of p-n junctions, bipolar junction transistor and advanced theory and operation of field dependent devices

**ECE 4283 Microelectronics Device Design: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Introduction to device fabrication technologies, semiconductor parameter measurement techniques, and the principles of design relative to the LSI technologies

**ECE 4293 Nano-electronics: 3 hours.**

(Prerequisites: ECE 3213, PH 2233 or PH 3613, or equivalent). Three hours lecture. Theoretical foundations of nano-electronics, overview of nano-fabrication, general principles of nan-electronic devices, modern applications including integrated circuits, photonics, renewable energy and bio-medical

**ECE 4313 Antennas: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3323 ). Three hours lecture. Introduction to antennas and electromagnetic radiation, antenna design and analysis, antenna performance measures, antenna types, and antenna arrays

**ECE 4323 Electromagnetic Compatibility: 3 hours.**

(Prerequisite: ECE 3323 or consent of instructor). Three hours lecture. Introduction to EMC standards, EMC measurements emissions and susceptibility, non-ideal behavior of components, signal spectra, crosstalk and shielding

**ECE 4333 RF and Microwave Engineering: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3323 or consent of instructor). Three hours lecture. Introduction to RF and microwave engineering, unguided and guided wave types, transmission lines, waveguides, microwave networks, impedance matching techniques, and microwave components

**ECE 4411 Remote Sensing Seminar: 1 hour.**

(Prerequisite: Junior Standing). One hour lecture. Lectures by remote sensing experts from industry, academia and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, FO 4411/6411, GR 4411/6411)

**ECE 4413 Digital Signal Processing: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Discrete time signals, Z-Transform, Discrete Fourier Transform, digital filter design including IIR, FIR, and FFT synthesis

**ECE 4423 Introduction to Remote Sensing Technologies: 3 hours.**

(Prerequisite: senior or graduate standing, or consent of instructor.) Three hours lecture. Electromagnetic interaction passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR, Lidar, digital image processing, natural resource applications. (Same as PSS 4483/6483 and ABE 4483/6483)

**ECE 4433 Introduction to Radar: 3 hours.**

(Prerequisite: Junior, Senior or graduate standing). Three hours lecture. An overview of the basic concepts of radar including transmitters, receivers, target detection, antennas, signal processing, and tracking

**ECE 4443 Sensor Processing for Autonomous Vehicles: 3 hours.**

(Prerequisite: ECE 3443 or permission of instructor). Three hours lecture. Introduction to sensors and sensor processing for advanced driver assistance systems (ADAS)

**ECE 4512 Capstone Design I: 2 hours.**

(Prerequisite: Grade of C or better in ECE 1022, ECE 3433, ECE 3244, and ECE 3724; co-registration in GE 3513; and consent of instructor). One hour lecture. Three hours laboratory. Students demonstrate engineering design cycle via working prototypes, documentation, and oral presentation

**ECE 4522 Capstone Design II: 2 hours.**

(Prerequisite: Grade of C or better in ECE 4512 or ECE 4532). One hour lecture. Three hours laboratory. Prototyping, documentation, and oral presentation of an engineering design project. Lectures on legal aspects and industry standards relating to design, professional ethics, career design skills

**ECE 4532 CPE Design I: 2 hours.**

(Prerequisite: Grade of C or better in CSE 3324 and ECE 4743 and in either ECE 3434 or ECE 3443; co-registration in GE 3513, and consent of instructor.) One hour lecture. Three hours laboratory. Students demonstrate engineering design cycle via working prototypes, documentation, and oral presentation

**ECE 4542 CPE Design II: 2 hours.**

(Prerequisite: Grade of C or better in ECE 3434 and ECE 4532) One hour lecture. Three hours laboratory. Development of design, teaming, presentation, and entrepreneurial skills. Teams must complete their project designs, and present written and oral results

**ECE 4613 Power Transmission Systems: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Transmission of power from generator to distribution system; transmission line design; load flow; symmetrical components; balanced/unbalanced faults; stability

**ECE 4633 Power Distribution Systems: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Distribution of power from transmission system to users; primary and secondary feeders; voltage regulation; distribution transformers; protective device coordination; system design; load management

**ECE 4643 Power Systems Relaying and Control: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Protection objectives and fundamentals; inputs; protection of generators, transformers, busses and lines; stability and control

**ECE 4653 Introduction to Power Electronics: 3 hours.**

(Prerequisite: Grade of C or better in both ECE 3614 and ECE 3424 or ECE 3244 or equivalent). Three hours lecture. Introduction to power electronic circuits, with emphasis on design and analysis of power semiconductor converters including DC-DC converters, PWM inverters, and DC power supplies

**ECE 4663 Insulation Coordination in Electric Power Systems: 3 hours.**

(Prerequisite: Credit or registration in ECE 3614). Three hours lecture. Lightning phenomena; switching surges and temporary system over voltages; laboratory generation and application of high voltages and currents; basic insulation levels; surge arresters; system insulation design

**ECE 4673 Fundamentals of High Voltage Engineering: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Electrical fields, fields in multi-dielectrics, breakdown mechanisms in gases, liquids, and solid dielectrics, laboratory generation of high voltages, high voltage insulators and cables

**ECE 4713 Computer Architecture: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724). Three hours lecture. Detailed design and implementation of a stored-program digital computer system. Designs for the CPU, I/O subsystems, and memory organizations. ALU design and computer arithmetic

**ECE 4724 Embedded Systems: 4 hours.**

(Prerequisites: Grade of C or better in ECE 3724 and in one of the following: ECE 3424 or ECE 3244 or CSE 4153 or ECE 4833). Three hours lecture. Three hours laboratory. Advanced topics in embedded systems design using contemporary practice

**ECE 4743 Digital System Design: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724. Credit or registration in ECE 3424 or ECE 3244). Two hours lecture. Three hours laboratory. Hierarchical digital design using available design software. Computer aided design workstations will be used to give students access to state-of-the-art design techniques

**ECE 4753 Introduction to Robotics: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. This course covers mathematical foundations (kinematics and dynamics), manipulation, modeling, motion planning, robot control, and hardware implementations of actuators and sensors for modern robots

**ECE 4763 Information and Computer Security: 3 hours.**

(Prerequisite: Grade of C or better in CSE 4733/6733). Three hours lecture. Topics include encryption systems, network security, electronic commerce, systems threats, and risk avoidance procedures. (Same as CSE 4243/6243)

**ECE 4783 Vision Based Guidance for MAVs: 3 hours.**

(Prerequisite: Grade of C or better in both MA 3113 and MA 3253). Two hours lecture and one hour laboratory. This course covers the use of modern computer vision techniques applied to the control of micro air vehicles (MAVs)

**ECE 4793 Applications of Literate Programming in Software Development: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724 or CSE 3724 and junior or graduate standing or consent of instructor). Two hours lecture and two hours laboratory. Techniques for software development and embedded systems, with an emphasis on interleaved documentation for code longevity. (Same as CSE 4353/6353)

**ECE 4800 Undergraduate Research: 13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**ECE 4813 Communications Theory: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443 ). Three hours lecture. The frequency and time domain; modulation; random signal theory; network analysis using nondeterministic signals; basic information theory; noise

**ECE 4823 Digital Communications: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443 or equivalent). Three hours lecture. Digital communications systems design trade-offs and performance analysis in the presence of AWGN. Principle topics; transmission and detection, link analysis, channel coding, multiple access, spread-spectrum

**ECE 4833 Data Communications and Computer Networks: 3 hours.**

(Prerequisite: CSE 1384 or ECE 3732, and ECE 3724, both with a grade of C or better). Three hours lecture. The concepts and practices of data communications and networking to provide student with an understanding of the hardware and software used for data communications. (Same as CSE 4153/6153)

**ECE 4843 Error Correcting Digital Codes: 3 hours.**

(Prerequisite: Senior or Graduate Standing). Three hours lecture. A survey, in depth, of current error correcting coding techniques for providing digital data transmission with protection from random and burst noise sources. Many practical and currently used techniques are discussed in detail and some hands-on experience is provided

**ECE 4853 Electro-Optics: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424 or consent of instructor). Three hours lecture. Linear system theory of optical processes ; Electroptic systems; electro-optical information processing

**ECE 4913 Feedback Control Systems I: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Laplace transforms; transient and frequency response of feedback systems; transfer functions; Nyquist criterion, root locus; compensation of feedback systems; logarithmic analysis and design

**ECE 4923 Feedback Control Systems II: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Finite difference and recurrence equations. z-transform theory. Analysis of sampled-data control systems. Design of digital control systems

**ECE 4933 State Space Design and Instruments: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. State space representation. Dynamic systems. Controllability and observability. Full-state feedback observers. Instrumentation: sensors and interfacing

**ECE 4943 Automation, Data Acquisition, and PLCs: 3 hours.**

(Prerequisite: ECE 3443). Two hours lecture, one hour laboratory. Automation and control of industrial processes, identification of sensors and data acquisition, and the use of PLCs to implement control processes

**ECE 4990 Special Topics in Electrical and Computer Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ECE 6193 Automotive Engineering: 3 hours.**

Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical systems, and industrial and systems engineering aspects. (Same as CHE/IE/ME 4193/6193 )

**ECE 6243 Introduction to Physical Electronics: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Introduction to quantum mechanics and solid state physics. Physical principles of pn junctions, bipolar transistors, field effect transistors. Applications include electro-optics, integrated circuits, gaseous electronics

**ECE 6263 Principles of VLSI Design: 3 hours.**

(Prerequisites: Grade of C or better in both ECE 3724 and ECE 3424). Two hours lecture. Three hours laboratory. Classic and dynamic CMOS circuit design using state-of-the-art CAD tools, with emphasis on digital system cells and architecture

**ECE 6273 Microelectronics Device Design: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Theory of semiconductors in equilibrium and non-equilibrium, advanced theory of p-n junctions, bipolar junction transistor and advanced theory and operation of field dependent devices

**ECE 6283 Microelectronics Process Design: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424). Three hours lecture. Introduction to device fabrication technologies, semiconductor parameter measurement techniques, and the principles of design relative to the LSI technologies

**ECE 6293 Nano-electronics: 3 hours.**

(Prerequisites: ECE 3213, PH 2233 or PH 3613, or equivalent). Three hours lecture. Theoretical foundations of nano-electronics, overview of nano-fabrication, general principles of nan-electronic devices, modern applications including integrated circuits, photonics, renewable energy and bio-medical

**ECE 6313 Antennas: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3323 ). Three hours lecture. Introduction to antennas and electromagnetic radiation, antenna design and analysis, antenna performance measures, antenna types, and antenna arrays

**ECE 6323 Electromagnetic Compatibility: 3 hours.**

(Prerequisite: ECE 3323 or consent of instructor). Three hours lecture. Introduction to EMC standards, EMC measurements emissions and susceptibility, non-ideal behavior of components, signal spectra, crosstalk and shielding

**ECE 6333 RF and Microwave Engineering: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3323 or consent of instructor). Three hours lecture. Introduction to RF and microwave engineering, unguided and guided wave types, transmission lines, waveguides, microwave networks, impedance matching techniques, and microwave components

**ECE 6411 Remote Sensing Seminar: 1 hour.**

(Prerequisite: Junior Standing). One hour lecture. Lectures by remote sensing experts from industry, academia and governmental agencies on next- generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, FO 4411/6411, GR 4411/6411)

**ECE 6413 Digital Signal Processing: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Discrete time signals, Z-Transform, Discrete Fourier Transform, digital filter design including IIR, FIR, and FFT synthesis

**ECE 6423 Introduction to Remote Sensing Technologies: 3 hours.**

(Prerequisite: senior or graduate standing, or consent of instructor.) Three hours lecture. Electromagnetic interaction passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR, Lidar, digital image processing, natural resource applications. (Same as PSS 4483/6483 and ABE 4483/6483)

**ECE 6433 Introduction to Radar: 3 hours.**

(Prerequisite: Junior, Senior or graduate standing). Three hours lecture. An overview of the basic concepts of radar including transmitters, receivers, target detection, antennas, signal processing, and tracking

**ECE 6443 Sensor Processing for Autonomous Vehicles: 3 hours.**

(Prerequisite: ECE 3443 or permission of instructor). Three hours lecture. Introduction to sensors and sensor processing for advanced driver assistance systems (ADAS)

**ECE 6613 Power Transmission Systems: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Transmission of power from generator to distribution system; transmission line design; load flow; symmetrical components; balanced/unbalanced faults; stability

**ECE 6633 Power Distribution Systems: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Distribution of power from transmission system to users; primary and secondary feeders; voltage regulation; distribution transformers; protective device coordination; system design; load management

**ECE 6643 Power Systems Relaying and Control: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Protection objectives and fundamentals; inputs; protection of generators, transformers, busses and lines; stability and control

**ECE 6653 Introduction to Power Electronics: 3 hours.**

(Prerequisite: Grade of C or better in both ECE 3614 and ECE 3424 or ECE 3244 or equivalent). Three hours lecture. Introduction to power electronic circuits, with emphasis on design and analysis of power semiconductor converters including DC-DC converters, PWM inverters, and DC power supplies

**ECE 6663 Insulation Coordination in Electric Power Systems: 3 hours.**

(Prerequisite: Credit or registration in ECE 3614). Three hours lecture. Lightning phenomena; switching surges and temporary system over voltages; laboratory generation and application of high voltages and currents; basic insulation levels; surge arresters; system insulation design

**ECE 6673 Fundamentals of High Voltage Engineering: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3614). Three hours lecture. Electrical fields, fields in multi-dielectrics, breakdown mechanisms in gases, liquids, and solid dielectrics, laboratory generation of high voltages, high voltage insulators and cables

**ECE 6713 Computer Architecture: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724). Three hours lecture. Detailed design and implementation of a stored-program digital computer system. Designs for the CPU, I/O subsystems, and memory organizations. ALU design and computer arithmetic

**ECE 6724 Embedded Systems: 4 hours.**

(Prerequisites: Grade of C or better in ECE 3724 and in one of the following: ECE 3424 or ECE 3244 or CSE 4153 or ECE 4833). Three hours lecture. Three hours laboratory. Advanced topics in embedded systems design using contemporary practice

**ECE 6743 Digital System Design: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724. Credit or registration in ECE 3424 or ECE 3244). Two hours lecture. Three hours laboratory. Hierarchical digital design using available design software. Computer aided design workstations will be used to give students access to state-of-the-art design techniques

**ECE 6753 Introduction to Robotics: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. This course covers mathematical foundations (kinematics and dynamics), manipulation, modeling, motion planning, robot control, and hardware implementations of actuators and sensors for modern robots

**ECE 6763 Information and Computer Security: 3 hours.**

(Prerequisite: Grade of C or better in CSE 4733/6733). Three hours lecture. Topics include encryption systems, network security, electronic commerce, systems threats, and risk avoidance procedures. (Same as CSE 4243/6243)

**ECE 6783 Vision Based Guidance for MAVs: 3 hours.**

(Prerequisite: Grade of C or better in both MA 3113 and MA 3253). Two hours lecture and one hour laboratory. This course covers the use of modern computer vision techniques applied to the control of micro air vehicles (MAVs)

**ECE 6793 Applications of Literate Programming in Software Development: 3 hours.**

(Prerequisites: Grade of C or better in ECE 3724 or CSE 3724 and junior or graduate standing or consent of instructor). Two hours lecture and two hours laboratory. Techniques for software development and embedded systems, with an emphasis on interleaved documentation for code longevity. (Same as CSE 4353/6353)

**ECE 6813 Communications Theory: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443 ). Three hours lecture. The frequency and time domain; modulation; random signal theory; network analysis using nondeterministic signals; basic information theory; noise

**ECE 6823 Digital Communications: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443 or equivalent). Three hours lecture. Digital communications systems design trade-offs and performance analysis in the presence of AWGN. Principle topics; transmission and detection, link analysis, channel coding, multiple access, spread-spectrum

**ECE 6833 Data Communications and Computer Networks: 3 hours.**

(Prerequisite: CSE 1384 or ECE 3732, and ECE 3724, both with a grade of C or better). Three hours lecture. The concepts and practices of data communications and networking to provide student with an understanding of the hardware and software used for data communications. (Same as CSE 4153/6153)

**ECE 6843 Error Correcting Digital Codes: 3 hours.**

(Prerequisite: Senior or Graduate Standing). Three hours lecture. A survey, in depth, of current error correcting coding techniques for providing digital data transmission with protection from random and burst noise sources. Many practical and currently used techniques are discussed in detail and some hands-on experience is provided

**ECE 6853 Electro-Optics: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3424 or consent of instructor). Three hours lecture. Linear system theory of optical processes ; Electroptic systems; electro-optical information processing

**ECE 6913 Feedback Control Systems I: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Laplace transforms; transient and frequency response of feedback systems; transfer functions; Nyquist criterion, root locus; compensation of feedback systems; logarithmic analysis and design

**ECE 6923 Feedback Control Systems II: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. Finite difference and recurrence equations. z-transform theory. Analysis of sampled-data control systems. Design of digital control systems

**ECE 6933 State Space Design and Instruments: 3 hours.**

(Prerequisite: Grade of C or better in ECE 3443). Three hours lecture. State space representation. Dynamic systems. Controllability and observability. Full-state feedback observers. Instrumentation: sensors and interfacing

**ECE 6943 Automation, Data Acquisition, and PLCs: 3 hours.**

(Prerequisite: ECE 3443). Two hours lecture, one hour laboratory. Automation and control of industrial processes, identification of sensors and data acquisition, and the use of PLCs to implement control processes

**ECE 6990 Special Topics in Electrical and Computer Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ECE 7000 Directed Individual Study in Electrical and Computer Engineering: 1-6 hours.**

Hours and credits to be arranged

**ECE 8063 Parallel Computer Arch I: 3 hours.**

(Prerequisite: ECE 4713/6713/ CS 4113/6113). Three hours lecture. Study of hardware structures relevant to concurrent computing; evaluation and design methods associated with memory, pipelining, and multiple processors

**ECE 8223 Analog Integrated Circuit Design: 3 hours.**

(Prerequisite: ECE 3434). Analysis and design of analog integrated circuits. Selected topics on operational amplifiers, A-to-D converters and communication circuits. Bi-polar and MOSFETS

**ECE 8273 VLSI Systems I: 3 hours.**

(Prerequisite: ECE 4263/6263). Three hours lecture VLSI design extended into controller concepts, self-timed logic; system design with CAD tools, parameterized block generators, silicon compilers, projects submitted to commercial silicon foundries

**ECE 8313 Electromagnetic Theory: 3 hours.**

(Prerequisite: ECE 3254). Three hours lecture. Static boundary value problems, conformal transformation; Schwarz-Christoffel transformation; harmonics; application of Maxwell's equations to plane waves in dielectrics and conductors; antennas; and radiation. (Same as PH 8313)

**ECE 8323 Electromagnetic Theory II: 3 hours.**

(Prerequisite: ECE 8313). Three hours lecture. Maxwell's theory of electromagnetism: Electromagnetic waves, radiation, antennas, waveguides, scattering, diffraction, and special relativity. (Same as PH 8323)

**ECE 8333 Radar Signal Processing: 3 hours.**

(Prerequisite: ECE 4413/6413 and ECE 4433/6433, or permission of instructor). Three hours lecture. An overview of radar signal processing, including waveform selection, Doppler processing, integration, pulse compression, target detection, and synthetic-aperture-radar processing

**ECE 8343 Microwave Remote Sensing: 3 hours.**

Three hours lecture. Basic concepts of microwave remote sensing including wave propagation, scattering, reflection from natural Earth environments as well as emerging methodologies such as GNSS-R and signals of opportunity

**ECE 8401 Current Topics in Remote Sensing: 1 hour.**

(Prerequisite: Credit or registration in ECE 4423/6423 or PSS 4483/6483 or ABE 4483/6483). One hour lecture. Review of current literature dealing with the technical issues of remote sensing technologies

**ECE 8423 Adaptive Signal Processing: 3 hours.**

(Prerequisites: ECE 3443 or consent of instructor). Three hours lecture. Adaptive filtering, theoretical foundation, algorithms, structures, and implementations. Applications are included

**ECE 8433 Statical Signal Processing: 3 hours.**

(Prerequisite: MA 4533/6533 or consent of instructor). Three hours lecture. Detection theory and design, statistical decisions, Bayes and Neyman-Pearson detection, asymptotic performance, signal processing applications

**ECE 8443 Pattern Recognition: 3 hours.**

(Prerequisite: MA 4533/6533 or consent of instructor). Three hours lecture. Classification description, and structure of pattern recognition, patterns and feature extractions, engineering approaches including statistical and syntactic, and signal processing applications

**ECE 8453 Introduction to Wavelets: 3 hours.**

(Prerequisite: ECE 3443 or consent of instructor). Three hours lecture. Wavelet-expansion systems, discrete wavelet transform, multiresolution analysis, time-frequency analysis, filter banks and the discrete wavelet transform, wavelet transform, wavelet design, wavelet-based applications

**ECE 8473 Digital Image Processing: 3 hours.**

(Prerequisites: CS 1233, CS 1284 or equivalent, ECE 4413/ 6413 ). Three hours lecture. A study of digital image processing principles, concepts, and algorithms; mathematical models; image perception; image sampling and quantization, transforms, image coding

**ECE 8483 Image and Video Coding: 3 hours.**

(Prerequisite: ECE 8473 or consent of instructor). Three hours lecture. Intraframe predictive coding, intraframe transform coding, still-image coding standards, motion compensation, video-coding standards, image transmission and error control

**ECE 8493 Introduction to Neural Networks: 3 hours.**

(Prerequisite: ECE 4413/6413 or equivalent). Three hours lecture. Neural network architectures, training algorithms, and applications in areas such as signal processing and pattern classification

**ECE 8623 Stability and Control of Power Systems: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Transient and dynamic stability; effect of excitation on stability; control of system in steady state (AGC); economic dispatch

**ECE 8633 Control of Distributed Energy Resource Systems: 3 hours.**

(Prerequisite: ECE 3614 or ECE 4913 or consent of instructor). Three hours lecture. Control aspects of power electronic converters used as the interface in distributed and renewable energy systems including the power flow control, power quality aspects, grid supporting functions and stability issues

**ECE 8663 High Voltage Engineering: 3 hours.**

(Prerequisite: ECE 3313). Three hours lecture. Emission, mobility, breakdown, corona, arcs impulse generation, measurement, analysis, dielectric materials, design laboratory demonstration

**ECE 8673 Computer Methods in Power System Analysis: 3 hours.**

(Prerequisite: ECE 4613/6613 or equivalent). Three hours lecture. Algorithms for formation and techniques for manipulation of network matrices. Problem formulation and numerical solution techniques for load flow and stability studies

**ECE 8683 Power System Operation and Control.: 3 hours.**

(Prerequisite: Grade of C or better in ECE 4613 or ECE 6613). Three hours lecture. Power generation characteristics; network modeling; economic dispatch; unit commitment; security constrained unit commitment; hydrothermal coordination

**ECE 8713 Switching Theory I: 3 hours.**

(Prerequisites: ECE 3434, ECE 4713/6713 or consent of instructor). Three hour lecture. Theory of combinational and sequential (synchronous and fundamental-mode) circuits with emphasis on performance, robustness, cost, and testability objectives

**ECE 8723 Introduction to Computer Arithmetic: 3 hours.**

(Prerequisite: ECE 4263/6263). Three hours lecture. Fixed point number systems: algorithms, and associated logic level implementation for fixed point addition, subtraction, multiplication, and division; floating-point formats and operation

**ECE 8733 Parallel Computing Architectures I: 3 hours.**

(Prerequisite: ECE 4713/6713, CSE 4113/6113). Three hours lecture. Study of hardware structures relevant to concurrent computing; evaluation and design methods associated with memory, pipelining, and multiple processors

**ECE 8743 Advanced Robotics: 3 hours.**

Three hours lecture. Rotations and their parameterization, Lie group theory, and shape determination of continuum robots

**ECE 8753 Distributed Computing Systems: 3 hours.**

(Prerequisites: An undergraduate course in operating systems or instructor approval). Three hours lecture. Advanced topics related to distributed computing systems including communication, client-server model, code migration, naming, locating entities, synchronization, replication and consistency, fault tolerance, and security issues

**ECE 8803 Random Signals and Signs: 3 hours.**

(Prerequisite: IE 4613 or MA 4523 or equivalent). Three hours lecture. Probability and random processes, auto-and cross-correlation, energy and power spectral densities, mean-square calculus, ergodicity. Response of linear systems to random signals, and Markov chains

**ECE 8813 Information Theory: 3 hours.**

(Prerequisite: ECE 8803 or consent of instructor). Three hours lecture. Entropy, the asymptotic equipartition property, entropy rate, data compression, channel capacity, differential entropy, the Gaussian channels, rate-distortion theory

**ECE 8823 Wireless Networks: 3 hours.**

(Prerequisite: ECE 4813/6813 Communications Theory or equivalent). Three hours lecture. Wireless network protocol design, theoretical analysis, and security and privacy. (Same as CSE 8753)

**ECE 8833 Computational Intelligence: 3 hours.**

(Prerequisites: IE 4613/6613 or MA 4523/6523 or ECE 8803, or consent of instructor). Three hours lecture. An overview of the field of computational intelligence for automated decision-making under uncertainty with applications in engineering fields such as signal and image processing, robotics and embedded systems

**ECE 8923 Non-Linear Control Systems: 3 hours.**

(Prerequisite: ECE 4913/6913 or equivalent). Three hours lecture. A study of techniques available to analyze non-linear systems and a study of associated synthesis procedures

**ECE 8933 Random Processes in Automatic Control: 3 hours.**

(Prerequisite: ECE 4913/6913 or equivalent). Three hours lecture. Principles and application of statistical design; random processes in automatic control; time invariant systems

**ECE 8943 Optimal Control of Dynamic Systems: 3 hours.**

(Prerequisite: ASE 4123 or ECE 4913/6913 or equivalent). Three hours lecture. State variable description of systems; maximum principle of Pontryagin, dynamic programming, optimization of linear systems with quadratic performance measures; time optimal and fuel optimal systems. (Same as ASE 8863)

**ECE 8963 Digital Control Systems: 3 hours.**

(Prerequisites: ECE 4913/6913 and ECE 4923/6923 or consent of instructor). Three hours lecture. z-transform theory and analysis; modified z-transform; design principles; digital state observers; introduction to optimal control; introduction to computer-aided digital control system design and analysis

**ECE 8990 Special Topics in Electrical and Computer Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**ECE 9000 Research Electrical and Computer Engineering: 1-13 hours.**

Hours and credits to be arranged

**ECE 9100 Graduate Seminar: 0 hours.**

Presentations and discussions by faculty, guest speakers, and graduate students on current topics in the areas of electrical and computer engineering. Must be taken three times before graduation for doctoral degree. Repeatable up to three times

## Education Courses

**ED 8620 Capstone Project in Education: 1-6 hours.**

(Prerequisites: Acceptance into a graduate degree program in Education; or permission of instructor). Hours and credits to be arranged, may be repeated. Students investigate a specific problem of practice and develop a final project appropriate to the subject area and graduate-level specific to the student

**ED 8813 Applications of Systems Change in Education and Related Fields: 3 hours.**

Three credit hours lecture. The focus of the course is on the development of knowledge and skills in planning, designing, implementing, managing, and evaluating innovative projects and organizations in an area of the student's expertise and interest

**ED 9314 Systems and Individual Level Supervision, Mentoring, and Consultation: 4 hours.**

(Prerequisite: Consent of the instructor). Three hours lecture. One hour practicum. Systematic investigation and application of consultation, supervision, and mentoring as applied to individuals and organizational structures

**ED 9323 Program Accountability in Education: 3 hours.**

(Prerequisites: Admission to a doctoral degree in Education or related field; or permission of the instructor). Three hours lecture. Process of accountability, including standards within education and professional programs, accreditation processes and general procedures, and data collection strategies to meet general regulations

**ED 9343 Organizational/Project Design and Management: 3 hours.**

Three credit hours lecture. The focus of the course is on the development of knowledge and skills in planning, designing, implementing, managing, and evaluating innovative projects and organizations in an area of the expertise and interest of the student

**ED 9413 Government & Agency Relationships in Education Policy: 3 hours.**

(Prerequisites: Admission to a doctoral degree in Education or related field; or permission of the instructor). Three hours lecture. The study of theories and principles of systems change in public and private agencies include education, clinical and health service agencies, and other related fields

**ED 9913 Capstone Seminar in Education: 3 hours.**

(Prerequisites: Acceptance into a graduate degree program in Education; or permission of instructor). Three hours seminar. Students prepare for their Capstone Project to investigate a specific problem of practice appropriate to the subject area and graduate-level specific to the student

## Educational Leadership (EDA) Courses

**EDA 6990 Special Topics in Educational Leadership: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDA 7000 Directed Individual Study in Educational Leadership: 1-6 hours.**

Hours and credits to be arranged

**EDA 8163 Public School Finance: 3 hours.**

Three hours lecture. Legal and other factors governing financial policies and practices in public schools; sources of revenue; budgeting; disbursement of funds; school plant; records; insurance

**EDA 8190 Workshop in Educational Administration and Supervision: 1-3 hours.**

This course is for practicing school administrators who need courses of varying length, format, and focus in areas not covered by the regular curriculum. (May be repeated once)

**EDA 8210 Internship in Supervision and Administration: 1-3 hours.**

Opportunity under direct supervision of regular university staff for practical experience in the major area of interest. May be repeated for credit

**EDA 8223 Seminar in Administration: 3 hours.**

(Prerequisite: Administrative experience or graduate standing). Three hours lecture. Specialized study of selected problems in educational leadership. (Same as HED 8223)

**EDA 8273 Educational Administration and Supervision: 3 hours.**

(Prerequisite: Advanced graduate standing). Three hours lecture. Fundamental of leading and managing at the central office executive level, e.g., assistant superintendent. Emphasis of policy development, curriculum and instruction, planning, operations, and public relations

**EDA 8283 Educational Leadership: 3 hours.**

Three hours lecture. Nature of educational leadership. The roles of leadership in staff and program development, diffusion of innovations, and the uses of power in making educational decisions. (Same as HED 8283)

**EDA 8293 Professional Development of Educational Personnel: 3 hours.**

(Prerequisite :EDL 8143). Three hours lecture. Collaborative approaches to processes of individual and group professional development for instructional and non-instructional personnel; ensuring, supporting, enhancing best practices for teaching, learning, school improvement

**EDA 8323 Educational Facilities Design: 3 hours.**

Three hours lecture. Studies design issues in learning environments/facilities, examines contemporary design models, their impact on learning, and uses this information in the design process

**EDA 8353 Applications of Theory to Educational Administration: 3 hours.**

Three hours lecture. The nature of theory; types of educational administrative theories; uses of organizational and administrative theory in administrative problem solving; applications of general systems theories in education. (Same as HED 8353)

**EDA 8383 Ethical Decision Making in Educational Administration: 3 hours.**

(Prerequisite: EDA 8283). Three hours lecture. Case studies are used to analyze educational decisions. Multiple decision models and ethical concepts are applied to problems and moral dilemmas. (Same as HED 8383)

**EDA 8413 Human Resources Administration in Education: 3 hours.**

(Prerequisites: Acceptance to the Educational Leadership Program, or permission of instructor). Three credit hours. This course addresses various aspects of human resources administration in educational settings (e.g., hiring, recruitment, professional development, and induction) primarily from a district-level perspective

**EDA 8423 Law and Ethics in Educational Leadership: 3 hours.**

(Prerequisites: Acceptance to the Educational Administration Program, or permission of instructor). Three credit hours. This course explores legal and ethical issues facing district level PreK-12 educational leaders and addresses the legal responsibilities and powers of state government, local boards, and educational leaders

**EDA 8433 The Superintendency: 3 hours.**

(Prerequisites: Educational Leadership program acceptance, or permission of instructor). Three credit hours. This course addresses the many dimensions of school superintendency, covering the theory, processes, and procedures of effective superintendents. Students can expect to explore the evolving complexities and challenges of leading school districts in the 21st century

**EDA 8443 Politics and Policy in Educational Leadership: 3 hours.**

(Prerequisites: Educational Leadership program acceptance, or permission of instructor). Three credit hours. This course addresses the political contexts in which schools operate in order to prepare educational leaders to successfully function within local, state, and national political contexts. Various roles in school politics and policy formation are examined

**EDA 8453 Instructional Leadership: 3 hours.**

(Prerequisites: Educational Leadership program acceptance, or permission of instructor). Three credit hours. This course examines the factors involved in creating schools and school districts that promote high-quality instruction, student engagement, and student learning are examined, as well as curriculum alignment, teacher evaluations, mentoring, coaching, and culturally responsive practices

**EDA 8463 Technology and Communication in Educational Leadership: 3 hours.**

(Prerequisites: Educational Leadership program acceptance, or permission of instructor). Three credit hours. This course explores skills needed to lead a school or district in the ongoing process of technology integration. Leadership techniques and strategies for designing, developing, implementing and evaluating critical aspects of instructional technology will be addressed

**EDA 8473 Introduction to Research in Educational Leadership: 3 hours.**

(Prerequisites: Permission of Department Head and/or instructor). Three credit hours. Research in Educational Leadership is designed to enable students to develop graduate-level skills in reading and interpreting research, analyzing research studies, formulating research questions, selecting appropriate research methodologies, and conducting research specifically in the field of educational leadership

**EDA 8483 Survey Research: 3 hours.**

(Prerequisites: Acceptance to the Doctor of Education or Doctor of Philosophy Program within the Educational Leadership Department, or permission of the instructor). Three credit hours. This course is designed to provide students with a foundation and an overview of survey research, primarily focusing on sampling and questionnaire development

**EDA 8493 Action Research: 3 hours.**

(Prerequisites: Acceptance to the Doctor of Education or Doctor of Philosophy Program within the Educational Leadership Department, or permission of the instructor). Three credit hours. This course will serve as an introduction to action research as it relates to professional practice in educational leadership

**EDA 8563 Program Evaluation: 3 hours.**

(Prerequisites: Acceptance to the Doctor of Education or Doctor of Philosophy Program within the Educational Leadership Department, or permission of the instructor). Three credit hours. This course is designed to cover the principles of evaluation as applied to educational problems of practice

**EDA 8623 Doctoral Capstone 1: 3 hours.**

(Prerequisites: Acceptance to the Doctor of Education or Doctor of Philosophy Program within the Educational Leadership Department, or permission of the instructor). Three credit hours. The first phase in the capstone writing process. Students begin investigating a specific problem of practice and reviewing related literature

**EDA 8633 Doctoral Capstone 2: 3 hours.**

(Prerequisites: Acceptance to the Doctor of Education or Doctor of Philosophy Program within the Educational Leadership Department, successful completion of Capstone 1, or permission of the instructor). Three credit hours. The second phase in the capstone writing process. Students will begin collecting and analyzing data for the capstone



**EDA 8643 Doctoral Capstone 3: 3 hours.**

(Prerequisites: Acceptance to Doctor of Education or Doctor of Philosophy Program within the Educational Leadership Department, successful completion of Capstone 1 and Capstone 2, or permission of the instructor). Three credit hours. The final phase of the capstone writing process. Students will focus on constructing the capstone project

**EDA 8990 Special Topics in Educational Leadership: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDA 9000 Research in Educational Leadership: 1-13 hours.**

Hours and credits to be arranged

**EDA 9913 Dissertation Seminar: 3 hours.**

Optional or elective course for specialized study in developing dissertation research. May be repeated once for credit

## Elementary Education Courses

**EDE 2443 Creative Arts for Elementary and Middle Levels: 3 hours.**

(Prerequisite: Sophomore standing or higher in Elementary Education). Three hours lecture. An exploration of integrating Literature and the arts (music, dance, drama, and visual arts) across content areas in elementary and middle level classrooms

**EDE 2523 Introduction to Elementary Education: 3 hours.**

(Prerequisites: Sophomore standing or higher in Elementary Education). Three hours lecture. Introduction to the elementary education profession. Topics include what it means to be an elementary teacher, professional dispositions, terminology used in the profession, and general best practices for the elementary classroom

**EDE 2990 Special Topics in Curriculum, Instruction, and Special Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDE 3123 Early Childhood Education: 3 hours.**

(Prerequisite: Admission to teacher education. Co-requisite: RDG 3113 and RDG 3123). Three hours lecture. Overview of early childhood education. Understanding young learners and creating learning environments. Assessing young children. Field experience

**EDE 3223 Middle Level Education: 3 hours.**

(Prerequisite: Admission to Teacher Education. Co-requisite: RDG 3413 and RDG 3423). Three hours lecture. Understanding the learning needs of young adolescents (grades 4-8); study of appropriate teaching strategies, engaging learning environments, and assessment for young adolescents

**EDE 3233 Teaching Children's Literature at the Elementary and Middle Levels: 3 hours.**

Three hours lecture. Teaching children's literature at the elementary and middle levels. Introduction, selection, presentation and utilization of a variety of children's literature

**EDE 3343 Teaching Adolescent Literature: 3 hours.**

Three hours lecture. A study of the types of literature read by older children and adolescents with emphasis upon the criteria for the choice of good books and knowledge of available books and teaching materials

**EDE 3523 Foundations of Elementary & Middle Level Mathematics Education: 3 hours.**

(Corequisite: RDG 3413, RDG 3423). Three hours lecture. Field based. The theoretical pedagogical foundations and current issues and perspectives of teaching elementary mathematics; a framework for the teaching of mathematics content and processes

**EDE 4000 Directed Individual Study in Elementary Education: 1-6 hours.**

Hours and credits to be arranged

**EDE 4113 Teaching Elementary and Middle Level Science: 3 hours.**

(Prerequisites: Admission to Teacher Education; RDG: 3113, 3123, 3413, 3423; EDE 3123, 3223, 3523; TECH 4763; EPY 4103; EDX 3213. Co-requisite: EDE 4123, 4143; RDG 4133). Two hours lecture. Two hours laboratory. Field based. Selection, organization, and presentation of natural science content for elementary/middle school students, assessment of learning, and general effectiveness of instruction

**EDE 4123 Teaching Elementary and Middle Level Mathematics: 3 hours.**

(Prerequisites: Admission to Teacher Education; RDG 3113, 3123, 3413, 3423; EDE 3123,3223,3523; TECH 4763; EPY 4103; EDX 3213. Co-requisite: EDE 4113, 4143; RDG 4133) Two hours lecture. Two hours laboratory. Field based. The content and process of mathematics instruction for elementary/middle grades students including teaching principles, mathematical tools, and assessment of student progress

**EDE 4143 Teaching Elementary and Middle Level Social Studies: 3 hours.**

(Prerequisites: Admission to Teacher Education; RDG 3113,3123,3413,3423; EDE 3123,3223,3523; TECH 4763; EPY 4103; EDX 3213. Corequisites: EDE 4113, 4123; RDG 4133). Two hours lecture. Two hours laboratory. Field based. Selection, organization and presentation of social studies content for K-8; assessment of learning and general effectiveness of instruction

**EDE 4153 Assessment & Evaluation in Elementary Education: 3 hours.**

Three hours lecture. (Pre-Requisites: EDE 3123, EDE 3223, EDE 3523, RDG 3113, RDG 3123, RDG 3414; Co-Requisites: EDE 4113, EDE 4123, EDE 4143, RDG 4133). Principles and techniques to develop, implement and interpret appropriate traditional, performance-based and standardized assessments for use in the elementary and middle grades classroom

**EDE 4333 International Exploration in Education: 3 hours.**

This course involves the examination of the education systems outside of the U.S., with particular attention to classrooms in the host country. (Same as EDS/EDX 4333)

**EDE 4623 Elementary/Middle Level STEM Pedagogy: 3 hours.**

Three hours lecture. (Pre-Requisites: EDE 3523 OR both RDG 4113/6113 and EDE 4123 OR Permission of the Instructor). Methods and materials for the preparation and implementation of pedagogical tools used in providing research-based STEM experiences in grades K-6

**EDE 4883 Managing the Elementary and Middle Level Classroom: 3 hours.**

(Prerequisite: Admission to Teacher Education, completion of all professional education courses, and concurrent enrollment in EDE 4886). Three hours lecture. Developing and managing an appropriate learning environment for elementary and middle level students

**EDE 4886 Elementary and Middle Level Teaching Internship: 6 hours.**

(Prerequisite: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a C or better). Six hours internship. A supervised observation and teaching experience in an elementary and/or middle level classroom

**EDE 4896 Elementary and Middle Level Teaching Internship: 6 hours.**

(Prerequisite: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a C or better.) Six hours internship. A supervised observation and teaching experience in an elementary and/or middle level classroom

**EDE 4990 Special Topics in Elementary Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDE 6623 Elementary/Middle Level STEM Pedagogy: 3 hours.**

Three hours lecture. (Pre-Requisites: EDE 3523 OR both RDG 4113/6113 and EDE 4123 OR Permission of the Instructor). Methods and materials for the preparation and implementation of pedagogical tools used in providing research-based STEM experiences in grades K-6

**EDE 6990 Special Topics in Elementary Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDE 7000 Directed Individual Study in Elementary Education: 1-6 hours.**

Hours and credits to be arranged

**EDE 8113 Planning and Management for Elementary and Special Education: 3 hours.**

Three hours lecture. Provides a greater understanding of elementary learners and children with exceptionalities who may be in the regular classroom and suggests methods and techniques for planning instruction and managing the elementary classroom

**EDE 8123 Foundations for Teaching Middle Level Mathematics: 3 hours.**

Three hours lecture. The theoretical and pedagogical foundations, issues and perspectives of teaching middle level mathematics; a standards-based framework for relevant teaching of number and operations

**EDE 8133 Teaching Internship in Elementary and Special Education I: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours clinical instruction. Professional full-day public school teaching experience in one 16-week placement in diverse settings and grade levels under the direction of a university supervisor

**EDE 8143 Teaching Internship in Elementary and Special Education II: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours clinical instruction. Professional full-day public school teaching experience in one 16-week placement in diverse settings and grade levels under the direction of a university supervisor

**EDE 8153 Professional Roles of the Middle Level Educator: 3 hours.**

Three hours lecture. Understanding developmentally responsive middle schools and the professional roles of middle level educators; study of professional roles

**EDE 8163 Teaching Middle Level Mathematics Content: 3 hours.**

Three hours lecture. Research-based pedagogy and current issues and perspectives of teaching the content of algebra, geometry, measurement, and data analysis and probability in the middle level

**EDE 8173 Teaching Middle Level Social Studies: 3 hours.**

Three hours lecture. An introduction to the history, purposes, and current issues associated with middle level social studies education. Course to include research, trends, methods, and materials

**EDE 8183 Teaching Middle Level Sciences: 3 hours.**

Theory, applied methods, and techniques for teaching middle level physical, life, and earth science. Content knowledge, inquiry, planning, and assessment for teaching

**EDE 8313 Theory and Development of Early Childhood Education: 3 hours.**

Three hours lecture. Seminar-type course in synthesis of methods and techniques applicable to elementary teaching; readings; reports; research

**EDE 8423 Elementary School Methods: 3 hours.**

Three hours lecture, Seminar-type course in synthesis of methods and techniques applicable of elementary teaching; readings; reports; research

**EDE 8433 The Elementary School Curriculum: 3 hours.**

Three hours lecture. Principles of curriculum construction as they apply to the elementary school program (taught spring of odd numbered years)

**EDE 8443 Seminar in Elementary Education: 3 hours.**

Three hours lecture. A study of current issues in elementary education. Designed for elementary and school administration majors

**EDE 8463 Readings and Research in Children's Literature: 3 hours.**

Three hours lecture. Research involving the characteristics of quality literature for children, investigation of illustrators, illustrations, authors, and the role of children's literature in schools

**EDE 8473 The Elementary Social Studies Curriculum: 3 hours.**

Three hours lecture. Seminar-type course to include research; trends, methods; provision for individual differences; multi-level materials

**EDE 8513 Curriculum and Program Developments in Early Childhood: 3 hours.**

Three hours lecture. The recent and most promising developments in curriculum for preschool through primary aged children

**EDE 8523 Practicum: Language Arts and Literacy Development in Early Childhood Education: 3 hours.**

(Prerequisites: EDE 4133, RDG 3113, RDG 3213, or the equivalent). Two hours lecture. Two hours laboratory. A study of language development; the language arts curriculum for young children. Observation and participation in a preschool

**EDE 8533 Behavioral Experiences in Early Childhood Education: 3 hours.**

Three hours lecture. The world of the child from preschool through early primary years with emphasis on child behavior

**EDE 8543 Mathematics Experiences in Early Childhood Education: 3 hours.**

(Prerequisites: EDE 4123 or the equivalent). Three hours lecture. Materials, methods and the preparation and use of instructional media in providing mathematical experiences for young children. Observation and participation in a preschool

**EDE 8623 Content Area Literacy and Disciplinary Literacy****Instruction: 3 hours.**

Three hours lecture. Theory, research, and methods for teaching elementary school students to use literacy as a tool for learning

**EDE 8633 The Teaching of Writing: 3 hours.**

Two hours lecture. Two hours laboratory. Methods and materials for teaching writing in grades K-12. Formal and informal writing assessments. Writing across the curriculum

**EDE 8713 Educating Young Adolescents: 3 hours.**

Three hours lecture. Examination of issues influencing the education of young adolescents, including instructional methods, curricular models, organizational patterns, and developmentally responsive schools. Observation/participation in 4-8 settings

**EDE 8733 Teaching Physical, Life, and Earth Science in the Elementary and Middle School Classroom: 3 hours.**

Three hours lecture. Theory, applied methods, and techniques for teaching K-8 physical, life, and earth science. Content knowledge, inquiry, discovery learning, and technology of teaching

**EDE 8763 Elementary and Middle Level Mathematics Education: 3 hours.**

Three hours lecture. Methods and materials in the preparation and implementation of pedagogical and assessment tools to be used in providing research-based mathematics experiences in grades K-8

**EDE 8893 Directed Readings in Teacher Education: 3 hours.**

Intensive supervised readings in the field of teacher education. (Same as EDS 8643)

**EDE 8990 Special Topics in Elementary Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDE 9000 Research in Elementary Education: 1-13 hours.**

Hours and credits to be arranged

**EDE 9221 Professional Practice in Teacher Education: 1 hour.**

One hour lecture. Students will examine potential careers for graduates with a doctorate in education and develop professional documents pertinent to their career paths. (Same as EDS 9221 and EDX 9221)

**EDE 9413 Practicum in College Teaching: 3 hours.**

Three hours practicum. Teaching of at least one course in education, under the supervision of a senior staff member. (Same as EDS 9413)

**EDE 9420 Research Practicum in Early Childhood Education: 1-6 hours.**

(Prerequisites: EDE 8513, EDE 8523, EDE 8533, EDE 8543). Research experiences through participation, observation, and experimental projects related to early childhood settings

**EDE 9553 Teaching and Teacher Education: 3 hours.**

Analysis of current research on teacher education including pre-service teacher education and professional development for practicing teachers. (Same as EDS 9553 and EDX 9553)

**Educational Foundations Courses****EDF 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**EDF 2990 Special Topics in Educational Foundations: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDF 3333 Social Foundations of Education: 3 hours.**

Three hours lecture. A study of the sociological, historical, political, legal, and philosophical bases of American education

**EDF 3413 Writing for Thinking: 3 hours.**

(Prerequisites: EN 1103 and 1113 or equivalent). Three hours lecture. Designed to enhance participants' writing/thinking skills and to prepare participants to use writing as a learning process with groups they teach or lead

**EDF 3423 Exploring Diversity Through Writing: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Using writing to explore issues of diversity in the classroom. Creating a learning community for diverse learners

**EDF 4000 Directed Individual Study in Educational Foundations: 1-6 hours.**

Hours and credits to be arranged

**EDF 4243 Planning for the Diversity of Learners: 3 hours.**

(Prerequisites: Admission to Teacher Education) Three hours lecture. Study of variables contributing to the creation and management of a positive learning environment for the complexity and diversity of middle and high school students

**EDF 4990 Special Topics in Educational Foundations: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDF 6243 Planning for the Diversity of Learners: 3 hours.**

(Prerequisites: Admission to Teacher Education) Three hours lecture. Study of variables contributing to the creation and management of a positive learning environment for the complexity and diversity of middle and high school students

**EDF 6990 Special Topics in Educational Foundations: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDF 7000 Directed Individual Study in Educational Foundations: 1-6 hours.**

Hours and credits to be arranged

**EDF 8243 Middle School Diversity: 3 hours.**

Three hours lecture. A study of the theory and techniques for educating diverse middle school learners

**EDF 8323 Comparative Education: 3 hours.**

Three hours lecture. Contemporary educational movements in Denmark, France, Great Britain, India, the Soviet Union, and the United States; technical changes and their effects (taught every spring)

**EDF 8353 Principles of Curriculum Development: 3 hours.**

Three hours lecture. An examination of principles, problems, and practices influencing curriculum planning; relationships between elementary and secondary school curriculums; research in general curriculum problems

**EDF 8363 Function and Methods of Research in Education: 3 hours.**

Three hours lecture. The function of research in the development and conduct of the educational program; research methods and techniques in education and the contributions of research to public education; rules and principles governing evidence and conclusions

**EDF 8383 Issues in Education: 3 hours.**

Three hours lecture. A critical study of current issues in education (taught every summer)

**EDF 8393 History of Education in the United States: 3 hours.**

Three hours lecture. A history of the growth and development of education in the United States from earliest Colonial times to the present, including recent movements and trends (taught every summer)

**EDF 8443 Evaluation of School Programs: 3 hours.**

Three hours lecture. The course provides an overview of evaluation as an inquiry process. Frameworks and models for planning evaluation studies are discussed and applications are demonstrated

**EDF 8553 Research in the Classroom: 3 hours.**

Three hours lecture. An examination of research methods used by teachers in the classroom setting

**EDF 8990 Special Topics in Educational Foundations: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDF 9313 Philosophy of Education: 3 hours.**

Three hours lecture. An examination of educational beliefs and justification

**EDF 9373 Educational Research Design: 3 hours.**

(Prerequisites: EDF 8363 and EPY 8214 or equivalents; consent of instructor). Three hours lecture. A study of various designs of research and preparation of research proposals

**EDF 9443 Single-Subject Research Designs for Education: 3 hours.**

Three hours lecture. A detailed examination of single-subject research designs and their associated research methods including data collection and data evaluation techniques (taught spring of odd numbered years only). (Same as EPY 9443)

**EDF 9453 Introduction to Qualitative Research in Education: 3 hours.**

(Prerequisites: EPY 8214, EDF 9373). Three hours lecture. Introduction to qualitative research, including theoretical considerations and applied methods, techniques, and analysis of field-based educational research

**EDF 9463 Qualitative Data Collection in Education: 3 hours.**

(Prerequisite: EDF 9453). Three hours lecture. An in-depth examination of interviewing and observation as two primary qualitative data sources in educational settings

**EDF 9473 Qualitative Data Analysis and Presentation in Education: 3 hours.**

(Prerequisite: EDF 9463). Three hours lecture. Examination, application, and assessment of a range of approaches to analysis and presentation in the design of qualitative research studies in educational settings

**EDF 9913 Dissertation Seminar: 3 hours.**

Optional or elective course for specialized study in developing dissertation research. May be repeated once for credit

**Educational Leadership (EDL) Courses****EDL 7000 Directed Individual Study in Educational Leadership: 1-6 hours.**

The purpose of this course is to allow the student to investigate areas of interest and report the results of investigation in a scholarly manner

**EDL 8113 Contexts of Educational Leadership: 3 hours.**

Three hours lecture. Exploration of the educational leader's responses to historical, philosophical, sociocultural, democratic and educational contexts affecting leadership; school culture and climate; change processes for school improvement

**EDL 8123 Principles of Educational Leadership: 3 hours.**

Three hours lecture. Applying democratic processes to school governance and leadership; decision making; consensus building; empowerment; vision; mission; and school improvement

**EDL 8143 Educational Leaders as Instructional Supervisors: 3 hours.**

Three hours lecture. Applying interpersonal and clinical skills, techniques and approaches in the observation, supervision, and empowerment of teachers and in the facilitation of teaching and learning environments

**EDL 8163 Educational Budgeting and Resource Allocation: 3 hours.**

Three hours lecture. Administrative leadership for organization, management, allocation of resources to enhance and support teaching and learning; four modules: budgeting, facilities, personnel, student and family services

**EDL 8173 Legal and Ethical Perspectives of Leadership in Schools: 3 hours.**

Three hours lecture. Examination of legal and ethical issues in educational leadership. Analysis of impact of laws and legal decisions on policy formation and decision implementation in education

**EDL 8193 Educational Environments: 3 hours.**

(Prerequisites: EDL 8201 & EDL 8202). Three hours lecture. Capstone course of Master's/Specialist AA Certification program. Theories, roles, functions of leadership in educational environments; organizational structures; community and board relationships; policy; strategic planning

**EDL 8213 Internship I: Observation and Field Applications: 3 hours.**

(Prerequisites: EDL 8113, EDL 8123, EPY 8223). Interns experience designated observation, authentic application, and mentorship activities at educational sites under joint supervision of university and school-based leaders

**EDL 8223 Internship II: Administrative Applications: 3 hours.**

(Prerequisites: EDL 8163, EDL 8173, EPY 9263, EDL 8213). Interns observe and apply techniques of administrative leadership in authentic educational situations under joint supervision of university and school-based staff at school sites

**EDL 8233 Internship III: Instructional Applications: 3 hours.**

(Prerequisites: EPY 8223, EDL 8143, EDL 8193, EDL 8213, EDL 8223 or approval of instructor). Focus on instructional leadership experiences; designated culminating internship activities at school sites; joint supervision by university staff and school-and/or district-based leadership

**EDL 8313 Assessing Content Knowledge for Teacher Leadership: 3 hours.**

Three hours lecture. This course addresses the assessment of content knowledge necessary to be an effective teacher leader. It involves developing an understanding of the relationship between content knowledge, pedagogy, and assessment. Students learn strategies for these key elements of the teaching profession

**EDL 8323 Differentiation of Instruction for Teacher Leadership: 3 hours.**

Three hours lecture. This course will address the importance of differentiated instruction in effective teacher leadership. It will involve developing teacher-leaders' abilities to evaluate students' learning styles, plan and implement differentiated instruction, and analyze instructional strategies and materials based on ongoing assessment

**EDL 8333 Teaching Practice and Learning Environment for Teacher Leadership: 3 hours.**

Three hours lecture. This course will address the knowledge of teaching practices and learning environments necessary to be an effective teacher leader. This will include content in instructional planning, pedagogical strategies, student engagement, development of motivational, safe learning environments, and assessment of these best practices

**EDL 8343 Effective and Reflective Practitioner for Teacher Leadership: 3 hours.**

Three hours lecture. This course involves developing teacher-leaders' abilities in applying knowledge of students as well as collaborating with all educational stakeholders to develop learning communities. Ultimately, this course enhances the teacher leader's commitment to advancing student learning and achievement in the K-12 setting

**EDL 8353 Teacher Leadership Internship: 3 hours.**

Three hours clinical instruction. A field-based component is required. This course requires students to take the theory, pedagogy, and leadership knowledge they have learned in the required coursework and apply teacher-leadership practices in a school setting

**EDL 8413 School Legal and Ethical Perspectives: 3 hours.**

Three hours lecture. Focus of the course is on an introduction to school law, policy development, and ethical leadership

**EDL 8423 School Leadership: 3 hours.**

Three hours lecture. The focus of the course is on effectively leading and managing the school within the political and social context of high stakes accountability for student learning

**EDL 8433 Using Data for School Improvement: 3 hours.**

Three hours lecture. The course focuses on using data as a tool to enhance the decision-making processes for comprehensive school reform and improvement

**EDL 8513 School Leadership Internship I: 3 hours.**

Clinical Instruction. The course requires students to apply leadership practices to the real-world setting of a P-12 school

**EDL 8523 Educating Diverse Learners: 3 hours.**

Three hours lecture. This course focuses on leading schools that address the needs of all learners in academically, socially, and emotionally responsive classrooms

**EDL 8613 School Leadership Internship II: 3 hours.**

(Prerequisites: EDL 8513 and consent of instructor). Clinical Instruction. This course is a culminating internship that requires students to apply leadership practices to the real-world setting of a P-12 school

**EDL 8623 Leading Curriculum, Instruction and Assessment: 3 hours.**

Three hours lecture. The course covers educational leaders' responsibilities relative to national and state curricula standards, effective instructional practices, and the use of assessments to support student achievement

**EDL 8633 Human Resources Leadership for Schools: 3 hours.**

Three hours lecture. This course addresses leadership of various human resources functions that impact the effectiveness of P-12 schools

**EDL 8713 School Business and Facilities: 3 hours.**

Three hours lecture. Focus of the course is on providing effective leadership for school operations such as managing the budget, campus safety and security, and buildings and grounds

**EDL 8723 Leadership for Positive School Culture: 3 hours.**

Three hours lecture. The course focuses on the role of the school leader to shape a productive academic learning culture in his/her school

**EDL 8990 Special Topics in Educational Leadership: 1-9 hours.**

Titles to be arranged. These courses are used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to 2 offerings under one title within two academic years.)

**EDL 9000 Research in Educational Leadership: 1-13 hours.**

Hours and credits to be arranged

## Secondary Education Courses

**EDS 2990 Special Topics in Secondary Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDS 3413 Principles of Secondary Education: 3 hours.**

Two hours lecture. One hour lab. Overview of secondary education including fundamentals of planning for learning of all students, theories of learning at the secondary level, and policies and practices in secondary settings

**EDS 3633 Secondary Mathematics Education: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Examine the concepts and tools used to teach mathematics in the secondary classroom, connections between algebra and geometry concepts, and national and state mathematics standards

**EDS 3643 Secondary Social Studies Education: 3 hours.**

(Prerequisite: Admission to teacher education). Three hours lecture. An introduction to the history, purposes, and current issues associated with middle and secondary social studies education

**EDS 3653 Secondary Science Education: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Fundamentals of science education including the National Science Education Standards and NSTA recommendations required for teaching science in grades 7-12

**EDS 3673 Secondary Language Arts Education: 3 hours.**

Prerequisite: Admission to Teacher Education or Consent of Instructor). Three hours lecture. Field based. Essential knowledge, skills and attitudes necessary for the successful teaching of the language arts

**EDS 4000 Directed Individual Study in Secondary Education: 1-6 hours.**

Hours and credits to be arranged

**EDS 4333 International Exploration in Education: 3 hours.**

This course involves the examination of the education systems outside of the U.S., with particular attention to classrooms in the host country. (Same as EDE/EDX 4333)

**EDS 4403 Evaluation of Learning in Secondary Schools: 3 hours.**

(Prerequisites: Admission to Teacher Education; Co-requisites: EDS 4886 and EDS 4896). Three hours lecture. A study of critical assessment practices in secondary education through the use of data to inform instruction. Particular attention will be given to discipline specific pedagogy for evaluation of student learning in secondary classrooms

**EDS 4503 Issues, History and Rationale of Science Education: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Foundational course for science educators with focusing on issues, history and research basis for science education. Course content is based on the rationale that science educators are expected to couple science content knowledge with strong teaching skills

**EDS 4513 Informal Science Instruction: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Students gain insight into teaching science in non-formal learning environments. This will include application of research based effective instructional methods, strategies for curriculum development and the assessment strategies to measure impact outside of the traditional classroom

**EDS 4523 Teaching Scientific Inquiry: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Students gain insight into pedagogical strategies for teaching the process of scientific inquiry. This will include application of research supported best practices for implementing science fair, citizen science, project and problem-based learning

**EDS 4533 Teaching Science with Virtual Reality: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Students gain insight into pedagogical strategies for implementing virtual reality programing into a secondary science classroom. This will include instructional techniques to support student learning for both traditional and distance learning environments

**EDS 4633 Methods of Teaching Mathematics: 3 hours.**

(Prerequisite: Admission to Teacher Education, EDS 3633). Three hours lecture. Field based. Aims and purposes of teaching mathematics in high school, curriculum problems, organization and presentation of subject matter, methods of teaching and evaluation

**EDS 4643 Methods of Teaching Social Studies: 3 hours.**

(Prerequisite: Admission to teacher education, EDS 3643). Three hours lecture. An examination of teaching methods and instructional materials and media appropriate for use in middle schools and secondary social studies classrooms

**EDS 4653 Methods of Teaching Science: 3 hours.**

(Prerequisite: Admission to Teacher Education, EDS 3653) Three hours lecture. Field based. Students will gain insight into the methods of teaching science in grades 7-12, including selection, organization, presentation and assessment required by NSES

**EDS 4673 Methods of Teaching Language Arts: 3 hours.**

(Prerequisite: Admission to Teacher Education, EDS 3673). Three hours lecture. Field based. Objectives in English/Language Arts; content, organization, methods of teaching language, literature, and composition. Primarily for secondary teachers of language arts

**EDS 4873 Seminar in Managing the Secondary Classroom: 3 hours.**

(Prerequisites: Admission to Teacher Education). Three hours lecture. A seminar that addresses classroom management issues, theories, and practices

**EDS 4886 Teaching Internship in Secondary Education: 6 hours.**

(Prerequisite: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a grade of C or better). Supervised observation and directed teaching in respective field of endorsement

**EDS 4896 Teaching Internship in Secondary Education: 6 hours.**

(Prerequisites: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with grade of C or better ). Supervised observation and directed teaching in respective field of endorsement

**EDS 4990 Special Topics in Secondary Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDS 6403 Evaluation in Learning in Secondary Schools: 3 hours.**

(Prerequisites: Admission to Teacher Education). Three hours lecture. A study of critical assessment practices in secondary education through the use of data to inform instruction. Particular attention will be given to discipline specific pedagogy for evaluation of student learning in secondary classrooms

**EDS 6503 Issues, History and Rationale of Science Education: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Foundational course for science educators with focusing on issues, history and research basis for science education. Course content is based on the rationale that science educators are expected to couple science content knowledge with strong teaching skills

**EDS 6513 Informal Science Instruction: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Students gain insight into teaching science in non-formal learning environments. This will include application of research based effective instructional methods, strategies for curriculum development and the assessment strategies to measure impact outside of the traditional classroom

**EDS 6523 Teaching Scientific Inquiry: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Students gain insight into pedagogical strategies for teaching the process of scientific inquiry. This will include application of research supported best practices for implementing science fair, citizen science, project and problem-based learning

**EDS 6533 Teaching Science with Virtual Reality: 3 hours.**

(Prerequisite: Secondary education major or consent of instructor). Three hours lecture. Students gain insight into pedagogical strategies for implementing virtual reality programing into a secondary science classroom. This will include instructional techniques to support student learning for both traditional and distance learning environments

**EDS 6633 Mathematics Education Pedagogy: 3 hours.**

(Co-requisite: EDS 8886 or EDS 8896 or consent of instructor.) Three hours lecture. Field-based. A comprehensive examination of the effective practices for teaching and evaluating mathematics students in the secondary setting

**EDS 6643 Social Studies Education Pedagogy: 3 hours.**

(Co-requisite: EDS 8883 or EDS 8893 or consent of instructor). Three hours lecture. Field-based. A comprehensive examination of the effective practices for teaching and evaluating social studies in secondary education

**EDS 6653 Science Education Pedagogy: 3 hours.**

(Co-requisite: EDS 8883 or EDS 8893 or consent of instructor). Three hours lecture. Field-based. A comprehensive examination of the effective practices for teaching and evaluating science for middle and secondary students

**EDS 6673 Language Arts Education Pedagogy: 3 hours.**

Three hours lecture. (Co-requisite: EDS 8883 or EDS 8893 or consent of instructor). Field-based. A comprehensive examination of the effective practices for teaching and evaluating English/Language Arts students in secondary education

**EDS 6990 Special Topics in Secondary Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDS 7000 Directed Individual Study in Secondary Education: 1-6 hours.**

Hours and credits to be arranged

**EDS 8103 Advanced Methodologies in Middle and Secondary Education: 3 hours.**

Three hours lecture. Advanced study of pedagogical methods and teaching practices

**EDS 8113 Classroom Management in Secondary Education: 3 hours.**

(Prerequisite: Admission to MAT-S). An exploration of the essential considerations for establishing a safe, effective, and efficient classroom environment for diverse populations of secondary students

**EDS 8153 Professional Roles of the Secondary Educator: 3 hours.**

(Prerequisite: Admission to MAT-S. Co-requisite: EDS 8886 Secondary Internship I or consent of instructor). An exploration of the professional roles and effective practices of secondary educators

**EDS 8243 Advanced Planning and Managing of Learning: 3 hours.**

Three hours lecture. An advanced study of variables contributing to efficiency and competency in planning for teacher-learner activities and the creation and maintenance of positive learning environments

**EDS 8613 Middle and Secondary School Curriculum: 3 hours.**

Three hours lecture. Principles of curriculum construction as they apply to the middle and secondary schools for the various subject areas

**EDS 8623 Principles of Effective Instruction in Secondary Schools: 3 hours.**

Three hours lecture. An examination of the theories, trends, best practices, issues, challenges, and complexities pertinent to teaching and learning in secondary schools

**EDS 8633 Problems of Secondary Education: 3 hours.**

(Prerequisite: Master's degree or consent of instructor). Three hours lecture. Study of critical problems in secondary education

**EDS 8643 Directed Reading in Teacher Education: 3 hours.**

Intensive supervised readings in the field of teacher education. (Same as EDE 8893)

**EDS 8653 Issues of Accountability in Schools: 3 hours.**

(Prerequisite: EPY 3253 or EPY 6313 or permission of instructor). Three hours lecture. Study of critical educational issues in school-based accountability. Particular attention will be given to the impact accountability has on student learning in the classroom

**EDS 8663 Improving Instruction in Secondary Schools: 3 hours.**

Three hours lecture. Field based. An exploration of classroom-based inquiry, exploration, and action research as means of improving teaching and learning in secondary schools

**EDS 8683 Dispositions and Reflective Practice in Teaching: 3 hours.**

(Prerequisite: EDS 8623 or permission of instructor). Three hours lecture. Study of teaching behavior and reflective practices as catalysts for instructional improvement

**EDS 8693 Advanced Foreign Language Pedagogy: 3 hours.**

Three hours lecture. Field-based. Advanced examination of effective practices for teaching and evaluating foreign language students. Same as FL 8693

**EDS 8713 Curriculum Adjustments: 3 hours.**

Three hours lecture. Adjusting the school curriculum to meet individual pupil differences

**EDS 8883 Secondary Internship I: 3 hours.**

Three hours clinical instruction. (Prerequisites: Admission to MAT-S, EDS 8113, and EPY 8473. Co-requisite: EDS 8153.) Professional and supervised full-day public school teaching experience for 8 weeks (320 hours) in respective field of endorsement

**EDS 8886 Dimensions of Learning I: 6 hours.**

(Prerequisites: Admission to MATS Program, EDS 8243, EPY 6313 or EDS 6403). Six hours clinical instruction. Supervised observation and directed teaching in respective field of endorsement

**EDS 8893 Secondary Internship II: 3 hours.**

Three hours clinical instruction. (Prerequisites: Admission to MAT-S and EDS 8883). Professional and supervised full-day public-school directed teaching experience for 8 weeks (320 hours) in respective field of endorsement

**EDS 8896 Dimensions of Learning II: 6 hours.**

(Prerequisites: Admissions to MATS Program, EDS 8243, EPY 6313, and EDS 6633 or EDS 6643 or EDS 6653 or EDS 6673 or other related methods course ). Six hours clinical instruction. Supervised observation and directed teaching in respective field of endorsement

**EDS 8990 Special Topics in Secondary Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDS 9000 Research in Secondary Education: 1-13 hours.**

Hours and credits to be arranged

**EDS 9221 Professional Practice in Teacher Education: 1 hour.**

One hour lecture. Students will examine potential careers for graduates with a doctorate in education and develop professional documents pertinent to their career paths. (Same as EDE 9221 and EDX 9221)

**EDS 9413 Practicum in College Teaching: 3 hours.**

Three hours practicum. Teaching of at least one course in education, under the supervision of a senior staff member. (Same as EDE 9413)

**EDS 9553 Teaching and Teacher Education: 3 hours.**

Analysis of current research on teacher education including pre-service teacher education and professional development for practicing teachers. (Same as EDE 9553 and EDX 9553 )

## Special Education Courses

**EDX 2990 Special Topics in Special Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDX 3203 Introduction to Learning Disabilities: 3 hours.**

Three hours lecture. Integrities for learning; receptive, associative, and expressive disorders; specific learning disabilities

**EDX 3213 Individualizing Instruction for Exceptional Children: 3 hours.**

Three hours lecture. Introduction to differentiating and individualizing instruction for students with mild/moderate disabilities

**EDX 3223 Introduction to Emotional/Behavioral Disorders: 3 hours.**

Three hours lecture. Understanding children with emotional/behavioral disorders. Overview of the theoretical approaches to their education

**EDX 3233 Contingency Management: 3 hours.**

Three hours lecture. A study of the components of contingency management with emphasis on application in the field with exceptional children

**EDX 3253 Evaluating Learning in Special Education: 3 hours.**

(Prerequisite: Admission to Teacher Education Phase II; co-requisite: EDX 4123, EDX 4133, & EDX 4243). Three hours of lecture and laboratory work including assessment and individualized programming utilizing methods and materials for teaching and assessing secondary school age students with mild or moderate disabilities

**EDX 4000 Directed Individual Study in Special Education: 1-6 hours.**

Hours and credits to be arranged

**EDX 4103 Introduction to Teaching Students with Intellectual and Developmental Disabilities: 3 hours.**

(Prerequisites: EDX 3213 or permission from the instructor). Three hours lecture. Introduction to special education challenges for students with intellectual and developmental disabilities including challenges of providing full educational inclusion and community integration from ages 6-21

**EDX 4113 Methods and Materials for Early Childhood Students with Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Field based. Assessment and individualized programming utilizing methods and materials for preschool and primary level children with disabilities

**EDX 4123 Methods and Materials for Elementary Students with Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Field based. Assessment and individualized programming utilizing methods and materials for elementary age children with disabilities

**EDX 4133 Methods and Materials for Secondary Students with Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Field based. Assessment and individualized programming utilizing methods and materials for secondary age children with disabilities

**EDX 4243 Planning for Diversity of Learners in Special Education: 3 hours.**

(Prerequisite: Special Education major). Three hours lecture. Study of variables contributing to the creation and management of a positive learning environment for the complexity and diversity of students in special education. Planning for special education with focus on curriculum and instruction

**EDX 4333 International Exploration in Education: 3 hours.**

This course involves the examination of the education systems outside of the U.S., with particular attention to classrooms in the host country. (Same as EDE/EDS 4333)

**EDX 4353 Assistive Technology in Special Education: 3 hours.**

Three hours lecture. Application of assistive technology in the education of students with special needs

**EDX 4413 Working with Families of Students with Disabilities: 3 hours.**

Three hours lecture. A study of the development, goals, and objectives of family groups. A study of problems of families who have children with disabilities

**EDX 4423 Teaching the Disadvantaged Child: 3 hours.**

The study of the disadvantaged child in terms of theories, concepts, cultures, and techniques of teaching and exploration of curricular innovations

**EDX 4503 Teaching Students with Severe Disabilities: 3 hours.**

Three hours lecture. A survey of operational models and techniques to be implemented with students who have severe disabilities to include curriculum, methods and administrative educational adjustments

**EDX 4603 Students with Physical/Multiple Disabilities: 3 hours.**

Three hours lecture. Educational implications and adaptations of procedures in schools, homes, hospitals and special schools for students with orthopedic and/or neurological impairments

**EDX 4613 Teaching Students with Physical/Multiple Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Methods and materials applicable to teaching students with physical or multiple conditions which are the results of neurological or orthopedic impairments

**EDX 4623 Adaptations for Students with Physical/Multiple Disabilities.: 3 hours.**

Three hours lecture. The study of motor functions including range of motion, gait training, and other environmental adjustments that can be implemented by classroom teachers

**EDX 4873 Professional Seminar in Special Education: 3 hours.**

Three hours lecture. A seminar dealing with legal, professional, administrative, and curriculum issues as they relate to special education in the schools

**EDX 4886 Teaching Internship in Special Education: 6 hours.**

(Prerequisites: Admission to Teacher Education, minimum GPA 2.5 overall and in major, and completion of all professional education courses with a C or better.) Professional full-day public school teaching experience in two consecutive 8-week placements in diverse settings and grade levels under direction of supervising teachers and university supervisor

**EDX 4896 Teaching Internship in Special Education: 6 hours.**

(Prerequisites: Admission to Teacher Education, minimum GPA 2.5 overall and in major, and completion of all professional education courses with C or better.) Professional full-day public school teaching experience in two consecutive 8-week placements in diverse settings and grade levels under direction of supervising teachers and university supervisor

**EDX 4953 Introduction to Sign Language: 3 hours.**

Development of basic sign language skills, study of special needs of deaf persons, and understanding use of interpreters. (Same as CO 4953/6953)

**EDX 4990 Special Topics in Special Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)



**EDX 6103 Introduction to Teaching Students with Intellectual and Developmental Disabilities: 3 hours.**

(Prerequisites: EDX 3213 or permission from the instructor). Three hours lecture. Introduction to special education challenges for students with intellectual and developmental disabilities including challenges of providing full educational inclusion and community integration from ages 6-21

**EDX 6113 Methods and Materials for Early Childhood Students with Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Field based. Assessment and individualized programming utilizing methods and materials for preschool and primary level children with disabilities

**EDX 6123 Methods and Materials for Elementary Students with Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Field based. Assessment and individualized programming utilizing methods and materials for elementary age children with disabilities

**EDX 6133 Methods and Materials for Secondary Students with Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Field based. Assessment and individualized programming utilizing methods and materials for secondary age children with disabilities

**EDX 6173 Introduction to Contingency Management: 3 hours.**

Three hour lecture. Introduction to the principles and procedures of contingency management and applied behavioral analysis for teaching individuals with disabilities

**EDX 6193 Advanced Planning in Special Education: 3 hours.**

Provides a greater understanding of planning and managing in special education. Suggests methods and techniques to be used in teaching students with disabilities

**EDX 6353 Assistive Technology in Special Education: 3 hours.**

Three hours lecture. Application of assistive technology in the education of students with special needs

**EDX 6413 Working with Families of Students with Disabilities: 3 hours.**

Three hours lecture. A study of the development, goals, and objectives of family groups. A study of problems of families who have children with disabilities

**EDX 6503 Teaching Students with Severe Disabilities.: 3 hours.**

Three hours lecture. A survey of operational models and techniques to be implemented with students who have severe disabilities to include curriculum, methods and administrative educational adjustments

**EDX 6603 Students with Physical/Multiple Disabilities: 3 hours.**

Three hours lecture. Educational implications and adaptations of procedures in schools, homes, hospitals and special schools for students with orthopedic and/or neurological impairments

**EDX 6613 Teaching Students with Physical/Multiple Disabilities: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Methods and materials applicable to teaching students with physical or multiple conditions which are the results of neurological or orthopedic impairments

**EDX 6623 Adaptations for Students with Physical/Multiple Disabilities.: 3 hours.**

Three hours lecture. The study of motor functions including range of motion, gait training, and other environmental adjustments that can be implemented by classroom teachers

**EDX 6813 Introduction to Assessment Issues in Special Education: 3 hours.**

Assessment as it relates specifically to working with special education students. Topics to be covered will include Special Education Law, IEP development, and related topics

**EDX 6953 Introduction to Sign Language: 3 hours.**

Development of basic sign language skills, study of special needs of deaf persons, and understanding use of interpreters. (Same as CO 4953/6953)

**EDX 6990 Special Topics in Special Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDX 7000 Directed Individual Study in Special Education: 1-6 hours.**

Hours and credits to be arranged

**EDX 8013 Fundamentals of Teaching Individuals with Intellectual and Developmental Disorders: 3 hours.**

Three hours lecture. Characteristics of students with intellectual and developmental disabilities. Theories, principles and methods for teaching individuals with intellectual and developmental disabilities

**EDX 8023 Fundamentals of Teaching Individuals with Learning Disabilities: 3 hours.**

Three hours lecture. Characteristics of students with learning disabilities. Theories, principles, and methods for teaching individuals with learning disabilities

**EDX 8033 Supporting P12 Students with Disabilities in STEM Instruction: 3 hours.**

Three hours lecture. Strategies for supporting P12 students with disabilities within the STEM classroom

**EDX 8053 Fundamentals of Teaching Individuals with Emotional and Behavioral Disorders: 3 hours.**

Three hours lecture. The curriculum, methods, principles and problems of working with individuals with emotional disabilities

**EDX 8103 Advanced Contingency Management: 3 hours.**

Three hours lecture. This course is designed to utilize the principles and procedures of contingency management and applied behavioral analysis research to design, implement, and evaluate behaviorally oriented programs

**EDX 8123 Organization and Supervision of Special Education: 3 hours.**

Three hours lecture. Organizational theory of special education. Leadership behavior and role of special education supervisor; grant writing

**EDX 8133 Readings and Research in Exceptional Education: 3 hours.**

Three hours lecture. Emphasis on current literature in all areas of exceptionality. Understanding and interpretation of psychological diagnosis. Individual and group research

**EDX 8143 Early Education for Students with Disabilities: 3 hours.**

Three hours lecture. Rationale, characteristics, educational approaches, exemplary programs, and research in the field

**EDX 8163 Teaching Strategies for Students who are Gifted: 3 hours.**  
(Prerequisite: Consent of instructor). Teaching approaches, development of special problems, selection of materials, and remediation of problems related to learning

**EDX 8173 Special Education in the Regular Classroom: 3 hours.**  
Three hours lecture. Provides a greater understanding of children with disabilities who may be in the regular classroom and suggests methods and techniques for teaching students with disabilities in the regular classroom

**EDX 8183 Seminar in Learning Disabilities: 3 hours.**  
(Prerequisite: EDX 3203 or equivalent). Three hours lecture. An advanced course dealing with the condition of learning disabilities. Current research dealing with causes, treatments, and prevention strategies will be studied

**EDX 8213 Remediation of Students with Disabilities: 3 hours.**  
Three hours lecture. Field based. Selection, utilization, and evaluation of specialized remedial materials and techniques with special education populations

**EDX 8233 Special Education Internship I: 3 hours.**  
Three hours clinical instruction. (Co-Requisite EDX 6173; prerequisites: Admission to MAT-X. EDX 8173, EDX 6813 and EDX 6193). First semester of directed teaching in a special education classroom

**EDX 8243 Special Education Internship II: 3 hours.**  
Three hours clinical instruction. (Prerequisites: Admission to MAT-X degree program. EDX 8233). Second semester of directed teaching in a special education classroom

**EDX 8263 Eligibility Requirements for Students with Disabilities: 3 hours.**  
Three hours lecture. The course will analyze eligibility requirements to determining need for special education and appropriate services for students with disabilities. Topics to be covered will include Special Education law, comprehensive evaluations, and related topics

**EDX 8303 Seminar in Intellectual Disabilities: 3 hours.**  
(Prerequisite: EDX 8103). Three hours seminar. An advanced course dealing with intellectual disabilities. Educational implications and research involving people with intellectual disabilities

**EDX 8393 Seminar in Emotional/Behavioral Disabilities: 3 hours.**  
Three hours seminar. A comprehensive study of contributing factors in emotional disabilities and educational technology for the treatment of students with emotional and behavioral disorders

**EDX 8403 Teaching Students with Emotional/Behavioral Disabilities: 3 hours.**  
Three hours lecture. Field based. The curriculum, methods, and principles and problems of working with students with emotional and behavioral disabilities

**EDX 8423 Special Education Internship II: 3 hours.**  
Three hours clinical instruction. (Prerequisites: Admission to MAT-X degree program. EDX 8233). Second semester of directed teaching in a special education classroom

**EDX 8780 Internship in Special Education: 3-6 hours.**  
Three hours practicum. Supervised observation, participation, and teaching of exceptional children in classrooms and resource rooms. Supervised experiences in community, state departments, supervisory positions

**EDX 8990 Special Topics in Special Education: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EDX 9000 Research in Special Education: 1-13 hours.**  
Hours and credits to be arranged

**EDX 9221 Professional Practice in Teacher Education: 1 hour.**  
One hour lecture. Students will examine potential careers for graduates with a doctorate in education and develop professional documents pertinent to their career paths. (Same as EDS 9221 and EDE 9221)

**EDX 9413 Practicum in College Teaching in Special Education: 3 hours.**  
Three hours practicum. Supervised experience in design, delivery, and evaluation of a college course in special education

**EDX 9553 Teaching and Teacher Education: 3 hours.**  
Analysis of current research on teacher education including pre-service teacher education and professional development for practicing teachers. (Same as EDS 9553 and EDE9553 )

## Engineering Graphics Courses

**EG 1142 Engineering Graphics: 2 hours.**  
Two hours lecture. One hour demonstration. Presentation of sketching techniques, lettering and computer aided drafting with traditional engineering drawing topics, including orthographic projection, engineering documentation, auxiliary views, and working drawings

**EG 1143 Graphic Communication: 3 hours.**  
Three hours lecture. Orthographic projection, instrumental drawing, point, line, plane identities, computer assisted design and drafting using personal computers

**EG 1443 Technology Graphics: 3 hours.**  
Two hours lecture. Two hours laboratory. The use of drawing to communicate ideas of manufacturing and maintenance in machining, electricity/electronics, welding, and hydraulics/pneumatics

**EG 2990 Special Topics in Engineering Graphics: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EG 4000 Directed Individual Study in Engineering Graphics: 1-6 hours.**  
Hours and credits to be arranged

**EG 4990 Special Topics in Engineering Graphics: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EG 6990 Special Topics in Engineering Graphics: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EG 7000 Directed Individual Study in Engineering Graphics: 1-6 hours.**  
Hours and credits to be arranged

**EG 8990 Special Topics in Engineering Graphics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Engineering Mechanics Courses****EM 2413 Engineering Mechanics I: 3 hours.**

(Prerequisites: Grade of C or better in MA 1723 and PH 2213). Three hours lecture or three hours recitation with online content delivery. Concepts of forces, moments and other vector quantities; analysis of force systems; conditions of equilibrium; friction; centroids and moments of inertia

**EM 2433 Engineering Mechanics II: 3 hours.**

(Prerequisites: Grade of C or better in EM 2413 and MA 2733). Three hours lecture. Kinematics of particles and rigid bodies, kinetics of particles and rigid bodies using force-mass-acceleration, energy, momentum methods

**EM 2990 Special Topics in Engineering Mechanics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EM 3213 Mechanics of Materials: 3 hours.**

(Prerequisite: Grade of C or better in EM 2413 and MA 2733). Three hours lecture. Free body diagrams, equilibrium of simple structures; shear and bending moment diagrams; analysis of stress and strain; deflections of beams

**EM 3313 Fluid Mechanics: 3 hours.**

(Prerequisite: Grade of C or better in EM 2413 and MA 2733). Three hours lecture. Fluid statics; analysis of fluid motion using the continuity, momentum and energy relationships; introduction to viscous flows

**EM 3413 Vibrations: 3 hours.**

(Prerequisites: Grade of C or better in EM 2433, MA 3253 and MA 3113). Three hours lecture. Fundamentals of free vibration, energy methods; forced and damped vibration, single degree of freedom; two degrees of freedom

**EM 4000 Directed Individual Study in Engineering Mechanics: 1-6 hours.**

Hours and credits to be arranged

**EM 4123 An Introduction to the Finite Element Method: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Introduction to the mathematical theory, formulation, and computer implementation of the finite element method. Application to one- and two-dimensional problems in engineering mechanics

**EM 4133 Mechanics of Composite Materials: 3 hours.**

(Prerequisites: EM 3213 and MA 3253.) Three hours lecture. Stress, strain, constitutive relations for anisotropic material, lamina properties, laminate properties, composite beams and plates

**EM 4143 Engineering Design Optimization: 3 hours.**

(Prerequisite: Consent of instructor ) Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction to MDO. (Same as ASE 4553/6553 and IE 4743/6743 )

**EM 4213 Advanced Mechanics of Materials: 3 hours.**

(Prerequisite: EM 3213). Three hours lecture. Stress, strain, stress-strain relationships, strain energy, failure theories, curved beams, unsymmetrical bending, shear center, torsion of noncircular sections, energy principles, Castigliano's theorem, inelastic behavior

**EM 4990 Special Topics in Engineering Mechanics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EM 6123 An Introduction to the Finite Element Method: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Introduction to the mathematical theory, formulation, and computer implementation of the finite element method. Application to one- and two-dimensional problems in engineering mechanics

**EM 6133 Mechanics of Composite Materials: 3 hours.**

(Prerequisites: EM 3213 and MA 3253.) Three hours lecture. Stress, strain, constitutive relations for anisotropic material, lamina properties, laminate properties, composite beams and plates

**EM 6143 Engineering Design Optimization: 3 hours.**

(Prerequisite: Consent of instructor ) Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction to MDO. (Same as ASE 4553/6553 and IE 4743/6743 )

**EM 6213 Advanced Mechanics of Materials: 3 hours.**

(Prerequisite: EM 3213). Three hours lecture. Stress, strain, stress-strain relationships, strain energy, failure theories, curved beams, unsymmetrical bending, shear center, torsion of noncircular sections, energy principles, Castigliano's theorem, inelastic behavior

**EM 6990 Special Topics in Engineering Mechanics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EM 7000 Directed Individual Study in Engineering Mechanics: 1-6 hours.**

Hours and credits to be arranged

**EM 8113 Theory of Continuous Media: 3 hours.**

(Prerequisite: MA 3353 or consent of the instructor). Three hours lecture. An introduction to the general theory of continuous media and its application to the theories of elasticity and fluid mechanics

**EM 8203 Applied Elasticity: 3 hours.**

Three hours lecture. Analysis of stress and strain; stress-strain relations; bending and torsion of beams; stress functions; strain energy

**EM 8213 Fracture Mechanics: 3 hours.**

(Prerequisite: EM 3213 or consent of instructor). Three hours lecture. History of fracture and development of fracture mechanics principles. Linear elastic and elastic-plastic stress analysis of cracked bodies. ASTM standards and applications

**EM 8313 Advanced Dynamics: 3 hours.**

(Prerequisites: EM 2433 and MA 3253). Three hours lecture. Fundamental considerations, Hamilton's principle, Lagrange's equations, rigid body dynamics

**EM 8323 Advanced Vibrations: 3 hours.**

(Prerequisite: EM 3413). Three hours lecture. Oscillatory systems, matrix formulation by Lagrange's equations, natural modes of discrete and continuous systems, approximate methods, modal analysis

**EM 8990 Special Topics in Engineering Mechanics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## English Courses

**EN 0003 Developmental English: 3 hours.**

Emphasizes the use of standard American English. Offered only to students required to enroll in developmental studies; prerequisite to any English courses applicable to requirements

**EN 0103 Basic English: 3 hours.**

(Prerequisite: Score of 16 or below on the English section of the ACT). Three hours lecture. Study of rhetorical and organizational strategies that contribute to effective writing. Emphasis on paragraph and essay development; focus on grammar and mechanics as relevant to composition. Does not count toward any degree

**EN 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**EN 1103 English Composition I: 3 hours.**

(Prerequisite: Score of 17 or above on the English section of the ACT, final grade of C or higher in EN 0103, or final grade of D in EN 1104). Three hours lecture. Emphasis on critical thinking, rhetorical principles, and organizational strategies for analytical and argumentative essays

**EN 1104 Expanded English Composition I: 4 hours.**

(Prerequisite: Score of 16 or below on the English section of the ACT.) Three hours lecture. Two hours lab. Study of logical and rhetorical principles and organizational strategies that contribute to effective writing. Focus on grammar and mechanics as basic to composition

**EN 1111 English Studies: 1 hour.**

One hour lecture. Introduction to English Studies: a survey of the profession, including disciplinary assumptions, research processes, sub-fields, and career opportunities

**EN 1113 English Composition II: 3 hours.**

(Prerequisite: EN 1103 or a final grade of C or higher in EN 1104). Three hours lecture. Expanded study of and practice in stylistics and critical thinking. Focus on analysis, argument, and multi-modality through research. Honors section available

**EN 1173 Accelerated Composition II: 3 hours.**

(Prerequisite: Score of 28 or higher on the English section of the ACT). Three hours lecture. Expanded study of and practice in stylistics and logic. Focus on analysis, argument, and multi-modality through research. Designed for students who exhibit command of basic rhetorical principles

**EN 2123 The Greek and Latin Roots of English: 3 hours.**

Three hours lecture. A study of Greek and Latin roots used in English words, with particular focus on the technical vocabulary used in the fields of science, medicine, law, and humanities. No knowledge of Greek or Latin is necessary. (Same as FL 2123)

**EN 2203 Introduction to Literature: 3 hours.**

(Prerequisite: EN 1113 or EN 1173). Three hours lecture. The critical and appreciative study of masterpieces in various genres chosen from English and world literature

**EN 2213 English Literature Before 1800: 3 hours.**

(Prerequisite: Completion of freshman composition). Three hours lecture. A survey of English literature from the Medieval to the Neo-classical periods, including works by Shakespeare, Milton and Pope

**EN 2223 English Literature After 1800: 3 hours.**

(Prerequisite: Completion of freshman composition). Three hours lecture. A survey of English literature including the Romantic, Victorian, and Modernist periods

**EN 2243 American Literature Before 1865: 3 hours.**

(Prerequisite: Completion of freshman composition). Three hours lecture. A survey of American literature and culture, including letters, sermons, essays, fiction and poetry, from the fifteenth century through the antebellum period's American Renaissance

**EN 2253 American Literature After 1865: 3 hours.**

(Prerequisite: Completion of freshman composition). Three hours lecture. Survey of representative authors, texts, and periods that demonstrate the richness and diversity of American literature and culture after 1865

**EN 2263 Multiethnic U.S. Literature: 3 hours.**

(Prerequisite: EN 1113 or EN 1173). Three hours lecture. A study of significant American literary movements, genres, and texts through the work of American authors from varied ethnic and racial backgrounds

**EN 2273 World Literature Before 1600: 3 hours.**

(Prerequisite: Completion of freshman composition). Three hours lecture. Selected works from ancient times to 1600 in translation

**EN 2283 World Literature After 1600: 3 hours.**

(Prerequisite: Completion of freshman composition). Three hours lecture. Selected works since 1600, excluding literature of the U.S., Britain, and Ireland

**EN 2363 Introduction to African American Literature: 3 hours.**

Three hour lecture. (Prerequisites: EN 1103 or 1113 or their equivalent). An introductory course that examines the major authors and texts of the African American Literary Tradition. (Same as AAS 2363)

**EN 2403 Introduction to the Study of Language: 3 hours.**

Three hours lecture. Students will be introduced to the subfields of linguistics to answer questions they have about language and to provide evidence about language acquisition and use. (Same as AN 2403)

**EN 2434 Literature and Film: 4 hours.**

(Prerequisite: Completion of English composition requirements). Three hours lecture. One laboratory. Introduction to literary and cinematic techniques, methods of analysis, and structures

**EN 2443 Introduction to Science Fiction: 3 hours.**

(Prerequisite: Completion of English requirements of the student's major field). Three hours lecture. A study of major science fiction writers of the past two centuries, with emphasis on human experience in a technological society

**EN 2503 Teaching Grammar: 3 hours.**

(Prerequisite: Sophomore status). Three hour lecture. The study of English grammar and strategies used to teach grammar in modern classrooms

**EN 2904 Introduction to Film: 4 hours.**

Three hours lecture. Two hours lab. A basic introduction to the study of film language, history, and theory, emphasizing aesthetic, technological, and socio-cultural developments of film form. (Same as CO 2904 and ART 2904)

**EN 2990 Special Topics in English: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EN 3243 Writing Center Tutor Training: 3 hours.**

(Prerequisite: Grade of B or better in EN 1113 or EN 1173 and 3.0 overall GPA or consent of instructor). Three hours lecture. Introduction to the practices and theories of college writing consultation in Writing Centers

**EN 3303 Creative Writing: 3 hours.**

(Prerequisite: Completion of freshman composition). Three hours lecture. Basic techniques in writing fiction and poetry; meter and rhyme, metaphor and image, plot, characterization, dramatic detail

**EN 3313 Writing for the Workplace: 3 hours.**

Prerequisite: EN 1113 or equivalent. Three hours lecture. Advanced writing course focused on communication in the workplace, including correspondence, technical descriptions, instruction writing, proposals, and recommendation reports

**EN 3333 Internship in English: 3 hours.**

(Prerequisites: Junior Standing and consent of instructor). Three hours practicum. Supervised work experience and job training of 120 hours in related English areas and 30 hours of coursework during semester; evaluation by both instructor and job supervisor in order to receive three credit hours for internship

**EN 3414 Critical Writing and Research in Literary Studies: 4 hours.**

(Prerequisite: twelve hours of English). Four hours lecture. An introduction to the application of critical theories and research methods in writing about literature, for English and English Education majors

**EN 3423 Descriptive English Grammar: 3 hours.**

(Prerequisite: Twelve hours of English and enrollment in College of Education major). Three hours lecture. Advanced course in English grammar

**EN 3513 Women and Literature: Selected Topics: 3 hours.**

(Prerequisites: Completion of freshman composition). Three hours lecture. A study of literary works by or about women. Texts are selected according to theme, genre, and/or historical period. (Same as GS 3513)

**EN 3523 Shakespeare and Film: 3 hours.**

(Prerequisite: EN 1103 and EN 1113 or their equivalent). Three hours lecture. This course offers a focused study of Shakespeare on page and screen. Specific play and film adaptations are selected by the instructor

**EN 3533 Selected Authors: 3 hours.**

(Prerequisites: EN 1103 and EN 1113 or their equivalent). Three hours lecture. This course offers a focused study on the major works by selected authors. Authors and texts are selected by the instructor

**EN 3803 Intermediate Poetry Writing: 3 hours.**

(Prerequisite: EN 3303) Three hours lecture. An intermediate course in the craft and art of poetry writing, focusing on techniques such as lineation, formal strategies, and poetic language

**EN 3903 Intermediate Fiction Writing: 3 hours.**

(Prerequisite: EN 3303). Three hours lecture. An intermediate course in the craft and art of fiction writing, focusing on techniques such as setting, dialogue, and characterization

**EN 4000 Directed Individual Study in English: 1-6 hours.**

Hours and credits to be arranged

**EN 4111 Portfolios and Reflective Writing: 1 hour.**

(Prerequisite: Junior or Senior standing). One hour lecture. The study and practice of writing application letters/resumes and preparing academic portfolios

**EN 4124 Topics in Film: 4 hours.**

Three hours lecture. Two hours lab. Repeatable, under different subtitles, with advisor approval. An advanced investigation of specific topics in Film, Film History, Directors, Genre, and/or approaches to its production. Readings and discussions, supplemented by lectures/labs and film screenings. (Same as ART 4124/6124 and CO 4124/6124)

**EN 4133 Feminist Theories: 3 hours.**

(Prerequisite: SO/GS/AN 1173 or consent of instructor). Three hours lecture. Analysis and application of classical and contemporary feminist theories, exploring the intersections of gender with race, ethnicity, socioeconomic status, sexuality, culture, social institutions, and various social contexts. (Same as SO 4133/6133: Feminist Theories and GS 4133/6133: Feminist Theories)

**EN 4223 Principles of Legal Writing: 3 hours.**

(Prerequisite: EN 1103 and EN 1113 or their equivalent and Junior standing or consent of instructor). Three hours lecture. Introduction to prose of the legal profession, emphasizing rhetorical strategy and style. Advanced composition, including work with contracts, letters, regulations, memoranda of law, and briefs

**EN 4233 Composition Pedagogy: 3 hours.**

(Prerequisite: EN 1113 or Consent of Instructor). Three hours lecture. Introduction to practices and debates in college composition pedagogies. Develops practical strategies for instruction in composition; introduces historical and theoretical scholarship in rhetoric and composition

**EN 4303 Craft of Poetry: 3 hours.**

(Prerequisite: EN 3803 or consent of instructor). (Graduate students may take EN 6303 for credit twice, even if they have already taken EN 4303 as undergraduates). Three hours lecture. The craft and practice of writing poetry

**EN 4313 Craft of Fiction: 3 hours.**

(Prerequisite: EN 3903 or consent of instructor). (Graduate students may take EN 6313 for credit twice, even if they have already taken EN 4313 as undergraduates). Three hours lecture. The craft and practice of writing fiction

**EN 4323 Literary Criticism from Plato-Present: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A survey of literary criticism from Plato to the present

**EN 4333 Southern Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A survey of southern literature from the antebellum period to the "post southern" present. Features selected works representing the diverse literary heritage of the U.S. South

**EN 4343 Studies in African American Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of selected authors and/or topics in African American literature. (Same as AAS 4343)

**EN 4353 Critical Theory Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of major strategies of interpretation since 1900, including psychoanalysis, Marxism, structuralism, feminism, deconstruction

**EN 4363 Studies in Global Anglophone Literatures: 3 hours.**

(Prerequisite: Completion of EN 1113 or EN 1173). Three hours lecture. A study of selected authors and/or topics in literature in English from around the world, especially Africa, Asia, and the Caribbean, and focusing on literary representations of histories of colonialism, migration, transnationalism, and globalization

**EN 4383 Digital Ethnic Studies: 3 hours.**

(Prerequisite: EN 1113 or EN 1173). Three hours lecture. This course introduces ethnic studies approaches to studying literature, media, and digital culture with hands-on work on data literacy and digital storytelling

**EN 4393 Postcolonial Literature and Theory: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A critical introduction to postcolonial studies, examining the literatures of colonized or previously colonized peoples and their diasporas. (Same as AAS 4393)

**EN 4403 Introduction to Linguistics: 3 hours.**

Three hours lecture. The descriptive and historical study of language; linguistic analysis and comparisons; language classification; language in its social and cultural setting. (Same as AN 4403/6403)

**EN 4413 History of the English Language: 3 hours.**

(Prerequisite: Twelve hours of English). Three hours lecture. The origin and development of the English language; past and ongoing changes in sounds and structure; influence of social history on language variation and change

**EN 4433 Approaches to TESOL: 3 hours.**

Three hours lecture. This course covers various approaches to language teaching, including course design, classroom management, and sociocultural and sociopolitical issues surrounding being a language teacher

**EN 4443 English Syntax: 3 hours.**

(Prerequisites: Either EN 4403/6403, AN 4403/6403, or Instructor Consent). Three hours lecture. Grammatical analysis of English with emphasis on pedagogical applications to teaching English as a foreign/second language

**EN 4453 Methods in TESOL: 3 hours.**

Three hours lecture. This course covers the various practical pedagogical approaches common in TESOL including methods for teaching reading, listening, speaking, and writing as well as communicative approaches

**EN 4463 Studies in Second Language Acquisition: 3 hours.**

(Prerequisite: EN 4403/6403 or consent of instructor). Three hours lecture. A survey of the major theories of language acquisition, concentrating on accounts of second language acquisition. (Same as FL 4463/6463)

**EN 4473 Phonetics: 3 hours.**

(Prerequisites: Either EN 4403/6403, AN 4403/6403, or Instructor Consent). Three hours lecture. This course focuses on the physical and linguistic aspects of speech sounds, including how they are produced, transcribed, measured, and perceived. (Same as PSY 4473/6473)

**EN 4493 TESOL Practicum: 3 hours.**

(Prerequisite: EN 4403/6403). Three hour practicum. A pedagogical practice class that focuses on the practical application of TESOL approaches, methods, and techniques

**EN 4503 Shakespeare: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Shakespeare's plays through 1599

**EN 4513 Shakespeare: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Shakespeare's plays from 1600

**EN 4523 Chaucer: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies in the major works of Chaucer. Readings in Middle English

**EN 4533 Milton: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. The principal writings of Milton, including all of PARADISE LOST and PARADISE REGAINED, and some of the chief prose works

**EN 4623 Language and Culture: 3 hours.**

Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as AN 4623/6623 and SO 4623/6623)

**EN 4633 Language and Society: 3 hours.**

Three hours lecture. Examination of relationship between language and society. How language varies regionally and socially; people's use of and attitudes toward different ways of speaking. (Same as AN 4633/6633 and SO 4633/6633)

**EN 4643 The Eighteenth-Century British Novel: 3 hours.**

(Prerequisite: Completion of Twelve hours of English). Three hours lecture. A study of the early cultural and critical history of the novel, focusing on the novelists who invented and refined the form

**EN 4653 The Nineteenth-Century British Novel: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of the major nineteenth-century British novelists

**EN 4663 British and Irish Novel Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of British and Irish novelists from Conrad and Woolf to Rushdie and Byatt, as well as literary movements including modernism, postmodernism, and postcolonialism

**EN 4703 English Literature of the Sixteenth Century: 3 hours.**

(Prerequisites: Completion of English requirements in the student's major). Study of the development of the English literary tradition, including works by Wyatt, Sidney, Spenser, Marlowe and others in their cultural and historical contexts

**EN 4713 English Literature of the Seventeenth Century: 3 hours.**

(Prerequisite: Completion of Twelve hours of English). Three hours lecture. Study of major works of poetry, prose, and drama, including works by Donne, Jonson, Wroth and others in their literary, cultural, and historical contexts

**EN 4723 British Literature and Culture from 1600-1700: 3 hours.**

(Prerequisites: Completion of English requirements in the student's major). An exploration of the literature and culture of the Restoration and late seventeenth century. Covers a variety of genres

**EN 4733 British Literature and Culture of the Eighteenth Century: 3 hours.**

(Prerequisite: Completion of the English requirements in the student's major.). Three hours lecture. An exploration of important literary, political and cultural phenomena from the British eighteenth century. Covers a variety of genres

**EN 4800 Undergraduate Research in English: 3 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**EN 4803 Types of Drama Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. The development of modern American, British, and Continental drama since Ibsen

**EN 4813 The World Novel Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Major world novelist since 1900, excluding British, Irish, and American

**EN 4823 Poetry Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Chief American and British poets; their verse technique and their contribution to poetic art

**EN 4833 The American Short Story: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major) Three hours lecture. A study of the American short story from Washington Irving to the present, as well as relevant literary movements

**EN 4883 Victorian Poets and Prose Writers: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Intensive study of Tennyson, Browning, Arnold, Swinburne, and other Victorian poets, along with some of the non-fiction prose of the period

**EN 4893 American Literature to 1800: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies of topics in American literature from its beginnings to 1800

**EN 4903 Nineteenth-Century U.S. Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies of topics in U.S. literature from 1800-1900

**EN 4923 American Novel Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of the American novel since Dreiser

**EN 4924 Film Theory: 4 hours.**

Three hours lecture. Two hours lab. This course will introduce students to major theoretical positions and modes of analysis used to understand the various frameworks in which to view, criticize, analyze, and (re)contextualize film. (Same as ART 4924 and CO 4924/6924)

**EN 4933 Survey of Contemporary Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Significant trends in European and American literature since the outbreak of World War II

**EN 4943 Form and Theory of Fiction: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Theoretical aspects of fictional technique, genre, style; readings include novels, short stories, and writings about the craft of fiction. Recommended complement to creative writing courses

**EN 4953 Form and Theory of Poetry: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Poetic theory; formal conventions, techniques, and innovations in the tradition of English and American poetry. Recommended complement to creative writing courses

**EN 4990 Special Topics in English: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EN 6013 Internship in Compositional Theory and the Teaching of College Writing: 3 hours.**

(Prerequisite: Acceptance as a teaching assistant in the Department of English). Compositional theory in relation to teaching and evaluating traditional modes of writing, coordinated with at least twenty hours per week of supervised professional experience

**EN 6124 Topics in Film: 4 hours.**

Three hours lecture. Two hours lab. Repeatable, under different subtitles, with advisor approval. An advanced investigation of specific topics in Film, Film History, Directors, Genre, and/or approaches to its production. Readings and discussions, supplemented by lectures/labs and film screenings. (Same as ART 4124/6124 and CO 4124/6124)

**EN 6133 Feminist Theories: 3 hours.**

(Prerequisite: SO/GS/AN 1173 or consent of instructor). Three hours lecture. Analysis and application of classical and contemporary feminist theories, exploring the intersections of gender with race, ethnicity, socioeconomic status, sexuality, culture, social institutions, and various social contexts. (Same as SO 4133/6133: Feminist Theories and GS 4133/6133: Feminist Theories)

**EN 6223 Principles of Legal Writing: 3 hours.**

(Prerequisite: EN 1103 and EN 1113 or their equivalent and Junior standing or consent of instructor). Three hours lecture. Introduction to prose of the legal profession, emphasizing rhetorical strategy and style. Advanced composition, including work with contracts, letters, regulations, memoranda of law, and briefs

**EN 6233 Composition Pedagogy: 3 hours.**

(Prerequisite: EN 1113 or Consent of Instructor). Three hours lecture. Introduction to practices and debates in college composition pedagogies. Develops practical strategies for instruction in composition; introduces historical and theoretical scholarship in rhetoric and composition

**EN 6303 Craft of Poetry: 3 hours.**

(Prerequisite: EN 3803 or consent of instructor). (Graduate students may take EN 6303 for credit twice, even if they have already taken EN 4303 as undergraduates). Three hours lecture. The craft and practice of writing poetry

**EN 6313 Craft of Fiction: 3 hours.**

(Prerequisite: EN 3903 or consent of instructor). (Graduate students may take EN 6313 for credit twice, even if they have already taken EN 4313 as undergraduates). Three hours lecture. The craft and practice of writing fiction

**EN 6323 Literary Criticism from Plato-Present: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A survey of literary criticism from Plato to the present

**EN 6333 Southern Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A survey of southern literature from the antebellum period to the "post southern" present. Features selected works representing the diverse literary heritage of the U.S. South

**EN 6343 African American Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of selected authors and/or topics in African American literature. (Same as AAS 4343)

**EN 6353 Critical Theory Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of major strategies of interpretation since 1900, including psychoanalysis, Marxism, structuralism, feminism, deconstruction

**EN 6363 Studies in Global Anglophone Literatures: 3 hours.**

(Prerequisite: Completion of EN 1113 or EN 1173). Three hours lecture. A study of selected authors and/or topics in literature in English from around the world, especially Africa, Asia, and the Caribbean, and focusing on literary representations of histories of colonialism, migration, transnationalism, and globalization

**EN 6383 Digital Ethnic Studies: 3 hours.**

(Prerequisite: EN 1113 or EN 1173). Three hours lecture. This course introduces ethnic studies approaches to studying literature, media, and digital culture with hands-on work on data literacy and digital storytelling

**EN 6393 Postcolonial Literature and Theory: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A critical introduction to postcolonial studies, examining the literatures of colonized or previously colonized peoples and their diasporas. (Same as AAS 4393)

**EN 6403 Introduction to Linguistics: 3 hours.**

Three hours lecture. The descriptive and historical study of language; linguistic analysis and comparisons; language classification; language in its social and cultural setting. (Same as AN 4403/6403)

**EN 6413 History of the English Language: 3 hours.**

(Prerequisite: Twelve hours of English). Three hours lecture. The origin and development of the English language; past and ongoing changes in sounds and structure; influence of social history on language variation and change

**EN 6433 Approaches to TESOL: 3 hours.**

Three hours lecture. This course covers various approaches to language teaching, including course design, classroom management, and sociocultural and sociopolitical issues surrounding being a language teacher

**EN 6443 English Syntax: 3 hours.**

(Prerequisites: Either EN 4403/6403, AN 4403/6403, or Instructor Consent). Three hours lecture. Grammatical analysis of English with emphasis on pedagogical applications to teaching English as a foreign/second language

**EN 6453 Methods in TESOL: 3 hours.**

Three hours lecture. This course covers the various practical pedagogical approaches common in TESOL including methods for teaching reading, listening, speaking, and writing as well as communicative approaches

**EN 6463 Studies in Second Language Acquisition: 3 hours.**

(Prerequisite: EN 4403/6403 or consent of instructor). Three hours lecture. A survey of the major theories of language acquisition, concentrating on accounts of second language acquisition. (Same as FL 4463/6463)

**EN 6473 Phonetics: 3 hours.**

(Prerequisites: Either EN 4403/6403, AN 4403/6403, or Instructor Consent). Three hours lecture. This course focuses on the physical and linguistic aspects of speech sounds, including how they are produced, transcribed, measured, and perceived. (Same as PSY 4473/6473)

**EN 6493 TESOL Practicum: 3 hours.**

(Prerequisite: EN 4403/6403). Three hour practicum. A pedagogical practice class that focuses on the practical application of TESOL approaches, methods, and techniques

**EN 6503 Shakespeare: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Shakespeare's plays through 1599

**EN 6513 Shakespeare: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Shakespeare's plays from 1600

**EN 6523 Chaucer: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies in the major works of Chaucer. Readings in Middle English

**EN 6533 Milton: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. The principal writings of Milton, including all of PARADISE LOST and PARADISE REGAINED, and some of the chief prose works

**EN 6623 Language and Culture: 3 hours.**

Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as AN 4623/6623 and SO 4623/6623)

**EN 6633 Language and Society: 3 hours.**

Three hours lecture. Examination of relationship between language and society. How language varies regionally and socially; people's use of and attitudes toward different ways of speaking. (Same as AN 4633/6633 and SO 4633/6633)

**EN 6643 The Eighteenth-Century British Novel: 3 hours.**

(Prerequisite: Completion of Twelve hours of English). Three hours lecture. A study of the early cultural and critical history of the novel, focusing on the novelists who invented and refined the form

**EN 6653 The Nineteenth-Century British Novel: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of the major nineteenth-century British novelists

**EN 6663 British and Irish Novel Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of British and Irish novelists from Conrad and Woolf to Rushdie and Byatt, as well as literary movements including modernism, postmodernism, and postcolonialism

**EN 6703 English Literature of the Sixteenth-Century: 3 hours.**

(Prerequisites: Completion of English requirements in the student's major). Study of the development of the English literary tradition, including works by Wyatt, Sidney, Spenser, Marlowe and others in their cultural and historical contexts

**EN 6713 English Literature of the Seventeenth-Century: 3 hours.**

(Prerequisite: Completion of Twelve hours of English). Three hours lecture. Study of major works of poetry, prose, and drama, including works by Donne, Jonson, Wroth and others in their literary, cultural, and historical contexts

**EN 6723 British Literature and Culture from 1600-1700: 3 hours.**

(Prerequisites: Completion of English requirements in the student's major). An exploration of the literature and culture of the Restoration and late seventeenth century. Covers a variety of genres

**EN 6733 British Literature and Culture of the Eighteenth-Century: 3 hours.**

(Prerequisite: Completion of the English requirements in the student's major.). Three hours lecture. An exploration of important literary, political and cultural phenomena from the British eighteenth century. Covers a variety of genres



**EN 6803 Types of Drama Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. The development of modern American, British, and Continental drama since Ibsen

**EN 6813 The World Novel Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Major world novelist since 1900, excluding British, Irish, and American

**EN 6823 Poetry Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Chief American and British poets; their verse technique and their contribution to poetic art

**EN 6833 The American Short Story: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of the American short story from Washington Irving to the present, as well as relevant literary movements

**EN 6883 Victorian Poets and Prose Writers: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Intensive study of Tennyson, Browning, Arnold, Swinburne, and other Victorian poets, along with some of the non-fiction prose of the period

**EN 6893 American Literature to 1800: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies of topics in American literature from its beginnings to 1800

**EN 6903 Nineteenth-Century U.S. Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Studies of topics in U.S. literature from 1800-1900

**EN 6923 American Novel Since 1900: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. A study of the American novel since Dreiser

**EN 6924 Film Theory: 4 hours.**

Three hours lecture. Two hours lab. This course will introduce students to major theoretical positions and modes of analysis used to understand the various frameworks in which to view, criticize, analyze, and (re)contextualize film. (Same as ART 4924 and CO 4924/6924)

**EN 6933 Survey of Contemporary Literature: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Significant trends in European and American literature since the outbreak of World War II

**EN 6943 Form and Theory of Fiction: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Theoretical aspects of fictional technique, genre, style; readings include novels, short stories, and writings about the craft of fiction. Recommended complement to creative writing courses

**EN 6953 Form and Theory of Poetry: 3 hours.**

(Prerequisite: Completion of English requirements in the student's major). Three hours lecture. Poetic theory; formal conventions, techniques, and innovations in the tradition of English and American poetry. Recommended complement to creative writing courses

**EN 6990 Special Topics in English: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EN 7000 Directed Individual Study in English: 1-6 hours.**

Hours and credits to be arranged

**EN 8103 Graduate Research in English: 3 hours.**

Three hours lecture. A required introduction of fields of study and to scholarly research and writing in English language and literature

**EN 8333 Studies in Southern Literature: 3 hours.**

Three hours lecture. Studies in the literature of the U.S. South

**EN 8513 Studies in English Literature to 1485: 3 hours.****EN 8523 Studies in English Literature 1485-1660: 3 hours.****EN 8533 Studies in English Literature 1660-1832: 3 hours.****EN 8543 Studies in English Literature 1832-1900: 3 hours.****EN 8553 Studies in American Literature to the Civil War: 3 hours.****EN 8563 Studies in American Literature from Civil War-1914: 3 hours.****EN 8573 Studies in Literature Since 1900: 3 hours.****EN 8583 Selected Topics in Language and Literature: 3 hours.****EN 8593 Studies in Post-Colonial Literatures: 3 hours.**

Three hours lecture. Studies in the literatures of the English-speaking world, excluding Great Britain and the United States

**EN 8990 Special Topics in English: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EN 9000 Research in English: 1-13 hours.**

Hours and credits to be arranged

## Engineering Education Courses

**ENE 7000 Directed Individual Study in Engineering Education: 1-6 hours.**

Hours and credits to be arranged

**ENE 8003 Foundations in Engineering Education: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. An examination of engineering education principles through relevant literature and current topics. Focus on theories of engineering education learning and design

**ENE 8303 Pedagogy & Assessment in Engineering Education: 3 hours.**

(Prerequisite: graduate standing and consent of the instructor). Three hours lecture. Assessment issues and skills important for engineering faculty, including strengths and weakness of a variety of quantitative and qualitative assessment strategies. Assessment in course design, ABET engineering accreditation criteria and procedures

**ENE 8703 Design in Engineering Education & Practice: 3 hours.**

(Prerequisites: ENE 8003 and consent of the instructor). Three hours lecture. An examination of the nature of design and relative cognitive theories that aid in understanding how people learn and do design

**ENE 8990 Special Topics in Engineering Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**ENE 9000 Research in Engineering Education: 1-13 hours.**

Hours and credits to be arranged

## Environmental Science Courses

### **ENS 2101 Introduction to Environmental Science Laboratory: 1 hour.**

Two hours laboratory. (Concurrent or prior enrollment in ENS 2103, or consent of instructor). An introductory laboratory course to acquaint the student with the various issues, interdisciplinary contributions, scientific principles, and the foundations of environmental science

### **ENS 2103 Introduction to Environmental Science: 3 hours.**

Three hours lecture. An introductory course to acquaint the student with the various issues, interdisciplinary contributions, scientific principles, and the foundations of environmental science

### **ENS 4000 Directed Individual Study in Environmental Science: 1-6 hours.**

Hours and credits to be arranged

### **ENS 4102 Practicum: 2 hours.**

(Prerequisite: Permission of ES advisor). A directed field experience of an assigned environmental problem and an associated weekly seminar

## Exercise Physiology Courses

### **EP 2013 Fundamentals of Kinesiology: 3 hours.**

Three hours lecture. The course introduces the history of exercise science and examines the academic disciplines and professions comprising exercise science and kinesiology

### **EP 2990 Special Topics in Exercise Physiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

### **EP 3183 Exercise Psychology: 3 hours.**

Three hours lecture. This course will explore the theory and research related to psychological and sociological perspectives of physical activity and how exercise may impact the individual's psychosocial health and behavior

### **EP 3233 Anatomical Kinesiology: 3 hours.**

Three hours lecture. A functional account of body structure, analysis of human movement and related injury mechanisms

### **EP 3304 Exercise Physiology: 4 hours.**

(Prerequisite: BIO 1004 or BIO 3014 and CH 1043 or CH 1213). Three hours lecture. Two hours laboratory. Examines physiological systems central to exercise performance, interrelationships of those systems during exercise, and adaptations of the human body during both acute and chronic exercise

### **EP 3613 Exercise Electrocardiography: 3 hours.**

(Prerequisite: BIO 1004 or BIO 3014). Three hours lecture. Basic and intermediate electrocardiography including cardiac function, lead systems, rate, rhythm, axis, infarction, ischemia, hypertrophy and effects of cardiovascular drugs and exercise on the ECG

### **EP 3623 Exercise Physiology II: 3 hours.**

(Prerequisite: PE 3303). Three hours lecture. This course examines the cardiovascular, respiratory, endocrine, immunologic, and osteogenic aspects of physiology and their application to acute and chronic exercise throughout the lifespan

### **EP 3643 Applied Anatomy and Pathophysiology: 3 hours.**

(Prerequisites: BIO 1004 or BIO 3004). Three hours lecture. Anatomical foundation of the human body with related pathophysiology of the cardiovascular, peripheral and central nervous system, and musculoskeletal disease states

### **EP 3803 Advanced Exercise Physiology: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Three hours lecture. An examination of the physiological basis for human movement and exercise with emphasis of the cardiorespiratory systems and application to the rehabilitation setting

### **EP 4000 Directed Individual Study in Exercise Physiology: 1-9 hours.**

Hours and credits to be arranged

### **EP 4113 Fitness Programs and Testing Procedures: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Two hours lecture. Two hours laboratory. Provides study of and practice in conducting adult fitness programs and fitness testing procedures

### **EP 4123 Aging and Physical Activity: 3 hours.**

(Prerequisites: EP 3304). Three hours lecture. This course addresses the process of aging as it affects physical activity. Students will develop a good knowledge of the physiological, psychological, and socio-economic issues affecting the functional performance levels in later life

### **EP 4133 Exercise Programs for Clinical Populations: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Three hours lecture. This course describes the methods of prescribing exercise programs for individuals with medical conditions

### **EP 4143 Disability & Physical Activity: 3 hours.**

Three hours lecture. An examination of how physical activity can improve health in people experiencing disability across the lifespan

### **EP 4153 Training Techniques for Exercise and Sport: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Three hours lecture. Training techniques used for exercise and sport and their acute and chronic effects

### **EP 4183 Exercise and Weight Control: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Three hours lecture. The course describes the relationship between physical activity and nutrition for the maintenance of ideal body weight and optimal health throughout life

### **EP 4504 Mechanical Analysis of Movement: 4 hours.**

(Prerequisite: EP 3233). Three hours lecture. Two hours lab. Overview of biomechanical principles and applications to the musculoskeletal system with an emphasis on the clinical setting for the treatment and rehabilitation of orthopedic injuries

### **EP 4603 Physical Activity Epidemiology: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Three hours lecture. Survey of the health-related, epidemiological aspects of exercise, physical activity and physical fitness. Biological mechanisms for healthy adaptations to physical activity are addressed. Behavioral determinants of physical activity and regular participation in exercise are reviewed

### **EP 4703 Neural Control of Human Movement: 3 hours.**

(Prerequisite: BIO 1004 or BIO 3014; EP 3643) Three hours lecture. Overview of the neural processes associated with human movement with the major focus being the mechanistic control of coordinated movement

### **EP 4814 Exercise Science Internship: 4 hours.**

(Prerequisites: senior status, completion of at least 12 of 15 hours within student's concentration, and receive both advisor and internship coordinator approval). A supervised observation and teaching experience in an exercise science setting

**EP 4990 Special Topics in Exercise Physiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EP 6153 Training Techniques for Exercise and Sport: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Three hours lecture. Training techniques used for exercise and sport and their acute and chronic effects

**EP 6990 Special Topics in Exercise Physiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EP 7000 Directed Individual Study in Exercise Physiology: 1-9 hours.**

Hours and credit to be arranged

**EP 8203 Advanced Exercise Physiology: 3 hours.**

Two hours lecture. Two hours laboratory. Overview of major organ systems and cellular metabolism during exercise; physiological aspects of fatigue and factors influencing physical working capacity and performance; laboratory investigation/demonstration

**EP 8213 Muscle Physiology: 3 hours.**

(Prerequisite: graduate standing in the Department of Kinesiology or permission of instructor.) Three hours lecture. Overview of skeletal muscle anatomy, physiology, and adaptations to exercise training

**EP 8243 Cardiorespiratory Exercise Physiology: 3 hours.**

(Prerequisite: EP 3304 or equivalent). Three hours lecture. Advanced principles of cardiovascular and respiratory physiology, with special emphasis on the physiological responses of these systems to acute and chronic exercise

**EP 8253 Doping and Supplement Use in Sports: 3 hours.**

(Prerequisite: EP 3304 or equivalent, or consent of instructor). Three hours lecture. Examination of the pharmacological and nutritional agents used to enhance muscular development and athletic performance. Examination of commonly abused recreational drugs

**EP 8263 Exercise Metabolism: 3 hours.**

(Prerequisite: EP 3304) Three hour lecture. An advanced review of exercise metabolism with special emphasis on aerobic processes during muscular effort

**EP 8283 Environmental Exercise Physiology: 3 hours.**

(Prerequisite: EP 3304). Three hours lecture. Advanced principles and applications in exercise physiology including responses to acute exercise and chronic training in the heat, cold, and at high and low pressures

**EP 8303 Heart/Lung Rehabilitation: 3 hours.**

(Prerequisites: EP 3304 or equivalent). Three hours lecture. The physiological basis of cardiopulmonary rehabilitation theory and practice

**EP 8443 Neuromuscular Mechanisms in Exercise: 3 hours.**

(Prerequisite: EP 3304 or equivalent). Three hours lecture. Overview of the neural processes associated with movement with the major focus being the adaptation of the human muscular system to exercise

**EP 8453 Biomechanics of Human Movement: 3 hours.**

(Prerequisite: EP 3233 or equivalent). Three hours lecture. Overview of biomechanical principles/laws and their application to human movements (sport techniques and daily activities)

**EP 8503 Occupational Physiology: 3 hours.**

Three hours lecture. Evaluation of physiological, biomechanical, and ergonomic demands and responses to occupational demands, including task design and evaluation, employee selection and placement, and work-rest scheduling

**EP 8990 Special Topics in Exercise Physiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Entomology Plant Pathology Courses

**EPP 1001 First Year Experience: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**EPP 2213 Introduction to Insects: 3 hours.**

Two hours lecture. Two hours laboratory. Introduction to structure, function, ecology, taxonomy and evolution of the largest and most diverse group of organisms and how they impact humans and their environment

**EPP 2990 Special Topics in Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPP 3124 Forest Pest Management: 4 hours.**

Three hours lecture and two hours laboratory. Studies of the biology, ecology, damage, survey techniques, and management of forest insects and pathogens will be presented

**EPP 3423 Ornamental and Turfgrass Insects: 3 hours.**

Three hours lecture. In this course, students will learn basic insect morphology and identification, fundamentals of insect pest management in turfgrass and ornamentals, and the biology of important insect pests of turfgrass and ornamentals and their management and control strategies

**EPP 4000 Directed Individual Study in Entomology and Plant Pathology: 1-6 hours.**

Hours and credits to be arranged

**EPP 4113 Principles of Plant Pathology: 3 hours.**

(Prerequisites: BIO 1134 and Bio 1144 or consent of instructor). Two hours lecture. Three hours laboratory. Acquiring a general knowledge of the principles of plant pathology through a study of selected plant diseases of economic importance for Mississippi

**EPP 4143 Insect Ecology: 3 hours.**

Three hours lecture. Interaction of insects with their environment, including behavioral ecology, abiotic influences, population dynamics, species interactions, and effects of insects on ecosystem structure and function

**EPP 4152 Advanced Fungal Taxonomy-Fungi Imperfecti: 2 hours.**

(Prerequisite: Consent of Instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-fungi imperfecti in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods

**EPP 4154 General Entomology: 4 hours.**

Two hours lecture. Four hours laboratory. General Entomology is designed to introduce the biology and diversity of insects. Lectures cover most of basic biological phenomena of insects including morphology, physiology, development, ecology, and interactions with human activities. Lab activities include insect collection, classification, and hands-on experiments

**EPP 4163 Plant Disease Management: 3 hours.**

(Prerequisite: EPP 4113/6113 or consent of instructor). Two hours lecture. Three hours laboratory. Techniques and fundamentals of plant disease management. Disease dynamics related to management, avoidance, exclusion, eradication of pathogens; principles of plant protection, spraying techniques; biological control. Spring semester

**EPP 4164 Insect Taxonomy: 4 hours.**

(Prerequisite: EPP 4154). Two hours lecture. Six hours laboratory. Spring semester. Advanced study of insect classification

**EPP 4173 Medical and Veterinary Entomology: 3 hours.**

(Prerequisite: EPP 4154 or consent of instructor). Two hours lecture. Two hour laboratory. Essentials of the biology, disease relationships, surveillance, and control of arthropods parasitic on humans and animals in the context of clinical and preventive medicine

**EPP 4214 Diseases of Crops: 4 hours.**

(Prerequisites: EPP 3113 or 3124). Three hours lecture. Two hours laboratory. Fundamentals and practical aspects of identification and control of selected diseases of crop plants grown in the southern U.S. Spring semester

**EPP 4234 Field Crop Insects: 4 hours.**

(Prerequisite: EPP 2213 or 4154). Three hours lecture. Two hours laboratory. Fall semester. Recognition, biology, distribution, damage, economic importance and methods of control of insect pests of agronomic and horticultural crops

**EPP 4244 Aquatic Entomology: 4 hours.**

(Prerequisites: EPP 4154 or instructors approval). Three hours lecture. Two hours laboratory. Study of basic biological and ecological principles important to aquatic insects and related arthropods, including life histories, evolutionary adaptations, community and species and identification

**EPP 4254 Introduction to Mycology: 4 hours.**

(Prerequisite: BIO 1134 or consent of instructor). Two hours lecture. Four hours laboratory. Subjects include fungal structures, function and physiology, reproduction, genetics, emphasis in taxonomy and influence of reproductive stages of Ascomycetes, Basidiomycetes on plant and forest ecosystems

**EPP 4263 Principles of Insect Pest Management: 3 hours.**

Two hours lecture. Two hours laboratory. Discussion of pest management concepts, insect control methods, sampling, and pest management systems. Laboratory involves sampling, calibration and other exercises related to pest management

**EPP 4264 Advanced Mycology: 4 hours.**

(Prerequisite: BIO 1134 or consent of instructor). Two hours lecture. Four hours laboratory. Subjects include fungal structures, function and physiology, reproduction, genetics, and taxonomy of Oomycota, Chytridiomycota, and Zygomycota (Glomeromycota) and other phyla on plant and forest ecosystems

**EPP 4273 Honey Bee Biology and Beekeeping: 3 hours.**

Three hours lecture. In this introduction to the fascinating honey bee and its biology, students will learn the biology of the honey bee, the social structure and behaviors of a colony, the basics of beekeeping, pollination, and about products of the hive

**EPP 4313 Forensic Entomology: 3 hours.**

Two hours lecture. Two hours laboratory. Introduction to the identification and ecology of insects and other arthropods associated with corpses/carrion and related materials in the context of forensic science

**EPP 4333 Principles of Insect Anatomy and Physiology: 3 hours.**

(Prerequisite: EPP 4154). Three hours lecture. Spring semester. Introduction to the basic principles of structure and function of insect organ systems from a comparative and evolutionary viewpoint

**EPP 4443 Native Bees and Pollination Ecology: 3 hours.**

Three hours lecture. In this course, students will learn the biology of the different native bee species, the different social structures in bee pollinators, pollination ecology of different bee species, and the various threats that are affecting native bees and managed bees

**EPP 4523 Turfgrass Diseases: 3 hours.**

(Prerequisite: EPP 3113 or 3124) Two hours lecture Three hours laboratory. Study of the life cycle, damage, economic importance and control strategies of turfgrass diseases

**EPP 4543 Toxicology and Insecticide Chemistry: 3 hours.**

(Prerequisite: Organic Chemistry). Two hours lecture. Two hours laboratory. Spring semester. Chemistry, toxicity and mode of action of major groups of insecticides. Laboratory; bioassay methods, insecticide interactions, calculations

**EPP 4613 Forensic Entomology: 3 hours.**

Two hours lecture. Two hours Laboratory. Introduction to the identification and ecology of insects and other arthropods associated with corpses/carrion and related materials in the context of forensic science

**EPP 4800 Undergraduate Research in Entomology & Plant Pathology: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**EPP 4863 Insects and Global Change: 3 hours.**

(Prerequisite: introductory course in biology or ecology recommended). Three hours lecture. Insects and other arthropods (e.g., ticks, spiders) have extremely influential roles in our society. This course will cover how the era of rapid global change, including shifts in climate, international trade, and land use, impacts arthropods

**EPP 4990 Special Topics in Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPP 6113 Principles of Plant Pathology: 3 hours.**

(Prerequisites: BIO 1134 and Bio 1144 or consent of instructor). Two hours lecture. Three hours laboratory. Acquiring a general knowledge of the principles of plant pathology through a study of selected plant diseases of economic importance for Mississippi

**EPP 6143 Insect Ecology: 3 hours.**

Three hours lecture. Interaction of insects with their environment, including behavioral ecology, abiotic influences, population dynamics, species interactions, and effects of insects on ecosystem structure and function

**EPP 6152 Advanced Fungal Taxonomy-Fungi Imperfecti: 2 hours.**

(Prerequisite: Consent of Instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-fungi imperfecti in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods

**EPP 6154 General Entomology: 4 hours.**

Two hours lecture. Four hours laboratory. General Entomology is designed to introduce the biology and diversity of insects. Lectures cover most of basic biological phenomena of insects including morphology, physiology, development, ecology, and interactions with human activities. Lab activities include insect collection, classification, and hands-on experiments

**EPP 6162 Advanced Fungal Taxonomy-Ascomycetes: 2 hours.**

(Prerequisite: Consent of Instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-ascomycetes in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods

**EPP 6163 Plant Disease Management: 3 hours.**

(Prerequisite: EPP 4113/6113 or consent of instructor). Two hours lecture. Three hours laboratory. Techniques and fundamentals of plant disease management. Disease dynamics related to management, avoidance, exclusion, eradication of pathogens; principles of plant protection, spraying techniques; biological control. Spring semester

**EPP 6164 Insect Taxonomy: 4 hours.**

(Prerequisite: EPP 4154). Two hours lecture. Six hours laboratory. Spring semester. Advanced study of insect classification

**EPP 6172 Advanced Fungal Taxonomy-Fleshy Basidiomycetes: 2 hours.**

(Prerequisite: Consent of Instructor). One hour lecture. Two hours laboratory. Methods and practice in identification of taxon-basidiomycetes in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods

**EPP 6173 Medical and Veterinary Entomology: 3 hours.**

(Prerequisite: EPP 4154 or consent of instructor). Two hours lecture. Two hour laboratory. Essentials of the biology, disease relationships, surveillance, and control of arthropods parasitic on humans and animals in the context of clinical and preventive medicine

**EPP 6182 Advanced Fungal Taxonomy-Oomycetes and Zygomycetes: 2 hours.**

(Prerequisites: Consent of Instructor). One hour lecture. Two hour laboratory. Methods and practice in identification of taxon-oomycetes and zygomycetes in different ecosystems. Includes conventional macroscopic and microscopic techniques for identification compared with molecular methods

**EPP 6214 Diseases of Crops: 4 hours.**

(Prerequisites: EPP 3113 or 3124). Three hours lecture. Two hours laboratory. Fundamentals and practical aspects of identification and control of selected diseases of crop plants grown in the southern U.S. Spring semester

**EPP 6234 Field Crop Insects: 4 hours.**

(Prerequisite: EPP 2213 or 4154). Three hours lecture. Two hours laboratory. Fall semester. Recognition, biology, distribution, damage, economic importance and methods of control of insect pests of agronomic and horticultural crops

**EPP 6244 Aquatic Entomology: 4 hours.**

(Prerequisites: EPP 4154 or instructors approval). Three hours lecture. Two hours laboratory. Study of basic biological and ecological principles important to aquatic insects and related arthropods, including life histories, evolutionary adaptations, community and species and identification

**EPP 6254 Introduction to Mycology: 4 hours.**

(Prerequisite: BIO 1134 or consent of instructor). Two hours lecture. Four hours laboratory. Subjects include fungal structures, function and physiology, reproduction, genetics, emphasis in taxonomy and influence of reproductive stages of Ascomycetes, Basidiomycetes on plant and forest ecosystems

**EPP 6263 Principles of Insect Pest Management: 3 hours.**

Two hours lecture. Two hours laboratory. Discussion of pest management concepts, insect control methods, sampling, and pest management systems. Laboratory involves sampling, calibration and other exercises related to pest management

**EPP 6264 Advanced Mycology: 4 hours.**

(Prerequisite: BIO 1134 or consent of instructor). Two hours lecture. Four hours laboratory. Subjects include fungal structures, function and physiology, reproduction, genetics, and taxonomy of Oomycota, Chytridiomycota, and Zygomycota (Glomeromycota) and other phyla on plant and forest ecosystems

**EPP 6273 Honey Bee Biology and Beekeeping: 3 hours.**

Three hours lecture. In this introduction to the fascinating honey bee and its biology, students will learn the biology of the honey bee, the social structure and behaviors of a colony, the basics of beekeeping, pollination, and about products of the hive

**EPP 6313 Forensic Entomology: 3 hours.**

Two hours lecture. Two hours laboratory. Introduction to the identification and ecology of insects and other arthropods associated with corpses/carrion and related materials in the context of forensic science

**EPP 6333 Principles of Insect Anatomy and Physiology: 3 hours.**

(Prerequisite: EPP 4154). Three hours lecture. Spring semester. Introduction to the basic principles of structure and function of insect organ systems from a comparative and evolutionary viewpoint

**EPP 6443 Native Bees and Pollination Ecology: 3 hours.**

Three hours lecture. In this course, students will learn the biology of the different native bee species, the different social structures in bee pollinators, pollination ecology of different bee species, and the various threats that are affecting native bees and managed bees

**EPP 6523 Turfgrass Diseases: 3 hours.**

(Prerequisite: EPP 3113 or 3124) Two hours lecture Three hours laboratory. Study of the life cycle, damage, economic importance and control strategies of turfgrass diseases

**EPP 6543 Toxicology and Insecticide Chemistry: 3 hours.**

(Prerequisite: Organic Chemistry). Two hours lecture. Two hours laboratory. Spring semester. Chemistry, toxicity and mode of action of major groups of insecticides. Laboratory; bioassay methods, insecticide interactions, calculations

**EPP 6613 Forensic Entomology: 3 hours.**

Two hours lecture. Two hours Laboratory. Introduction to the identification and ecology of insects and other arthropods associated with corpses/carrion and related materials in the context of forensic science

**EPP 6863 Insects and Global Change: 3 hours.**

(Prerequisite: introductory course in biology or ecology recommended). Three hours lecture. Insects and other arthropods (e.g., ticks, spiders) have extremely influential roles in our society. This course will cover how the era of rapid global change, including shifts in climate, international trade, and land use, impacts arthropods

**EPP 6990 Special Topics in Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPP 7000 Directed Individual Study in Entomology and Plant Pathology: 1-6 hours.**

Hours and credits to be arranged

**EPP 8111 Seminar: 1 hour.**

Consideration of recent advances and problems in Entomology and Plant Pathology; student participation, general discussion

**EPP 8113 Plant Nematology: 3 hours.**

(Prerequisite: EPP 3113). Two hours lecture. Three hours laboratory. Basic morphology, taxonomy, and nomenclature; discussion of plant pathogenic general, symptomatology, methods of isolation, control methods, and interrelationship of nematodes to other plant pathogens. Fall semester, even years

**EPP 8121 Seminar: 1 hour.**

Consideration of recent advances and problems in Entomology and Plant Pathology; student participation, general discussion

**EPP 8123 Plant Virology: 3 hours.**

(Prerequisite: EPP 4133/6133 or equivalent). Two hours lecture. Three hours laboratory. Morphology and structure of infectious entity; characteristics of plant virus groups including symptomatology, transmission, vectors, etc. Methods of assay and purification. Spring semester, even years

**EPP 8133 Plant Bacteriology: 3 hours.**

(Prerequisite: EPP 4113, EPP 6133 or consent of instructor). Two hours lecture. Three hours Laboratory. Morphology, biology and taxonomy of plant-associated bacteria and physio-biochemical and molecular mechanisms involved in their interactions with plants; development and management of plant bacterial diseases

**EPP 8143 Advanced Plant Pathology I: 3 hours.**

(Prerequisite: EPP 3113). Three hours lecture. The dynamic nature of disease. Genetics and variability of the major groups of plant pathogens. Epidemiology. Genetics of the host-parasitic interaction. Fall semesters

**EPP 8144 Transmission Electron Microscopy: 4 hours.**

(Prerequisite: Consent of Instructor). One hour lecture. Six hours laboratory. Introduction to TEM including life sciences (tissue) and engineering (crystalline materials) topics. (Same as ME 8144)

**EPP 8173 Clinical and Applied Mycology: 3 hours.**

(Prerequisites: EPP 4254/6254 or consent of instructor). One hour lecture and four hours laboratory. This course prepares students to identify fungal causal agents associated with agricultural problems, including food science, agronomy, veterinary science, horticulture, forestry, and plant pathology. (Same as FNH 8173)

**EPP 8223 Scanning Electron Microscopy: 3 hours.**

(Prerequisite: Graduate Student, consent of instructor). Two hours lecture. Three hours laboratory. Fall semester. Introduction to scanning electron microscopy and associated techniques

**EPP 8253 Advanced Plant Pathology II: 3 hours.**

(Prerequisites: EPP 4113/6113, BIO 4214/6214, or consent of instructor). Three hours lecture. Infection processes, weapons utilized by pathogens in attack, and resultant alterations in ultrastructure, function and metabolism

**EPP 8263 Insect Rearing: Principles and Procedures: 3 hours.**

(Prerequisite: EPP 2213, EPP 4154, or instructor permission.) Two hours lecture. Two hours laboratory. Principles and procedures for rearing high quality insects including safety, genetics environments, diets, diet contamination, disease, and quality control

**EPP 8273 Empirical Research in Theory and Practice: 3 hours.**

Three hours lecture. Introduction to the nature, process, and societal role of research; scientific method, experimental design, proposal writing, publishing, and ethics. Course emphasizes the intuitive understanding and practical application of quantitative analyses, including written, visual, and oral presentation of methods and results

**EPP 8333 Advanced Toxicology: 3 hours.**

(Prerequisite: EPP 4543. Three hours lecture. Fall semester. Physiological and biochemical actions of pesticides and therapeutic drugs. Pesticide metabolism and resistance. Insecticide synergism. Natural toxins and venoms. (Same as PHY 8333)

**EPP 8343 Advances in Insect Anatomy-Structure and Function: 3 hours.**

(Prerequisites: General entomology (EPP 4154/6154) and/ or Insect taxonomy (EPP 4164/6164) or consent of instructor). Three hours lecture for upper-level graduate students with basic background in entomology. Advances in knowledge of insect anatomy, functional morphology and terminology associated with it. Evolutionary aspects of insect form and function

**EPP 8353 Advances in Insect Physiology and Biochemistry: 3 hours.**

(Prerequisites: General entomology (EPP 4154/6154) and/ or Insect taxonomy (EPP 4164/6164) or consent of instructor). Three hours lecture for upper-level graduate students with basic background in entomology and biochemistry. This advanced course will examine the major biochemical and molecular bases of the processes and functions of insect systems

**EPP 8363 Insect Biotechnology: 3 hours.**

(Prerequisite: EPP 4154/6154, or instructor permission.) Three hours lecture. This course is aimed at graduate students in Entomology program who have been less exposed to but want to learn molecular techniques in insect science. Emphasis will go on current biotechnology tools used in entomological research and pest management

**EPP 8364 Non-Thesis Masters Project in Entomology: 4 hours.**

Four Hours Directed Independent Study. This non-thesis project is open to students who have enrolled in the online Non-Thesis Master's program in Applied Entomology. Directed Independent Study will be conducted in the field of Entomology or Entomology-related work

**EPP 8373 Advanced Insecticide Toxicology: 3 hours.**

(Prerequisite: EPP 4543/6543). Three hours lecture. New insecticide synthesis based on natural products chemistry, insecticide resistance management (IRM), the Insecticide Resistance Action Committee (IRAC), Mode of Action classification system, quantitative structure activity relationships (QSAR) coupled with artificial intelligence (AI), and computer-aided modeling and design (CAMD)

**EPP 8423 Insects, Society, and Human Affairs: 3 hours.**

Three hours lecture. Explores interactions of insects and humans throughout history with an emphasis on insect pests of agricultural crop production, human and veterinary health, and roles as nuisances. Positive roles as decomposers, pollinators, sources of food, and inspirations for art, music, architecture are emphasized too

**EPP 8443 Using Machine Learning Techniques in the Life Sciences: 3 hours.**

Three hours lecture. An introduction to the use of machine learning/artificial intelligence for predictive modeling in the life sciences. We will cover special techniques for ML as well as many algorithms including random forests, boosted trees, SVMs and deep neural networks. The course will be taught using R

**EPP 8483 Ecological Genetics: 3 hours.**

(Prerequisites: PO 3103 or equivalent and BIO 4113/6113 or consent of instructor). Three hours lecture. Spring semester, odd-numbered years. Introduction to the application of genetic methods and theory to the study of adaptation in natural populations. (Same as GNS 8483)

**EPP 8673 Host-Microbe Interaction Mechanisms: 3 hours.**

(Prerequisite: Graduate standing or permission of instructor). Three hours lecture. Comprehensive overview of molecular interactions between microbes and their hosts and vectors leading to disease, colonization, symbiosis, vector transmission, immune responses, and other outcomes. Mammalian, plant, and insect systems will be covered. (Same as BCH 8673)

**EPP 8881 Entomology and Plant Pathology Colloquium: 1 hour.**

One Hour Seminar. Informal literature-based discussion of Entomology and Plant Pathology topics. One-hour synchronous discussion per week. Students may repeat the class up to three times for credit (no more than 1 credit concurrently). Contact the instructor of record to learn the course theme for each iteration

**EPP 8990 Special Topics in Entomology and Plant Pathology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPP 9000 Research in Entomology and Plant Pathology: 1-13 hours.**

Hours and credits to be arranged

## Educational Psychology Courses

**EPY 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**EPY 2513 Human Growth and Development: 3 hours.**

Three hours lecture. Psychological principles in the scientific study of people from conception to death; major theories of human growth and development and application in practical settings; biological, cognitive, and psychosocial perspectives of change and/or continuity throughout the life span

**EPY 2543 Science of Happiness: 3 hours.**

Three hours lecture. This course examines the state of college mental health and wellness on both personal and systems levels. Individuals learn to create positive change by reinterpreting their goals and identifying steps toward successful experience

**EPY 2990 Special Topics in Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPY 3063 Psychology of Individual Differences and Exceptional Ability: 3 hours.**

Three hours lecture. Individual differences and exceptional ability in children/youth that deviate from norm in physical, mental, emotional, and social characteristics. Definitions, etiology, identification, learning strategies, application

**EPY 3143 Human Development and Learning Strategies in Education: 3 hours.**

(Prerequisites: PSY 1013). Three hours lecture. A study of developmental perspectives of learning with emphasis on teaching

**EPY 3253 Evaluating Learning: 3 hours.**

(Prerequisite: Admission to teacher education). Three hours lecture. A study of instructional evaluation for the purpose of assessing individual pupil progress and general effectiveness of instruction

**EPY 3503 Principles of Educational Psychology: 3 hours.**

Three hours lecture. Application of psychological principles to the educational process; topics covered include learning, humanism, motivation, cognitive development, creativity, intelligence, exceptionalism, classroom management, measurement, and evaluation

**EPY 3513 Writing in the Behavioral Sciences: 3 hours.**

(Prerequisite: EN 1103 and EN 1113; junior standing; EPY majors should also enroll concurrently in EPY 3503). Three hours lecture. An introduction to writing skills in the behavioral sciences

**EPY 3543 Psychology of Adolescence: 3 hours.**

Three hours lecture. Physical, intellectual, emotional, and social growth processes from late childhood toward early adulthood; pubertal problems; mental hygiene of adolescence; family and peer relationships

**EPY 3553 Giftedness/Creativity: 3 hours.**

Three hours lecture. An introduction to giftedness and creativity emphasizing uniqueness of gifted/creative individuals; a survey of creative problem-solving approaches

**EPY 4000 Directed Individual Study in Educational Psychology: 1-6 hours.**

Hours and credits to be arranged

**EPY 4033 Application of Learning Theories: 3 hours.**

(Prerequisite: EPY 3513 or permission of instructor). Three hours lecture. Critical review of literature on learning in applied settings

**EPY 4073 Personal and Motivational Factors in Education: 3 hours.**

Three hours lecture. Theories of personality development and motivation in education settings with special attention to culture and interpersonal relations

**EPY 4103 Behavior Analysis for Behavior Technicians: 3 hours.**

Three hours lecture. The basics of behavior analysis, focusing on measurement, assessment, skill acquisition, behavior reduction, documentation, and professional conduct as it pertains to behavior technicians

**EPY 4113 Principles of Behavior Analysis: 3 hours.**

Three hours lecture. The study of basic concepts and principles of behavior analysis. Although the school setting may be discussed, emphasis is on these topics as they are applied in a non-school setting. Cannot be used for special education certification

**EPY 4123 Applications of School Psychology: 3 hours.**

(Prerequisite: Permission of instructor). Three hours lecture. Practical application of concepts and principles related to educational and school psychology, implementation, and analysis of intervention procedures

**EPY 4133 Data-based Decision Making for Interventions in the School Setting: 3 hours.**

Three hours lecture. Data based decision making and case methodology to teach theory, techniques, and procedures for educational support teams to address behavioral and academic difficulty in school-aged children

**EPY 4214 Educational and Psychological Statistics: 4 hours.**

Three hours lecture and three hours laboratory. A course in statistics for education and educational psychology majors. Analysis, description of and inference from various types of data

**EPY 4223 Applications of Applied Behavior Analysis: 3 hours.**

(Prerequisite: Permission of instructor). Three hours lecture. Practical application of concepts and principles related to educational and applied behavior analysis, implementation and analysis of intervention procedures

**EPY 4313 Measurement and Evaluation: 3 hours.**

Three hours lecture. Measurement and evaluation of learning activities and achievement of elementary school pupils and high school students; standardized tests; test construction; statistical techniques

**EPY 4443 Basics of Single Subject Design: 3 hours.**

Three hours lecture. An examination of single-subject research designs, their associated research methods including data, and use for intervention

**EPY 4493 Behavioral Assessment: 3 hours.**

Three hours lecture. Theory and practice of behavioral assessment will be emphasized; including identification of presenting concerns, selection of assessment techniques, and interpretation of data

**EPY 4513 Introduction to Research in Educational Psychology: 3 hours.**

Three hours lecture. (Prerequisites: EPY 4214 and 3503). An introduction to conducting educational research focusing on planning and designing research for applied education settings

**EPY 4553 Creativity/Innovation: 3 hours.**

(Pre-requisite: Junior or graduate standing or consent of the instructor). Three hours lecture. Introduction to creativity/innovation emphasizing uniqueness of creative individuals. Exploration of origins of creative/innovative behavior. Application of creativity/innovation enhancing techniques

**EPY 4603 Ethics, Supervision, & Personnel Management in Behavior Analysis: 3 hours.**

Three hours lecture. Foundations of practice, roles and functions, professional issues and standards with emphasis on legal and ethical means in behavior analysis

**EPY 4683 Advanced Issues in Educational Psychology: 3 hours.**

(Prerequisites: Jr. Standing, EPY 3503, and EPY 3513). Topics to cover contemporary issues in educational psychology, job and graduate school placement and practical experience and/or observation

**EPY 4710 International and National Explorative Travel Program in Educational Psychology/Psychology: 1-3 hours.**

(One to three hours lecture). Experiential learning through travel abroad or domestically within the United States focusing on specialized areas of study in Educational Psychology and/or Psychology. May be repeated two times. (Same as PSY 4710/6710)

**EPY 4990 Special Topics in Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPY 6033 Application of Learning Theories: 3 hours.**

(Prerequisite: EPY 3513 or permission of instructor). Three hours lecture. Critical review of literature on learning in applied settings

**EPY 6073 Personal and Motivational Factors in Education: 3 hours.**

Three hours lecture. Theories of personality development and motivation in education settings with special attention to culture and interpersonal relations

**EPY 6103 Behavior Analysis for Behavior Technicians: 3 hours.**

Three hours lecture. The basics of behavior analysis, focusing on measurement, assessment, skill acquisition, behavior reduction, documentation, and professional conduct as it pertains to behavior technicians

**EPY 6113 Principles of Behavior Analysis: 3 hours.**

Three hours lecture. The study of basic concepts and principles of behavior analysis. Although the school setting may be discussed, emphasis is on these topics as they are applied in a non-school setting. Cannot be used for special education certification

**EPY 6123 Applications of School Psychology: 3 hours.**

(Prerequisite: Permission of instructor). Three hours lecture. Practical application of concepts and principles related to educational and school psychology, implementation, and analysis of intervention procedures

**EPY 6133 Data-based Decision Making for Interventions in the School Setting: 3 hours.**

Three hours lecture. Data based decision making and case methodology to teach theory, techniques, and procedures for educational support teams to address behavioral and academic difficulty in school-aged children

**EPY 6214 Educational and Psychological Statistics: 4 hours.**

Three hours lecture and three hours laboratory. A course in statistics for education and educational psychology majors. Analysis, description of and inference from various types of data

**EPY 6223 Applications of Applied Behavior Analysis: 3 hours.**

(Prerequisite: Permission of instructor). Three hours lecture. Practical application of concepts and principles related to educational and applied behavior analysis, implementation and analysis of intervention procedures

**EPY 6313 Measurement and Evaluation: 3 hours.**

Three hours lecture. Measurement and evaluation of learning activities and achievement of elementary school pupils and high school students; standardized tests; test construction; statistical techniques

**EPY 6513 Ed Research: 3 hours.**

Three hours lecture. (Prerequisites: EPY 4214 and 3503). An introduction to conducting educational research focusing on planning and designing research for applied education settings

**EPY 6553 Creativity/Innovation: 3 hours.**

(Pre-requisite: Junior or graduate standing or consent of the instructor). Three hours lecture. Introduction to creativity/innovation emphasizing uniqueness of creative individuals. Exploration of origins of creative/innovative behavior. Application of creativity/innovation enhancing techniques



**EPY 6610 Sem In Education Psy: 1-6 hours.**

(Prerequisite: 9 hours in Psychology and consent of instructor). Credit and title to be arranged. One to six lectures. Examination of specific topics of interest to faculty and students

**EPY 6710 International and National Explorative Travel Program in Educational Psychology/Psychology: 1-3 hours.**

(One to three hours lecture). Experiential learning through travel abroad or domestically within the United States focusing on specialized areas of study in Educational Psychology and/or Psychology. May be repeated two times. (Same as PSY 4710/6710)

**EPY 6990 Special Topics in Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPY 7000 Directed Individual Study in Educational Psychology: 1-6 hours.**

Hours and credits to be arranged

**EPY 8113 History and Systems of Psychology: 3 hours.**

Three hours lecture. Seminar class for students at the advanced level in psychology fields. Examines the history and systems in psychology

**EPY 8123 Assessment of Infants, Toddlers, and Special Populations: 3 hours.**

Three hours lecture. Legal and professional aspects involve in assessment of young children. Administration, interpretation, and decision making in evaluation of infants, toddlers, and difficult-to-assess populations

**EPY 8133 Crisis Prevention and Intervention in Schools and Related Settings: 3 hours.**

Three hours lecture. Study of school crisis prevention and intervention strategies with emphasis on preventing, preparing for, responding to, and recovering from crisis impacting students and schools

**EPY 8214 Intermediate Educational and Psychological Statistics: 4 hours.**

(Prerequisite: EPY 4214/6214 or its equivalent.) Three hours lecture and three hours laboratory. ANOVA techniques and regression analysis are discussed with emphasis upon the design and analysis of research problems in education and psychology

**EPY 8223 Psychological Foundations of Education: 3 hours.**

Three hours lecture. The role of psychology in a changing context of organized education; the learner, content, structure, and management of the learning situation; studies of persistent problems

**EPY 8253 Child & Adolescent Development & Psychopathology: 3 hours.**

Three hours lecture. Critical survey of recent problems, methods, and research in both the normal and abnormal psychological development of children and adolescents

**EPY 8263 Psychological Testing in Educational and Related Settings: 3 hours.**

Three hours lecture. Principles and techniques involved in selecting, administering, scoring and interpreting tests of personality, interest, vocational aptitude, achievement, and intelligence

**EPY 8273 Neuropsychology: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Study of brain-based relationships with emphasis on neuroscience. Overview of assessment techniques, rehabilitation planning, and research contributions

**EPY 8293 Cognitive and Affective Development: 3 hours.**

Three hours lecture. The study of cognitive and affective development including the theories derived from the work of information-processing, Jean Piaget, Lev Vygotsky, and current scholarship

**EPY 8390 Applied Behavior Analysis Practicum: 6 hours.**

Applied supervised behavior analysis experiences in clinical, educational, and related settings utilizing behavior analytic principles and techniques to address socially significant behaviors for a variety of individuals

**EPY 8473 Elementary Assessment and Evaluation: 3 hours.**

Three hours lecture. A study of elementary (grades K-6) assessment and instructional evaluation for monitoring individual student progress, general effectiveness of instruction, and communicating assessment results

**EPY 8493 Social-Emotional and Behavioral Assessment: 3 hours.**

(Prerequisites: EPY 8263 or consent of the department). Three hours lecture. Theory and practice of social and behavioral assessment will be emphasized; including identification of presenting concerns, selection of assessment techniques, interpretation of data, and report writing

**EPY 8513 Psychometric Theory: 3 hours.**

(Prerequisites: EPY 6214, EPY 8214, and EPY 8263). Three hour lecture. Classical and modern models and their application to solving measurement problems, including developing and evaluation assessment instruments

**EPY 8523 Psychology of the Gifted: 3 hours.**

Three hours lecture. Characteristics, identification and evaluation of gifted individuals. Social, physical, emotional, and intellectual development of the gifted

**EPY 8533 Practicum in Teaching Educational Psychology: 3 hours.**

(Prerequisite: EPY 8223). One hour lecture. Two hours practicum. Establishing objectives; selecting and organizing learning experiences; guiding and evaluating learning; supervised practicum in teaching educational psychology

**EPY 8690 Supervised Experiences in School Psychology I: 1-6 hours.**

Variable credit supervised field experience/three hours lecture. Applied supervised school psychology experiences in educational and related settings utilizing psychological principles and techniques in teaching/learning problems

**EPY 8703 School Psychology: 3 hours.**

Three hours lecture. Study of the historical context and current trends in the roles and functions in the field of school psychology. Appraisal of standards for practice and graduate training

**EPY 8713 Experimental Analysis of Behavior: 3 hours.**

Three hours lecture. This course will provide students with an overview of the discovery of the fundamental basic principles of behavior including an understanding of the basic laboratory research that has led to the development of applied behavior analytic interventions used in practice today

**EPY 8723 Individual Assessment for Educational and Related Settings: 3 hours.**

(Prerequisite: EPY 8263 or equivalent). Three hours lecture. Training in administering individual psychometric instruments; verbal and nonverbal linguistic techniques; interpretation of scores, writing psychometric reports

**EPY 8763 Advanced Applied Behavior Analysis: 3 hours.**

(Prerequisite: EPY 6113). Three hours lecture. The focus will be on the identification, analysis, treatment, and evaluation of behavioral problems presented by children and youth. Emphasis on these topics as they are applied in a non-school setting

**EPY 8773 Assessment and Interventions for Academic Skills Deficits: 3 hours.**

Three hours lecture. Study of theories, techniques, and procedures that have been shown to prevent and remedy academic skills deficits

**EPY 8780 Internship in School Psychology: 3,6 hours.**

(Prerequisite: Consent of instructor). Variable credit supervised field experience. Supervised professional experience providing comprehensive and integrated psychological services in the schools and related settings

**EPY 8790 Supervised Experiences in School Psychology II: 1-6 hours.**

Variable credit supervised field experience. Applied supervised school psychology experiences in educational and related settings utilizing psychological principles and techniques in teaching/learning problems

**EPY 8890 Supervised Experiences in School Psychology: III: 1-6 hours.**

Variable credit supervised field experience. Applied supervised school psychology experiences in educational and related settings utilizing psychological principles and techniques in teaching/learning problems

**EPY 8933 Integrated Psycho-Educational Assessment: 3 hours.**

(Prerequisite: EPY 8723). Three hours lecture. Interpretation and appraisal of cognitive, academic, behavioral, social, and emotional measures for oral and written presentation

**EPY 8990 Special Topics in Educational Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EPY 9000 Research in Educational Psychology: 1-13 hours.**

Hours and credits to be arranged

**EPY 9213 Multivariate Analysis in Educational Research: 3 hours.**

(Prerequisites: EPY 6214 and EPY 8214, or equivalent course work). Three hours lecture. An examination of multivariate data analytic techniques for investigating research problems in education

**EPY 9263 Applied Research Seminar: 3 hours.**

(Prerequisites: EPY 6214, EDF 8363, and EDF 9373). Three hours lecture. Study of advances in thought on research approaches and doing research in educational psychology

**EPY 9313 Education Evaluation Methods: 3 hours.**

(Prerequisites: EPY 8214; EDF 9373 or equivalent course work). Three hours lecture. Introduction to evaluation contract development procedures, and planning and management of program evaluation in education and related settings

**EPY 9443 Single Subject Research Designs in Education: 3 hours.**

Three hours lecture. A detailed examination of single-subject research designs and their associated research methods including data collection and data evaluation techniques

**EPY 9603 Legal, Ethical, and Professional Issues in Behavior Analysis: 3 hours.**

Three hours lecture. Foundations of practice, roles and functions, professional issues and standards with emphasis on legal and ethical means in behavior analysis and psychology

**EPY 9613 Consultation, Supervision, & Personnel Management in Applied Behavior Analysis: 3 hours.**

(Prerequisite: Consent of the instructor.) Three hours lecture. Systematic review and application of behavioral consultation, supervision, and personnel management in human service settings

**EPY 9703 Contemporary, Legal, Ethical, and Professional Issues in School and Educational Psychology: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. Psychology as a profession: Foundations of practice, roles and functions, professional issues, and standards with emphasis on legal and ethical means in psychology

**EPY 9713 Advanced Psychological Consulting: Theory and Practice: 3 hours.**

(Prerequisite: Consent of the instructor). Three hours lecture. Systematic investigation and application of psychological consultation and supervision in schools/human service settings. Consultation and supervision as applied to individuals and organizational structures

**EPY 9723 Seminar in Contemporary Educational/School Psychology: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. Study of current issues and problems related to educational and school psychology

**EPY 9730 Doctoral Internship in School Psychology: 3-6 hours.**

(Prerequisite: consent of instructor). Supervised internship involving the theory and practice of evaluations, consultation, interventions, research, and related activities within a school, clinic, or other human service agency. May be taken a total of 3 times

## English as Second Language Courses

**ESL 4000 Directed Individual Study in English as a Second Language: 1-6 hours.**

Hours and credits to be arranged

**ESL 5110 American Language and Culture I: 1-18 hours.**

(Prerequisite: TOEFL score between 475 and 499 or consent of the instructor). Credit to be arranged. An intermediate level English language course designed to improve the oral communication and literacy skills of international students. (Does not count toward any degree)

**ESL 5120 American Language and Culture II: 1-18 hours.**

(Prerequisite: ESL 5110, or TOEFL score between 500 and 524, or consent of the instructor). Credit to be arranged. An advanced level English language course designed to improve the oral communication and literacy skills of international students. (Does not count toward any degree)

**ESL 5313 Classroom and Communication and Presentation: 3 hours.**

(Prerequisites: ESP 5120 or TOEFL score above 525 ) Three hours lecture. An English language course designed to prepare second language speakers for university-level course work. This course is designed to improve students' communication in classroom settings. ( Does not count toward any degree )

## Experiential Learning Courses

**EXL 0190 Experiential Learning: 1-12 hours.**

(Prerequisite: Permission of Department) Non-classroom learning experience arranged through agreement of student and department; written approval required. Registration provides equivalent of full time enrollment status but no academic credit. Coordinated through Academic Affairs

**EXL 1191 Leadership Studies Internship I: 1 hour.**

(Prerequisites: Permission of Leadership Studies minor advisor in student's major department and prior completion of 12 hours towards leadership studies minor). Brief internship for leadership studies minor. Arranged with departmental leadership studies minor advisor. Registration provides equivalent of full time enrollment status. Coordinated through Academic Affairs

**EXL 1193 Leadership Studies Internship II: 3 hours.**

(Prerequisites: Permission of Leadership Studies minor advisor in student's major department and prior completion of 12 hours towards leadership studies minor). Internship for leadership minor. Arranged with departmental leadership studies minor advisor. Registration provides equivalent of full time enrollment status. Coordinated through Academic Affairs

**EXL 2990 Special Topic in Experiential Learning: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EXL 3100 Career Center Professional Practice Internship I: 3 hours.**

(Prerequisites: 60 hours, 2.75 GPA and permission of Career Center). Career-related work experience arranged through mutual agreement of the student and employer with confirmation by the Career Center. Coordinated by the Career Center. This course will NOT contribute to a student's academic standing or earn credit toward graduation

**EXL 3200 Career Center Professional Practice Internship II: 3 hours.**

(Prerequisites: EXL 3100, 2.75 GPA and permission of Career Center). Career-related work experience arranged through mutual agreement of the student and employer with confirmation by the Career Center. Coordinated by the Career Center. This course will NOT contribute to a student's academic standing or earn credit for graduation

**EXL 4990 Special Topics in Experiential Learning: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**EXL 6990 Special Topic in Experiential Learning: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Fashion Design Merchandising Courses

**FDM 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**FDM 1523 Visual Design in Dress: 3 hours.**

Three hours lecture. Application of basic art principles to selection and design of clothing; physical, cultural, social, aesthetic, and psychological aspects of dress

**FDM 1533 Apparel Construction: 3 hours.**

One hour lecture. Four hours laboratory. Principles of clothing construction; problems involving fabric selection, use of industrial patterns, and basic fitting

**FDM 2123 Product Development I: 3 hours.**

Two hours lecture. Two hours laboratory. Introduction to the product development lifecycle in relation to the apparel industry. Emphasis is placed on technology applications at various stages of product development

**FDM 2153 Fashion Apparel Analysis: 3 hours.**

Three hours lecture. Terms and processes relevant to the apparel product development life-cycle and quality indicators/control measures for finished apparel products

**FDM 2333 Intro to Buying and Management: 3 hours.**

(Prerequisites: FDM 2553). Three hours lecture. Concepts and theories in apparel buying and management; roles and responsibilities of merchandise buyers; domestic and foreign merchandise resources and negotiation

**FDM 2524 Textiles for Apparel: 4 hours.**

Three hours lecture. Two hours lab. An introductory study of textile fibers, yarns, fabrics, colorants, and finishes; and the factors that influence the selection, appearance, care, and serviceability of textiles for apparel

**FDM 2553 Introduction to Merchandising: 3 hours.**

Three hours lecture. A survey of the entire consumer goods industry as it relates to merchandising

**FDM 2573 Fashion Portfolio Development: 3 hours.**

Two hours lecture. Two hours laboratory. Creation of printed and electronic portfolios and related materials for fashion-related careers. Includes project selection; layout and graphics; photography; photo-editing; writing; use of appropriate software

**FDM 2593 Product Development II: 3 hours.**

(Prerequisites: FDM 2123). Three hours lecture. Analysis of product development and manufacturing related to the apparel industry including terminology, design processes, product development, sewn product analysis and quality control

**FDM 3213 Fashion Forecasting: 3 hours.**

(Prerequisite: FDM 2553). Three hours lecture. Survey of the techniques and procedures for identifying and forecasting fashion trends and evaluating current trends in lifestyles, business, ready-to-wear, and art. Students will learn to recognize and analyze predictive fashion trends that affect retail merchandising and marketing decisions

**FDM 3221 Internship Preparation: 1 hour.**

(Prerequisite: consent of instructor). One-hour lecture. Preparation for an internship in a chosen specialization

**FDM 3553 Merchandise Retail Pricing and Inventory Management: 3 hours.**

(Prerequisites: FDM 2553 and ST 2113 or MA 2113 or BQA 2113 or consent of instructor). Two hours lecture. Two hours laboratory. Specific problems, procedures and practices in merchandise pricing and inventory management

**FDM 3563 Visual Merchandising: 3 hours.**

(Prerequisite: FDM 2553). Two hours lecture. Two hours laboratory. Principles of window and interior display, individual and group participation in designing and executing displays for commercial and educational purposes

**FDM 3573 Historic Costume: 3 hours.**

Two hours lecture. Two hours laboratory. Survey of costume from prehistoric to modern times with emphasis on social, cultural, political, and technological changes impacting fashion, preservation, documentation, and exhibition of artifacts

**FDM 3583 Excel and Retail Operations: 3 hours.**

Three hours lecture. Extensive study of Microsoft Excel as it relates to Retail Operations with an emphasis on the practical retail-specific business applications. The course will provide comprehensive coverage of features available within the application as they relate to the retail operations such as formulas/functions, and data interpretation/presentation

**FDM 3593 Merchandising and Promotion Strategies: 3 hours.**

(Prerequisite: FDM 2553 and junior standing or consent of instructor). Three hours lecture. A study of fashion presentation techniques and production requirements in the primary, secondary and retail settings

**FDM 4000 Directed Individual Study in FDM: 6 hours.**

Hours and credits to be arranged

**FDM 4343 Pattern Making and Design: 3 hours.**

(Prerequisite: Grade of B or higher in FDM 1533). Two hours lecture. Two hours laboratory. Advanced problems and techniques for clothing construction and creative expression through application of drafting and flat pattern design techniques

**FDM 4363 Draping: 3 hours.**

(Prerequisite: FDM 4343). One hour lecture. Four hours laboratory. Principles of apparel design through the three-dimensional manipulation of fabric on industry standard dress forms. Analysis of fit and design, problem solving and interaction of fabric characteristics with style features

**FDM 4424 Teaching Methods in Agricultural and Human Sciences: 4 hours.**

(Prerequisite: CALS major and junior standing). Three hours lecture. Two hours laboratory. Planning instruction; selecting teaching techniques; developing teaching plans; teaching agricultural/human sciences topics; using instructional technologies; and evaluating learner progress. Same as AELC 4424

**FDM 4513 Fashion Consumer Behavior: 3 hours.**

(Prerequisites: SO 1003 or PSY 1013 and junior standing). Three hours lecture. Application of concepts and theories from the social sciences related to the study of consumer behavior related to dress, textile and apparel products, and retail experiences. Experience in conducting consumer research

**FDM 4533 Merchandise Planning and Buying: 3 hours.**

Three hours lecture. Capstone course in planning, buying and managing inventory in a fashion retail environment

**FDM 4583 Fashion Entrepreneurship: 3 hours.**

Three hours lecture. Application of principles of entrepreneurship with emphasis on retail/fashion; exploration of issues in entrepreneurship relative to apparel, retailing, and design; development of skills necessary to establish and maintain successful business

**FDM 4593 Creative Design Techniques: 3 hours.**

(Prerequisite: FDM 1533 or consent.) Two hours lecture. Two hours laboratory. Students will learn a variety of surface and other design techniques and apply them to existing and original garments and accessories. Students will also utilize multicultural, historic, and other inspirations for their designs

**FDM 4603 Global Sourcing in the Textile and Apparel Industry: 3 hours.**

(Prerequisites: FDM 2553 and FDM 4513 or equivalent or consent of instructor). Three hours lecture. Evaluation of global issues facing the textile complex-fiber, textile and apparel industries. Students will learn about international trade and global issues in the textile complex

**FDM 4693 Digital Merchandising: 3 hours.**

Three hours lecture. A study of electronic merchandising and its application to consumer products and services for business to business and business to consumer. Introduction to electronic merchandising theory, terminology, resources, industry participants and career opportunities

**FDM 4711 FDM Senior Showcase: 1 hour.**

(Prerequisite: Graduating senior status). Two hours laboratory. Hands-on laboratory to prepare final senior portfolio presentations for faculty review. Fashion Design and Merchandising majors only

**FDM 4733 Computer-Aided Design for Fashion: 3 hours.**

(Prerequisite: FDM 4343). Two hours lecture. Two hours laboratory. Applications of various computer-aided design software to the fashion industry, including illustration and the design of fabric, garments, and accessories

**FDM 4763 FDM Internship: 3 hours.**

(Prerequisite: FDM 3221). Individual work experience in an approved apparel, textiles, or merchandising setting under supervision of Miss. State University faculty. (Course may be taken for credit up to two times)

**FDM 4800 Undergraduate Research in FDM: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**FDM 4990 Special Topics in Fashion Design and Merchandising: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FDM 6343 Pattern Making and Design: 3 hours.**

(Prerequisite: Grade of B or higher in FDM 1533). Two hours lecture. Two hours laboratory. Advanced problems and techniques for clothing construction and creative expression through application of drafting and flat pattern design techniques

**FDM 6363 Draping: 3 hours.**

(Prerequisite: FDM 4343). One hour lecture. Four hours laboratory. Principles of apparel design through the three-dimensional manipulation of fabric on industry standard dress forms. Analysis of fit and design, problem solving and interaction of fabric characteristics with style features

**FDM 6424 Teaching Methods in Agricultural and Human Sciences: 4 hours.**

(Prerequisite: CALS major and junior standing). Three hours lecture. Two hours laboratory. Planning instruction; selecting teaching techniques; developing teaching plans; teaching agricultural/human sciences topics; using instructional technologies; and evaluating learner progress. Same as AELC 4424

**FDM 6443 Advanced Patternmaking and Design: 3 hours.**

(Prerequisite: FDM 4343). One hour lecture. Four hours laboratory. Advanced study of creative design of clothing through the flat pattern method

**FDM 6513 Fashion Consumer Behavior: 3 hours.**

(Prerequisites: SO 1003 or PSY 1013 and junior standing). Three hours lecture. Application of concepts and theories from the social sciences related to the study of consumer behavior related to dress, textile and apparel products, and retail experiences. Experience in conducting consumer research

**FDM 6563 Advanced Draping: 3 hours.**

One hour lecture. Four hours lab. Advanced apparel design through the three-dimensional manipulation of fabric on industry standard dress forms. Analysis of fit and design, problem solving and interaction of fabric characteristics with style features

**FDM 6583 Fashion Entrepreneurship: 3 hours.**

Three hours lecture. Application of principles of entrepreneurship with emphasis on retail/fashion; exploration of issues in entrepreneurship relative to apparel, retailing, and design; development of skills necessary to establish and maintain successful business

**FDM 6593 Creative Design Techniques: 3 hours.**

(Prerequisite: FDM 1533 or consent.) Two hours lecture. Two hours laboratory. Students will learn a variety of surface and other design techniques and apply them to existing and original garments and accessories. Students will also utilize multicultural, historic, and other inspirations for their designs

**FDM 6603 Global Sourcing in the Textile and Apparel Industry: 3 hours.**

(Prerequisites: FDM 2553 and FDM 4513 or equivalent or consent of instructor). Three hours lecture. Evaluation of global issues facing the textile complex-fiber, textile and apparel industries. Students will learn about international trade and global issues in the textile complex

**FDM 6613 Research in Fashion Consumer Behavior: 3 hours.**

Three hours lecture. Application of concepts and theories from the social sciences related to the study of consumer behavior related to dress, textile and apparel products, and retail experiences. Experience in conducting consumer research

**FDM 6683 Research and Application in Fashion Entrepreneurship: 3 hours.**

Three hours Lecture. Research and application of principles of entrepreneurship with an emphasis on retail and fashion; exploration of issues in entrepreneurship relative to apparel, retailing, and design; development of skills necessary to establish and maintain a successful business

**FDM 6693 Digital Merchandising: 3 hours.**

Three hours lecture. A study of electronic merchandising and its application to consumer products and services for business to business and business to consumer. Introduction to electronic merchandising theory, terminology, resources, industry participants and career opportunities

**FDM 6733 Computer-Aided Design for Fashion: 3 hours.**

(Prerequisite: FDM 4343). Two hours lecture. Two hours laboratory. Applications of various computer-aided design software to the fashion industry, including illustration and the design of fabric, garments, and accessories

**FDM 6783 Experimental Fashion Design: 3 hours.**

(Prerequisite: FDM 4343 or consent of instructor). One hour lecture. Four hours laboratory. A theoretical and practical approach to designing fashionable and functional clothing

**FDM 6793 Research and Application in Digital Fashion Retailing: 3 hours.**

Three hours lecture. Research in electronic merchandising and its application to consumer products and services for business to business and business to consumer. Research in electronic merchandising theory, digital technologies, terminology, resources, industry participants and career opportunities

**FDM 6873 Advanced Computer-Aided Design for Fashion: 3 hours.**

One hour lecture. Four hours lab. The use of apparel designated computer systems as a design tool, to conceptualize apparel design ideas and create patterns, markers, and original designs

**FDM 6990 Special Topics in Fashion Design and Merchandising: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FDM 7000 Directed Individual Study in FDM: 6 hours.**

Hours and credits to be arranged

**FDM 8100 Creative Component Project in Fashion Design and Merchandising: 1-13 hours.**

Hours and credits to be arranged. Capstone major professor of student and Masters committee. Individual project involving application of coursework to the career goal of student. Repeatable up to 13 hours

**FDM 8803 Research Methods in Fashion Design and Merchandising: 3 hours.**

Three hours lecture. Teach basic research skills and concepts needed to plan, conduct, and analyze data used in Fashion Design, Product Development, and/or Merchandising. Students will prepare a research proposal

**FDM 8990 Special Topics in Fashion Design and Merchandising: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FDM 9000 Research in Fashion Design and Merchandising: 1-13 hours.**

Hours and credits to be arranged

## Finance Courses

**FIN 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**FIN 2003 Personal Money Management: 3 hours.**

Three hours lecture. The individuals acquisition and management of an optional personal income and expenditure pattern over a lifetime to best meet his/her financial objectives. ( Same as INS 2003. Not open to finance majors or as a part of GBA Finance Concentration)

**FIN 2990 Special Topics in Finance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FIN 3113 Financial Systems: 3 hours.**

(Prerequisites: EC 2113, EC 2123, or AEC 2713 ). Three hours lecture. Study of interest rates, basic security valuation, money and capital markets

**FIN 3123 Financial Management: 3 hours.**

(Prerequisites: EC 2123, ACC 2013, and BQA 2113 ). Three hours lecture. Study of objectives, tools, methods, and problems of financial management; financial analysis, planning, control, sources/uses of funds, capital budgeting decisions and working capital

**FIN 3203 Financial Statement Analysis: 3 hours.**

(Prerequisite: ACC 2023). Three hours lecture. For non-accounting majors. A study of financial statements from an external users perspective; an analysis of statements for purposes of determining loan and investment potential. (Same as ACC 3203 )

**FIN 3723 Financial Markets and Institutions: 3 hours.**

(Prerequisites: Grade of B or better in FIN 3123). Three hours lecture. Study of the functions of financial markets. Major topics include interest rates, their role in securities markets and financial institutions, and interest rate risk

**FIN 4000 Directed Individual Study in Finance: 1-6 hours.**

Hours and credits to be arranged

**FIN 4101 VentureCatalyst™ Finance Internship I: 1 hour.**

(Prerequisites: B or better in FIN 3123 and FIN 3203; consent of instructor). One credit hour. Support start-up teams in the Center for Entrepreneurship and Outreach with the preparation of business plans, market analysis, and financial projections. Section open by invitation only after completing interview process

**FIN 4111 TVA Panel I: 1 hour.**

(Prerequisite: ACC 2013 or equivalent, junior/graduate standing, and consent of instructor). One hour lecture. Experience analyzing and selecting stocks for the Tennessee Valley Authority's asset decommissioning trust portfolio. Section open through invitation only. Course may be taken two times

**FIN 4112 TVA Panel II: 2 hours.**

(Prerequisites: FIN 4111/6111, junior/graduate standing, and consent of instructor). Two hours lecture. Experience selecting and analyzing portfolio strategies for the Tennessee Valley Authority's Investment Challenge. Section open through invitation only. Course may be taken two times

**FIN 4123 Financial and Commodities Futures Marketing: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Discussion of the purpose, function mechanics, analysis and application of financial and commodity futures markets in pricing and hedging opportunities (Same as AEC 4123/6123)

**FIN 4223 Intermediate Financial Management: 3 hours.**

(Prerequisite: Grade of B or better in FIN 3123). Three hours lecture. Building on foundational concepts, this course provides a more in-depth coverage of financial analysis, valuation principles, the financial environment, capital budgeting and capital structure

**FIN 4233 Working Capital Management: 3 hours.**

(Prerequisite: FIN 3123.) Three hours lecture. Analysis of selected problems in the short-term financial management of the firm, including cash management, investment opportunities, financing requirements, budgeting and planning

**FIN 4243 Senior Seminar in Financial Management: 3 hours.**

(Prerequisites: Grade of C or better in FIN 3723 and grade of C or better in FIN 4223). Three hours seminar. Comprehensive case study to bring out the problems involved in organizing, financing, and managing various types of business enterprises

**FIN 4323 Entrepreneurial Finance: 3 hours.**

(Prerequisite: Grade of C or better in FIN 3123 or IE 3913). Three hours lecture. Development, implementation, and control of financial plans, strategies, and policies by owner-managers of small and medium-sized firms; analysis of alternatives and decision making

**FIN 4423 Investments: 3 hours.**

(Prerequisite: Grade of B or better in FIN 3123). Three hours lecture. Survey of various financial instruments and their characteristics, investor choice, and an introduction to the basics of security analysis, portfolio management, and speculative markets

**FIN 4433 Senior Seminar in Portfolio Management: 3 hours.**

(Prerequisites: Grade of B or Better in FIN 3123 and Grade of B or Better in FIN 4423.) Three hours seminar. Analysis of individual investments, creation and management of investment portfolios to achieve specific investor goals, and evaluation of portfolio performance

**FIN 4453 Financing the American Dream: 3 hours.**

Explores differing views of the American Dream and collection of wealth in America. Further, the class studies how those who have collected wealth may use it to help others attain the American Dream

**FIN 4723 Bank Management: 3 hours.**

(Prerequisites: FIN 3723). Three hours lecture. Study of banking environment, functional areas of banking, and tools and techniques required to effectively manage a bank in a highly competitive, dynamic environment

**FIN 4733 Advanced Bank Management: 3 hours.**

(Prerequisites: FIN 4723 or FIN 3123 and Instructor Consent.) Three hours seminar. Applications of financial management techniques to bank management decisions through experiential learning opportunities. Computer-based analysis, simulations, and written and oral presentations

**FIN 4743 Consumer Finance: 3 hours.**

(Prerequisite: Grade of C or better in FIN 3123; prerequisite or co-requisite FIN 3723). Three hours lecture. Supply and demand for consumer credit products, their role in the lending landscape, economic impact of the consumer finance industry, its workings, and its regulation

**FIN 4923 International Financial Management: 3 hours.**

(Prerequisites: FIN 3123 or consent of instructor). Three hours lecture. A study of the theory and actual behavior of international financial management, foreign financial markets, exchange rate risk management, and foreign direct investments

**FIN 4990 Special Topics in Finance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FIN 6101 VentureCatalyst™ Finance Internship I: 1 hour.**

(Prerequisites: B or better in FIN 3123 and FIN 3203; consent of instructor). One credit hour. Support start-up teams in the Center for Entrepreneurship and Outreach with the preparation of business plans, market analysis, and financial projections. Section open by invitation only after completing interview process

**FIN 6111 TVA Panel I: 1 hour.**

(Prerequisite: ACC 2013 or equivalent, junior/graduate standing, and consent of instructor). One hour lecture. Experience analyzing and selecting stocks for the Tennessee Valley Authority's asset decommissioning trust portfolio. Section open through invitation only. Course may be taken two times

**FIN 6112 TVA Panel II: 2 hours.**

(Prerequisites: FIN 4111/6111, junior/graduate standing, and consent of instructor). Two hours lecture. Experience selecting and analyzing portfolio strategies for the Tennessee Valley Authority's Investment Challenge. Section open through invitation only. Course may be taken two times

**FIN 6123 Financial and Commodities Futures Marketing: 3 hours.**  
(Prerequisite: Junior standing). Three hours lecture. Discussion of the purpose, function mechanics, analysis and application of financial and commodity futures markets in pricing and hedging opportunities (Same as AEC 4123/6123)

**FIN 6323 Entrepreneurial Finance: 3 hours.**  
(Prerequisite: Grade of C or better in FIN 3123 or IE 3913). Three hours lecture. Development, implementation, and control of financial plans, strategies, and policies by owner-managers of small and medium-sized firms; analysis of alternatives and decision making

**FIN 6453 Financing the American Dream: 3 hours.**  
Explores differing views of the American Dream and collection of wealth in America. Further, the class studies how those who have collected wealth may use it to help others attain the American Dream

**FIN 6743 Consumer Finance: 3 hours.**  
(Prerequisite: Grade of C or better in FIN 3123; prerequisite or co-requisite FIN 3723). Three hours lecture. Supply and demand for consumer credit products, their role in the lending landscape, economic impact of the consumer finance industry, its workings, and its regulation

**FIN 6923 International Financial Management: 3 hours.**  
(Prerequisites: FIN 3123 or consent of instructor). Three hours lecture. A study of the theory and actual behavior of international financial management, foreign financial markets, exchange rate risk management, and foreign direct investments

**FIN 6990 Special Topics in Finance: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FIN 7000 Directed Individual Study in Finance: 1-6 hours.**  
Hours and credits to be arranged

**FIN 8113 Corporate Finance: 3 hours.**  
(Prerequisite: Graduate Standing and FIN 3123 or equivalent). Three hours lecture. An examination of the interaction between financial accounting, cash flow estimation, capital budgeting, risk and return, capital structure, and working capital management

**FIN 8333 Investment Management: 3 hours.**  
The course covers the basic principles and practical applications of the investment process. It describes the investment environment, identifies the major participants in financial markets and explains how financial securities are traded. Additionally, methods to value financial assets, manage risk and evaluate performance will be discussed

**FIN 8733 Financial Markets, Rates and Flows: 3 hours.**  
(Prerequisite: FIN 8112 and FIN 8122 or equivalent). Three hours lecture. An analysis of money and capital market instruments; a study of interest rates and financial flows; the effect of public policy on credit conditions

**FIN 8990 Special Topics in Finance: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FIN 9000 Research in Finance: 1-13 hours.**  
Hours and credits to be arranged

**FIN 9213 Advanced Financial Management: 3 hours.**  
(Prerequisites: FIN 8113 or the equivalent). Three hours lecture. A study of the theory and application of valuation, risk return analysis, capital budgeting decisions, and capital structure. Analysis of how these decisions affect firm value

**FIN 9223 Seminar in Corporate Financial Theory: 3 hours.**  
(Prerequisites: FIN 8113 or the equivalent). Three hours seminar. Analyses of financial management cases involving working capital, financial analyses, valuation concepts, risk and return, capital budgeting, cost of capital, and financial planning

**FIN 9233 Seminar in Corporate Finance: 3 hours.**  
(Prerequisites: FIN 8113 or the equivalent.) Doctoral seminar. Analysis and discussion of the literature dealing with topics in corporate finance. Also, students prepare and present research projects

**FIN 9423 Investment and Portfolio Theory: 3 hours.**  
(Prerequisites: Fin 8113 or the equivalent). Three hours lecture. The application of contemporary investment theory for decision-making purposes in portfolio management, and the formulation of portfolio policies for different types of investors

**FIN 9433 Seminar in Portfolio Theory: 3 hours.**  
(Prerequisites: FIN 8423 or equivalent). Doctoral seminar. Analysis and discussion of the literature dealing with topics in portfolio theory and management. Also students prepare and present research projects. mean-variance concept, option pricing and arbitrage pricing

**FIN 9733 Seminar in Financial Markets and Institutions: 3 hours.**  
(Prerequisites: FIN 8733 or the equivalent.) Doctoral seminar. Analysis and discussion of the literature dealing with topics in financial markets and institutions. Students prepare and present research projects

## Foreign Languages Courses

**FL 1001 First Year Seminar: 1 hour.**  
One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**FL 2123 The Greek and Latin Roots of English: 3 hours.**  
Three hours lecture. A study of Greek and Latin roots used in English words, with particular focus on the technical vocabulary used in the fields of science, medicine, law, and humanities. No knowledge of Greek or Latin is necessary. (Same as EN 2123)

**FL 2990 Special Topics in Foreign Languages: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FL 4000 Directed Individual Study in Foreign Languages: 1-6 hours.**  
Hours and credits to be arranged

**FL 4023 Introduction to Literary Criticism: 3 hours.**  
Three hours lecture. An introduction to key theories and practices of literary analysis designed for foreign languages majors

**FL 4113 Ancient Greece and Rome in Film: 3 hours.**  
Three hours lecture. A study of the reception of ancient Greece and Rome (including history, civilization, and culture) through films and television, from the epic movies of the 50's to the most recent cinematic adaptations

**FL 4133 Roman Civilization: 3 hours.**

Three hours lecture. A study of the history, literature and culture of ancient Rome from its origins in the VIII century B.C. through the fall of the Empire

**FL 4143 Classical Mythology: 3 hours.**

Three hours lecture. Myths and legends of Greece and Rome and their use in literature and the arts through the ages. (Same as REL 4143)

**FL 4203 Methods of Teaching K-8 World Languages: 3 hours.**

(Prerequisite: Completion of fourth semester of language or consent of instructor). Three hours lecture. Field-based. An introduction to world language education with specific emphasis on the effective practices for teaching and assessing students in grades K-8

**FL 4213 Methods of Teaching 9-12 World Languages: 3 hours.**

(Prerequisite: FL 4203 or consent of instructor). Three hours lecture. Field-based. An examination of the effective practices for teaching and evaluating world language students in grades 9-12

**FL 4223 Foundations in Online Language Teaching: 3 hours.**

(Prerequisite: FL 4203, FL 4213, or consent of instructor). Three hours lecture. Introduction to best practices in language teaching as related to planned online, hybrid, blended, and technologically-enhanced classrooms

**FL 4233 Linguistics for World Language Teachers: 3 hours.**

(Prerequisite: FLS/FLF/FLG 2143 or consent of instructor). Three hours lecture. Introduction to several major fields of linguistics, with specific emphasis on applying linguistic analysis to the World Language classroom

**FL 4243 Introduction to Ecolinguistics: 3 hours.**

Three hours lecture. Introduction to the basic tenets of Ecolinguistics. Critical discourse analysis related to how the language that we speak influences our way of being in the world in the Anthropocene

**FL 4253 Biosemiotics: 3 hours.**

Three hours lecture. A transdisciplinary seminar exploring the concept that semiosis (i.e. communication) is synonymous with life itself at all biological levels of organization from the most basic cell all the way up to Homo sapiens

**FL 4423 Greek History: 3 hours.**

Three hours lecture. Introduction to the history of ancient Greece from the Bronze Age through the height of the Greek city-states and the rise of the kingdom of Macedon. (Same as HI 4453)

**FL 4433 Roman History: 3 hours.**

Three hours lecture. Introduction to the history of Rome from its foundations through the Republic, the Empire, and the ultimate decline in late antiquity. (Same as HI 4463)

**FL 4463 Studies in Second Language Acquisition: 3 hours.**

(Prerequisite: EN 4403/6403 or consent of instructor). Three hours lecture. A survey of the major theories of language acquisition, concentrating on accounts of second language acquisition. (Same as EN 4463/6463)

**FL 4493 Greek Comedy and Tragedy: 3 hours.**

Three hours lecture. A study in English translation of the works of such authors as Aeschylus, Sophocles, Euripides, Aristophanes, and Menander in their historical and cultural context

**FL 4503 Ghost Tales from China and Japan, 14th-19th Centuries: 3 hours.**

Three hours lecture. A Study of early modern Chinese and Japanese ghost tales in English translation

**FL 4773 The Age of Homer: 3 hours.**

Three hours lecture. A study of Greek epic in English translation, with a consideration of the archeological and iconographical evidence for the story of Troy

**FL 4990 Special Topics in Foreign Languages: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FL 6113 Ancient Greece and Rome in Film: 3 hours.**

Three hours lecture. A study of the reception of ancient Greece and Rome (including history, civilization, and culture) through films and television, from the epic movies of the 50's to the most recent cinematic adaptations

**FL 6143 Classical Mythology: 3 hours.**

Three hours lecture. Myths and legends of Greece and Rome and their use in literature and the arts through the ages. (Same as REL 4143)

**FL 6203 Methods of Teaching K-8 World Languages: 3 hours.**

(Prerequisite: Completion of fourth semester of language or consent of instructor). Three hours lecture. Field-based. An introduction to world language education with specific emphasis on the effective practices for teaching and assessing students in grades K-8

**FL 6213 Methods of Teaching 9-12 World Languages: 3 hours.**

(Prerequisite: FL 4203 or consent of instructor). Three hours lecture. Field-based. An examination of the effective practices for teaching and evaluating world language students in grades 9-12

**FL 6223 Foundations in Online Language Teaching: 3 hours.**

(Prerequisite: FL 4203, FL 4213, or consent of instructor). Three hours lecture. Introduction to best practices in language teaching as related to planned online, hybrid, blended, and technologically-enhanced classrooms

**FL 6233 Linguistics for World Language Teachers: 3 hours.**

(Prerequisite: FLS/FLF/FLG 2143 or consent of instructor). Three hours lecture. Introduction to several major fields of linguistics, with specific emphasis on applying linguistic analysis to the World Language classroom

**FL 6243 Introduction to Ecolinguistics: 3 hours.**

Three hours lecture. Introduction to the basic tenets of Ecolinguistics. Critical discourse analysis related to how the language that we speak influences our way of being in the world in the Anthropocene

**FL 6253 Biosemiotics: 3 hours.**

Three hours lecture. A transdisciplinary seminar exploring the concept that semiosis (i.e. communication) is synonymous with life itself at all biological levels of organization from the most basic cell all the way up to Homo sapiens

**FL 6423 Greek History: 3 hours.**

Three hours lecture. Introduction to the history of ancient Greece from the Bronze Age through the height of the Greek city-states and the rise of the kingdom of Macedon. (Same as HI 4453)

**FL 6433 Roman History: 3 hours.**

Three hours lecture. Introduction to the history of Rome from its foundations through the Republic, the Empire, and the ultimate decline in late antiquity. (Same as HI 4463)



**FL 6463 Studies in Second Language Acquisition: 3 hours.**

(Prerequisite: EN 4403/6403 or consent of instructor). Three hours lecture. A survey of the major theories of language acquisition, concentrating on accounts of second language acquisition. (Same as EN 4463/6463)

**FL 6990 Special Topics in Foreign Languages: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FL 7000 Directed Individual Study in Foreign Languages: 1-6 hours.**

Hours and credits to be arranged

**FL 8023 Introduction to Literary Criticism: 3 hours.**

Three hours lecture. An introduction to key theories and practices of literary analysis designed for foreign language graduate studies

**FL 8113 Capstone Seminar: 3 hours.**

Studies in selected topics in Classical and Modern Literatures and Languages. (May be repeated two times)

**FL 8333 Cultural Studies: 3 hours.**

(Prerequisite: Graduate Standing). Three hours lecture. A study of the theory and methodologies of cultural studies

**FL 8693 Advanced Foreign Language Pedagogy: 3 hours.**

Three hours lecture. Field-based. Advanced examination of effective practices for teaching and evaluating college level foreign language students

**FL 8793 Foreign Language Planning, Instruction, and Assessment: 3 hours.**

Three hours lecture. Exploration and application of strategies related to foreign/world language planning, instruction, and assessment for K-16 learners

**FL 8990 Special Topics in Foreign Languages: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Chinese Courses

**FLC 1113 Chinese I: 3 hours.**

Two hours lecture. Two hours recitation. An introduction to conversational Chinese

**FLC 1123 Chinese II: 3 hours.**

(Prerequisite: FLC 1113 or permission of instructor). Two hours lecture, two hours lab. A continuation of Chinese I, where students continue to develop skills in reading, writing, speaking and listening in a cultural context

**FLC 2133 Chinese III: 3 hours.**

(Prerequisite: FLC 1123 or permission of instructor). Three hours lecture. A continuation of Chinese II, where students continue to develop their skills in reading, writing, speaking and listening in a cultural context

**FLC 2143 Chinese IV: 3 hours.**

(Prerequisite: FLC 2133 or permission of instructor). Three hours lecture. A continuation of Chinese III, where students will bring their Chinese to the intermediate level through intensive reading, writing, speaking and listening practice

**FLC 2990 Special Topics in Chinese: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLC 3153 Chinese V: 3 hours.**

(Prerequisite: FLC 2143 or equivalent). Three hours lecture. An integrated development of skills in Chinese grammar, reading, writing, and oral-aural proficiency at the mid-intermediate level

**FLC 3163 Chinese VI: 3 hours.**

(Prerequisite FLC 3153 or equivalent). Three hours lecture. An expansion of skills in Chinese grammar, reading, writing, and oral-aural proficiency through social contexts. Advanced instruction in public speaking and other oral communications

**FLC 3203 Survey of Chinese Literature: 3 hours.**

Three hours lecture. An introduction to Chinese literature in English translation. Reading of major works, genres, and writers in Chinese literary history from the 6th century B.C. to the present

**FLC 3303 Survey of Chinese Culture: 3 hours.**

Three hours lecture. An English language introduction to Chinese thought, art, society, history, and everyday life. An examination of the construction of national culture and identity in China

**FLC 4000 Directed Individual Study in Chinese: 1-6 hours.**

Hours and credits to be arranged

**FLC 4403 Romantic Tales from China in Translation: 3 hours.**

Three hours lecture. An English language introduction to Chinese romantic tales in translation. Examination of the literary discourse on emotion, marriage, family, and sexuality from the 9th to the 20th centuries in China

**FLC 4990 Special Topics in Chinese: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## French Courses

**FLF 1113 French I: 3 hours.**

Two hours lecture. Two hours recitation. An introduction to conversational French

**FLF 1123 French II: 3 hours.**

(Prerequisite: FLF 1113 or equivalent). Two hours lecture. Two hours recitation. Conversational French. Reading of graded texts

**FLF 1800 Beginning French Study Abroad: 3-6 hours.**

(Prerequisite: Consent of the instructor). Credit and hours to be arranged. (3-6 hours ) Beginning level study abroad of the French language and culture

**FLF 2133 French III: 3 hours.**

(Prerequisite: FLF 1123 or equivalent). Three hours lecture. Rapid review of French grammar; oral-aural practice; reading of intermediate texts

**FLF 2143 French IV: 3 hours.**

(Prerequisite: FLF 2133 or equivalent). Three hours lecture. Oral-aural practice; reading of intermediate texts. Honors section available

**FLF 2163 Intensive French Expression I.: 3 hours.**

(Prerequisite FLF 2143 or consent of instructor). This communicative course focuses on production in the three modes of communication (interpersonal, interpretive, presentational)

**FLF 2800 Intermediate French Study Abroad: 3-6 hours.**

(Prerequisite: Consent of the instructor). (3 to 6 hrs ) Credit and hours to be arranged. Intermediate level study abroad of the French language and culture

**FLF 2990 Special Topics in French: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLF 3114 Advanced French Composition: 4 hours.**

(Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture and laboratory. Required of all majors. Advanced instruction in all aspects of the written language

**FLF 3124 Advanced French Conversation: 4 hours.**

(Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture and laboratory. Required of all majors. A continuation of FLF 3114. Advanced instruction in all aspects of the spoken language

**FLF 3143 French Civilization: 3 hours.**

(Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture. Illustrated survey of French cultural heritage

**FLF 3163 Intensive French Expression II: 3 hours.**

(Prerequisite FLF 2143 or consent of instructor). The communicative course focuses on advanced-level tasks in the three modes of communication (interpersonal, interpretive, presentational)

**FLF 3313 Business French I: 3 hours.**

(Prerequisite: FLF 2143, FLF 2125 or equivalent or consent of instructor). Three hours lecture. The French language as used in business practices and marketing; emphasis on acquisition and application of French commercial terminology in import/export correspondence

**FLF 3513 Survey of French Literature: 3 hours.**

(Prerequisite: FLF 2143 or FLF 2125 or equivalent or consent of instructor). Three hours lecture. Required by all majors. A survey of French literature from the Middle ages to the Seventeenth - Century

**FLF 3523 Survey of French Literature: 3 hours.**

(Prerequisite: FLF 2143 or FLF 2125 or equivalent or consent of instructor). Three hours lecture. Required of all majors. A survey of French literature from the 18th century to the present

**FLF 3800 Advanced French Study Abroad: 3-6 hours.**

(Prerequisite: Consent of instructor). Credit and hours to be arranged. An advanced-level course for French students studying abroad. (3 to 6 hrs )

**FLF 4000 Directed Individual Study in French: 1-6 hours.**

Hours and credits to be arranged

**FLF 4053 19th Century Studies: Baudelaire Seminar: 3 hours.**

(Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A close study of Baudelaire's literary and critical work

**FLF 4073 French Drama of the 20th Century: 3 hours.**

(Prerequisite: FLF 3523 or consent of instructor). Three hours lecture. Reading of works of outstanding writers and discussion of literary currents of the century

**FLF 4103 French Novel and Short Story of the 20th Century: 3 hours.**

(Prerequisite: FLF 3523 or consent of instructor). Three hours lecture. Reading and critical evaluation of modern French novels and short stories of various literary schools

**FLF 4163 Francophone Literature: 3 hours.**

(Prerequisite FLF 2143 or graduate standing). Three hours lecture. A survey of important authors and literary movements from around the French-speaking world outside of mainland France

**FLF 4173 Introduction to Francophone Cinema: 3 hours.**

(Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A study of landmark Francophone films, their regions and cultures

**FLF 4183 Francophone Theater: 3 hours.**

(Prerequisite FLF 2143 or graduate standing). Three hours lecture. An in-depth exploration of Francophone theater from many different playwrights from many different regions of the Francophone world

**FLF 4193 18th Century French Literature: 3 hours.**

(Prerequisite: FLF 2143 or the equivalent). Three hours lecture. An introduction to French Literature and essential literary movements from the 18th century

**FLF 4223 French Novel Before 1945: 3 hours.**

(Prerequisite: FLF 2143 or the equivalent). Three hours lecture. A course dedicated to the major French novelists for the first half of the twentieth-century and the literary movements that they represent

**FLF 4233 Modern French Poetry: 3 hours.**

(Prerequisite: FLF 2143). Three hours lecture. An introduction into modern French poetry and the literary movements that epitomize this time period

**FLF 4273 The Human Condition: 3 hours.**

(Prerequisite: FLF 2143 or the equivalent). Three hours lecture. A course emphasizing the concepts of the "Human Condition" as conceptualized by seminal French writers and thinkers

**FLF 4323 Studies in the 20th Century: Le Clezio Seminar: 3 hours.**

(Prerequisite: FLF 2143 or the equivalent). Three hours lecture. A profound exploration of the diverse literary repertoire of one of France's greatest contemporary authors, J.M.G. Le Clezio

**FLF 4333 19th Century Studies: Decadents, Dandies, and Bohemians: 3 hours.**

(Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A study of three subcultures of modernity in the 19th century France

**FLF 4523 Capstone Seminar: 3 hours.**

(Prerequisite FLF 2143 or consent of instructor, graduate standing). Three hours lecture. Studies in selected topics in French and Francophone Studies. (May be taken two times)

**FLF 4990 Special Topics in French: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLF 6053 19th Century Studies: Baudelaire Seminar: 3 hours.**

(Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A close study of Baudelaire's literary and critical work

**FLF 6073 French Drama of the 20th Century: 3 hours.**

(Prerequisite: FLF 3523 or consent of instructor). Three hours lecture. Reading of works of outstanding writers and discussion of literary currents of the century

**FLF 6083 Survey of French Lyric Poetry: 3 hours.**

(Prerequisite: 3513). Three hours lecture. Reading and interpretation of masterpieces. Discussion of literary currents and personalities of the century

**FLF 6103 French Novel and Short Story of the 20th Century: 3 hours.**  
(Prerequisite: FLF 3523 or consent of instructor). Three hours lecture. Reading and critical evaluation of modern French novels and short stories of various literary schools

**FLF 6163 Francophone Literature: 3 hours.**  
(Prerequisite FLF 2143 or graduate standing). Three hours lecture. A survey of important authors and literary movements from around the French-speaking world outside of mainland France

**FLF 6173 Introduction to Francophone Cinema: 3 hours.**  
(Prerequisite:FLF 3124 or consent of instructor). Three hours lecture. A study of landmark Francophone films, their regions and cultures

**FLF 6183 Francophone Theater: 3 hours.**  
(Prerequisite FLF 2143 or graduate standing). Three hours lecture. An in-depth exploration of Francophone theater from many different playwrights from many different regions of the Francophone world

**FLF 6193 18th Century French Literature: 3 hours.**  
(Prerequisite:FLF 2143 or the equivalent). Three hours lecture. An introduction to French Literature and essential literary movements from the 18th century

**FLF 6213 History of French Grammar: 3 hours.**  
(Prerequisites: FLF 3114 and 3124 or consent of instructor). A history of the French language from the Strasbourg Oaths to Montaigne

**FLF 6223 French Novel Before 1945: 3 hours.**  
(Prerequisite: FLF 2143 or the equivalent). Three hours lecture. A course dedicated to the major French novelists for the first half of the twentieth-century and the literary movements that they represent

**FLF 6233 Modern French Poetry: 3 hours.**  
(Prerequisite:FLF 2143). Three hours lecture. An introduction into modern French poetry and the literary movements that epitomize this time period

**FLF 6273 The Human Condition: 3 hours.**  
(Prerequisite:FLF 2143 or the equivalent). Three hours lecture. A course emphasizing the concepts of the "Human Condition" as conceptualized by seminal French writers and thinkers

**FLF 6323 Studies in the 20th Century: Le Clezio Seminar: 3 hours.**  
(Prerequisite:FLF 2143 or the equivalent). Three hours lecture. A profound exploration of the diverse literary repertoire of one of France's greatest contemporary authors, J.M.G.Le Clezio

**FLF 6333 19th Century Studies: Decadents, Dandies, and Bohemians: 3 hours.**  
(Prerequisite: FLF 3124 or consent of instructor). Three hours lecture. A study of three subcultures of modernity in the 19th century France

**FLF 6523 Capstone Seminar: 3 hours.**  
(Prerequisite FLF 2143 or consent of instructor, graduate standing). Three hours lecture. Studies in selected topics in French and Francophone Studies. (May be taken two times)

**FLF 6990 Special Topics in French: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLF 7000 Directed Individual Study in French: 1-6 hours.**  
Hours and credits to be arranged

**FLF 8063 Seminar in 19th Century French Drama: 3 hours.**  
(Prerequisite: Graduate standing)

**FLF 8073 Seminar in French Drama of the 20th Century: 3 hours.**  
(Prerequisite: Graduate standing)

**FLF 8093 Seminar in the French Novel of the 19th Century: 3 hours.**  
(Prerequisite: Graduate Standing)

**FLF 8103 Seminar in the French Novel of the 20th Century: 3 hours.**  
(Prerequisite: Graduate standing). Three hours seminar. Reading and critical evaluation of modern French novels from various literary schools

**FLF 8113 Seminar in French Classical and Neo-Classical Comedy: 3 hours.**  
(Prerequisite: Graduate standing)

**FLF 8123 Seminar in the French Novel and Short Story of the Renaissance and Classical Period: 3 hours.**  
(Prerequisite: Graduate standing)

**FLF 8163 Seminar in Francophone Literature: 3 hours.**  
A close reading of seminal writers and thinkers from outside of mainland France

**FLF 8183 Seminar in Francophone Theater: 3 hours.**  
A close reading of Francophone playwrights and the works of contemporary theater theorists

**FLF 8323 Capstone Seminar: 3 hours.**  
(Prerequisite: Graduate standing). Three hours lecture. Studies in selected topics in French and Francophone Studies. (May be taken two times)

**FLF 8990 Special Topics in French: 1-9 hours.**  
(Prerequisite: Graduate standing). Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLF 9000 Research in French: 1-13 hours.**  
Hours and credits to be arranged

## German Courses

**FLG 1113 German I: 3 hours.**  
Two hours lecture. Two hours recitation. An introduction to conversational German

**FLG 1123 German II: 3 hours.**  
(Prerequisite: FLG 1113 or equivalent). Two hours lecture. Two hours recitation. Conversational German. Reading of graded texts

**FLG 2133 German III: 3 hours.**  
(Prerequisite: FLG 1123). Three hours lecture. Rapid review of German grammar; oral-aural practice; reading of intermediate texts

**FLG 2143 German IV: 3 hours.**  
(Prerequisite: FLG 2133). Three hours lecture. Oral-aural practice; reading of intermediate texts

**FLG 2990 Special Topics in German: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLG 3114 Advanced German Composition: 4 hours.**  
(Prerequisite: FLG 2143 or consent of instructor). Three hours lecture. Two hour laboratory. Required of all majors. Advanced instruction concentrating on German composition

**FLG 3124 Advanced German Conversation: 4 hours.**

(Prerequisite: FLG 2143 or consent of instructor). Three hours lecture. Two hours laboratory. Required of all majors. Advanced instruction concentrating on German conversation

**FLG 3143 German Civilization: 3 hours.**

(Prerequisite: FLG 2143 or equivalent.) Three hours lecture. A survey of German cultural heritage

**FLG 3153 Modern German Culture: 3 hours.**

Three hours lecture. (Prerequisite: FLG 2143 or equivalent). A survey of German culture and life today

**FLG 3313 Business German I: 3 hours.**

(Prerequisites: FLG 2143). Three hours lecture. The German language as used in business; emphasis on acquisition and application of German commercial terminology on import/export correspondence

**FLG 3323 Business German II: 3 hours.**

(Prerequisite: FLG 2143). Three hours lecture. The German language as used in the German stock market, trade, and exchange controls; acquisition and application of written and oral German business terminology

**FLG 4000 Directed Individual Study in German: 1-6 hours.**

Hours and credits to be arranged

**FLG 4123 German Fairy Tales: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. A study of classic Grimm's Fairy Tales

**FLG 4143 Verwandlungen: 3 hours.**

(Prerequisites FLG 2143 or permission of the instructor). Three hours lecture. A study of the theme of metamorphosis in various literary genres of the German speaking countries

**FLG 4163 History of the German Language: 3 hours.**

(Prerequisite: FLG 3124). Three hours lecture. The relationship of High German to the parent Indo-European and to the remaining Germanic dialects; linguistic development from the earliest times to the present

**FLG 4203 German Lyric Poetry: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. Reading lyric poetry by authors writing in German. The course may cover various periods, authors, or themes

**FLG 4303 German Film: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. Study of films from the German-speaking countries from the early twentieth century to today

**FLG 4353 German Novella: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. Study of novellas written in German

**FLG 4463 German Drama of the 20th Century: 3 hours.**

(Prerequisite: FLG 3513). Three hours lecture. Reading of works of outstanding writers and discussion of literary currents of the century

**FLG 4493 Mysteries in Literature and Film: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. A study of the genre of mysteries in German-language literature and film

**FLG 4503 German Literature to 1750: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. German literature from its origins to Storm and Stress

**FLG 4523 German Literature from 1750 to Present: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. A survey of German literature from the Enlightenment to the present

**FLG 4533 Art, Politics, and Propaganda: 3 hours.**

(Prerequisite: FLG 2143 or equivalent or consent of instructor). Three hours lecture. A study of the inter-connections of German aesthetics, artistic movements, and political theory from the age of Enlightenment through the 20th Century

**FLG 4990 Special Topics in German: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLG 6123 German Fairy Tales: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. A study of classic Grimm's Fairy Tales

**FLG 6143 Verwandlungen: 3 hours.**

(Prerequisites FLG 2143 or permission of the instructor). Three hours lecture. A study of the theme of metamorphosis in various literary genres of the German speaking countries

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(Prerequisite: FLG 3124). Three hours lecture. The relationship of High German to the parent Indo-European and to the remaining Germanic dialects; linguistic development from the earliest times to the present

**FLG 6203 German Lyric Poetry: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. Reading lyric poetry by authors writing in German. The course may cover various periods, authors, or themes

**FLG 6303 German Film: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. Study of films from the German-speaking countries from the early twentieth century to today

**FLG 6353 German Novella: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. Study of novellas written in German

**FLG 6463 German Drama of the 20th Century: 3 hours.**

(Prerequisite: FLG 3513). Three hours lecture. Reading of works of outstanding writers and discussion of literary currents of the century

**FLG 6493 Mysteries in Literature and Film: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. A study of the genre of mysteries in German-language literature and film

**FLG 6503 German Literature to 1750: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. German literature from its origins to Storm and Stress

**FLG 6523 German Literature from 1750 to Present: 3 hours.**

(Prerequisite: FLG 2143 or equivalent). Three hours lecture. A survey of German literature from the Enlightenment to the present

**FLG 6533 Art, Politics, and Propaganda: 3 hours.**

(Prerequisite: FLG 2143 or equivalent or consent of instructor). Three hours lecture. A study of the inter-connections of German aesthetics, artistic movements, and political theory from the age of Enlightenment through the 20th Century

**FLG 6593 Contemporary German Literature: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. A study of contemporary German literature. Taught in German

**FLG 6990 Special Topics in German: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLG 7000 Directed Individual Study in German: 1-6 hours.**

Hours and credits to be arranged

**FLG 8443 Eighteenth-Century German Drama: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. A study of dramas from the Enlightenment, Sensibility, and Storm-and-Stress periods

**FLG 8483 Twentieth-Century German Short Story: 3 hours.**

(Prerequisite Graduate standing). Three hours lecture. A study of twentieth-century short prose fiction in German

**FLG 8493 Nineteenth-Century German Drama: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. A study of significant German-language dramas from the nineteenth century

**FLG 8543 Race Theory in Classical German Thought: 3 hours.**

(Prerequisite: Graduate Standing). Three hours lecture. A cross-disciplinary study of Scientific Race Theory, which was born during the German Enlightenment, focused on works by Immanuel Kant and contemporary critiques of it

**FLG 8553 Scoundrels in German Literature: 3 hours.**

(Prerequisite: FLG 2143 and Graduate Standing or consent of the instructor). Three hours lecture. A study of German literature from the Classical period to the twentieth century featuring the figure of the scoundrel and with an emphasis on preparation for the MA exam

**FLG 8990 Special Topics in German: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLG 9000 Research in German: 1-13 hours.**

Hours and credits to be arranged

**Greek Courses****FLH 1113 Greek I: 3 hours.**

Three hours lecture. An introduction to Biblical and Classical Greek

**FLH 1123 Elementary Ancient Greek II: 3 hours.**

Three hours lecture. A continuation of FLH 1113

**FLH 2133 Greek III: 3 hours.**

(Prerequisite: FLH 1123 or equivalent). Three hours lecture. Introduction to ancient Greek literature. Selected readings from Homer, Herodotus, and Plato

**FLH 2143 Greek IV: 3 hours.**

(Prerequisite: FLH 2133 or equivalent). Three hours lecture. Introduction to ancient Greek literature. Selected readings from Aristotle, the New Testament, and the Church Fathers

**FLH 2990 Special Topics in Greek: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLH 3013 Plato: 3 hours.**

(Prerequisite: FLH 2143 or the equivalent.) Three hours lecture. A study of Plato's Greek text and representation of Socrates

**FLH 4000 Directed Individual Study: 1-9 hours.**

Subject matter, hours, and credits to be arranged

**FLH 4990 Special Topics in Greek: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLH 6990 Special Topics in Greek: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLH 8990 Special Topics in Greek: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Italian Courses****FLI 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**FLI 1113 Italian I: 3 hours.**

Two hours lecture, two hours laboratory. An introduction to written and spoken Italian in a cultural context

**FLI 1123 Italian II: 3 hours.**

(Prerequisites: FLI 1113 or equivalent). Two hours lecture, two hours laboratory. A continuation of Italian I, emphasizing oral expression, reading comprehension, and writing

**FLI 1800 Italian Study Abroad: 3-6 hours.**

(Prerequisite: Consent of the instructor; at least one previous class of Italian). Credit and hours to be arranged. Beginning-intermediary level course designed for students learning Italian language and culture abroad

**FLI 2133 Italian III: 3 hours.**

(Prerequisites: FLI 1123 or equivalent). Three hours lecture. This course will expand students' skill in Italian, focusing on speaking, understanding, reading, and writing in a cultural context

**FLI 2143 Italian IV: 3 hours.**

(Prerequisites: 2133 or equivalent). Three hours lecture. This course focuses on reviewing and expanding functional skills in Italian, including reading, writing, and oral proficiency through the study of modern masterpieces of Italian literature and arts

**FLI 2990 Special Topics in Italian: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLI 3113 Italy: Culture and Contexts: 3 hours.**

Three hours lecture. This course provides the students with a fundamental knowledge of the Italian culture over the course of its history, from the late medieval period to today

**FLI 3233 Advanced Italian Conversation: 3 hours.**

(Pre-requisite: FLI 2143 or consent of instructor). Three hours lecture. Advanced instruction in Italian with emphasis on oral and written communication skills. This course is conducted entirely in Italian and features extensive discussions of contemporary Italy and grammar review

**FLI 4000 Directed Individual Study in Italian: 1-6 hours.**

Hours and credits to be arranged

**FLI 4990 Special Topics in Italian: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Japanese Courses

**FLJ 1113 Japanese I: 3 hours.**

Two hours lecture. Two hours recitation. An introduction to conversational Japanese

**FLJ 1123 Japanese II: 3 hours.**

(Prerequisite: FLJ 1113 or equivalent). Two hours lecture Two hours recitation. An introduction to conversational Japanese

**FLJ 2133 Japanese III: 3 hours.**

(Prerequisite: FLJ 1124 or equivalent). Three hours lecture. Rapid review of Japanese grammar; oral-aural practice; reading of intermediate texts

**FLJ 2143 Japanese IV: 3 hours.**

(Prerequisite: FLJ 2133 or equivalent). Three hours lecture. Oral-aural practice; reading and discussion of intermediate texts

**FLJ 2990 Special Topics in Japanese: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLJ 3153 Japanese V: 3 hours.**

(Prerequisite: FLJ 2143 or equivalent). Three hours lecture. An integrated development of skills in Japanese grammar, reading, writing, and oral-aural proficiency at the mid-intermediate level. Specific attention is paid to the cultural contexts in which these skills are used

**FLJ 3163 Japanese VI: 3 hours.**

(Prerequisite FLJ 3153 or equivalent). Three hours lecture. An expansion of skills in Japanese grammar, reading, writing, and oral-aural proficiency through social contexts. Advanced instruction in public speaking and other oral communications

**FLJ 3203 Survey of Japanese Literature: 3 hours.**

Three hours lecture. An introduction to Japanese literature in English translation. Reading of major works, genres, and writers in Japanese literary history from the 10th century to the present

**FLJ 3303 Survey of Japanese Culture: 3 hours.**

Three hours lecture. An English language introduction to Japanese contemporary life as well as intellectual, artistic, and historical traditions. An examination of the construction of Japanese national culture and identity

**FLJ 4000 Directed Individual Study in Japanese: 1-6 hours.**

Hours and credits to be arranged

**FLJ 4403 Japanese Popular Culture: 3 hours.**

Three hours lecture. An English language introduction to popular culture in contemporary Japan. An examination of the production and consumption of film, anime, manga, theater, and music in Japanese society

**FLJ 4990 Special Topics in Japanese: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLJ 6990 Special Topics in Japanese: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLJ 7000 Directed Individual Study in Japanese: 1-6 hours.**

Hours and credits to be arranged

**FLJ 8990 Special Topics in Japanese: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Latin Courses

**FLL 1113 Latin I: 3 hours.**

Three hours lecture. An introduction to the Latin language

**FLL 1123 Latin II: 3 hours.**

(Prerequisite: FLL 1113 or equivalent). Three hours lecture. Grammar; elementary reading

**FLL 2133 Latin III: 3 hours.**

(Prerequisite: FLL 1123 or equivalent). Three hours lecture. Review of Latin grammar; reading of intermediate texts

**FLL 2143 Latin IV: 3 hours.**

(Prerequisite: 2133 or equivalent). Three hours lecture. Reading of intermediate texts

**FLL 2990 Special Topics in Latin: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLL 3111 Latin Prose Composition I: 1 hour.**

(Prerequisite: FLL 2133 or the equivalent.) One hour lecture. Composition exercises in Latin prose, with a review of Latin grammar

**FLL 3121 Latin Prose Composition II: 1 hour.**

Composition exercises focusing on the Latin ablative case, participles, and subordinate clauses

**FLL 3131 Latin Prose Composition III: 1 hour.**

(Prerequisite: FLL 2133 or the equivalent.) One hour lecture. Composition exercises in Latin prose involving the use of the gerunds, gerundives, idiomatic clauses, and indirect speech

**FLL 3173 Augustan Literature and Culture: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent.) Three hours lecture. A literary and cultural survey of the Augustan era (27 B.C. to A.D. 14)

**FLL 4000 Directed Individual Study in Latin: 1-6 hours.**

(Prerequisite: Junior standing). Subject matter, hours, and credits to be arranged

**FLL 4113 The Roman Historians: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent or consent of the instructor).

Three hours lecture. A study of the Latin works of Sallust and/or Livy and/or Tacitus, with a direct reading of selections from any of these authors. (Repeatable two times)

**FLL 4123 Cicero: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent, or consent of the instructor). Three hours lecture. A study of the works of Cicero, reading extensively from the Latin of his major oratorical, rhetorical, and/or philosophical works

**FLL 4143 Latin Epistolography: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent, or consent of the instructor). Three hours lecture. An exploration of the Latin letter as a literary form, surveying major exemplars of the genre in their historical and literary contexts

**FLL 4223 Lyric Poetry: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent or consent of the instructor). Three hours lecture. A study of the Latin works of Catullus and/or Horace. (Repeatable 2 times)

**FLL 4233 Vergil: 3 hours.**

(Prerequisite: FLL 2143, or permission of the instructor.) Three hours lecture. An introduction to the works of Vergil, reading extensively from the Latin of the Aeneid, the Eclogues, and/or the Georgics

**FLL 4253 Seneca: 3 hours.**

(Prerequisite: FLL 2143, or permission of the instructor). Three hours lecture. An introduction to the works of Seneca the Younger, reading extensively from the Latin of his major dramatic and/or philosophical works

**FLL 4263 Latin Epigram: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent, or consent of the instructor). Three hours lecture. A survey of Latin epigram in its historical and literary contexts, especially, but not limited to, the works of Martial

**FLL 4443 Caesar: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent.) Three hours lecture. A study of the Latin works of Julius Caesar in their historical context

**FLL 4990 Special Topics in Latin: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLL 6113 The Roman Historians: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent or consent of the instructor). Three hours lecture. A study of the Latin works of Sallust and/or Livy and/or Tacitus, with a direct reading of selections from any of these authors. (Repeatable two times)

**FLL 6123 Cicero: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent, or consent of the instructor). Three hours lecture. A study of the works of Cicero, reading extensively from the Latin of his major oratorical, rhetorical, and/or philosophical works

**FLL 6143 Latin Epistolography: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent, or consent of the instructor). Three hours lecture. An exploration of the Latin letter as a literary form, surveying major exemplars of the genre in their historical and literary contexts

**FLL 6223 Lyric Poetry: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent or consent of the instructor). Three hours lecture. A study of the Latin works of Catullus and/or Horace. (Repeatable 2 times)

**FLL 6233 Vergil: 3 hours.**

(Prerequisite: FLL 2143, or permission of the instructor.) Three hours lecture. An introduction to the works of Vergil, reading extensively from the Latin of the Aeneid, the Eclogues, and/or the Georgics

**FLL 6253 Seneca: 3 hours.**

(Prerequisite: FLL 2143, or permission of the instructor). Three hours lecture. An introduction to the works of Seneca the Younger, reading extensively from the Latin of his major dramatic and/or philosophical works

**FLL 6263 Latin Epigram: 3 hours.**

(Prerequisite: FLL 2143 or the equivalent, or consent of the instructor). Three hours lecture. A survey of Latin epigram in its historical and literary contexts, especially, but not limited to, the works of Martial

**FLL 6990 Special Topics in Latin: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLL 7000 Directed Individual Study in Latin: 1-6 hours.**

Hours and credits to be arranged

**FLL 8990 Special Topics in Latin: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Russian Courses

**FLR 1113 Russian I: 3 hours.**

Two hours lecture. Two hours recitation. An introduction to conversational Russian

**FLR 1123 Russian II: 3 hours.**

(Prerequisite: FLR 1113 or equivalent). Two hours lecture. Two hours recitation. Conversational Russian. Reading of graded texts

**FLR 2133 Russian III: 3 hours.**

(Prerequisite: FLR 1124). Three hours lecture. Rapid review of Russian grammar; oral-aural practice; reading of intermediate texts

**FLR 2143 Russian IV: 3 hours.**

(Prerequisite: FLR 2133). Three hours lecture. Oral-aural practice; reading of intermediate texts

**FLR 2990 Special Topics in Russian: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLR 3153 Russian V: 3 hours.**

(Prerequisite: FLR 2143 or equivalent) Three hours lecture. An integrated development of skills in Russian grammar, reading, writing, and oral-aural proficiency at the mid-intermediate level. Use of authentic materials and cultural contexts to promote improvement of Russian language proficiency

**FLR 4000 Directed Individual Study in Russian: 1-6 hours.**

Hours and credits to be arranged

**FLR 4990 Special Topics in Russian: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLR 6990 Special Topics in Russian: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLR 8990 Special Topics in Russian: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Spanish Courses

**FLS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**FLS 1113 Spanish I: 3 hours.**

Two hours lecture. Two hours recitation. An introduction to conversational Spanish

**FLS 1123 Spanish II: 3 hours.**

(Prerequisite: FLS 1113 or equivalent). Two hours lecture. Two hours recitation. Conversational Spanish. Reading of graded texts

**FLS 1213 Spanish for the Green Industry I: 3 hours.**

Three hours lecture. Conversational Spanish for students majoring in agricultural related professions

**FLS 1223 Spanish for the Green Industry II: 3 hours.**

(Prerequisite: FLS 1213 or the equivalent). Three hours lecture. Conversational Spanish for students majoring in agricultural related professions

**FLS 2133 Spanish III: 3 hours.**

(Prerequisite: FLS 1123 or equivalent). Three hours lecture. Rapid review of Spanish grammar; oral-aural practice; reading of intermediate texts. Honors section available

**FLS 2143 Spanish IV: 3 hours.**

(Prerequisite: FLS 2133 or equivalent). Three hours lecture. Oral-aural practice; reading of intermediate texts. Honors section available

**FLS 2990 Special Topics in Spanish: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLS 3111 Advanced Spanish Laboratory: 1 hour.**

(Prerequisite: FLS 2143 or FLS 2125). Three hours laboratory. A laboratory course to accompany FLS 3113 or to be taken separately. Required of all majors

**FLS 3113 Advanced Spanish Composition: 3 hours.**

(Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Required of all majors. Instruction in written composition through study of advanced grammar and writing techniques

**FLS 3121 Advanced Spanish Conversation Practicum: 1 hour.**

(Prerequisite: FLS 2143 or consent of department). One hour practicum. Required of all majors. A practicum to complement FLS 3233

**FLS 3143 Hispanic Civilization: 3 hours.**

(Prerequisite: FLS 2143 or FLS 2125). Three hours lecture. Illustrated survey of Hispanic cultural heritage

**FLS 3233 Advanced Spanish Conversation: 3 hours.**

(Prerequisite: FLS 2143 or equivalent). Required of all majors. Advanced instruction in Spanish with emphasis on an oral communication skills

**FLS 3313 Economics of the Spanish-Speaking World: 3 hours.**

(Prerequisite: FLS 2143 or equivalent). Three hours lecture. Study of the economic structures and business cultures of Spanish-speaking countries, with emphasis on economic terminology

**FLS 3323 Enterprises in the Spanish-Speaking World: 3 hours.**

(Prerequisite: FLS 2143 or equivalent). Three hours lecture. Designed to provide a functional command of conversational and written Spanish for business interactions in the modern world

**FLS 3413 Intensive Spanish: 3 hours.**

An intensive study of Spanish language and culture, designed to prepare students to live or study abroad

**FLS 3613 Spanish Literature: Middle Ages-Golden Age: 3 hours.**

(Prerequisite: FLS 2143 or equivalent). Three hours lecture. A survey of Spanish Literature from the Middle Ages to the Golden Age. (c.1000-1640)

**FLS 3623 Introduction to Spanish Literature, 19th Century – Present: 3 hours.**

An introduction to Peninsular Spanish literature from the 19th century to the present

**FLS 4000 Directed Individual Study in Spanish: 1-6 hours.**

Hours and credits to be arranged

**FLS 4213 Modern Spanish Women Writers: 3 hours.**

(Prerequisite: FLS 3113, FLS 3223 or equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish women writers

**FLS 4223 Spanish Novel of the Golden Age: 3 hours.**

(Prerequisite: FLS 3513). Three hours lecture. A study of the picaresque novel and the short novel of the Golden Age

**FLS 4243 Modern Spanish Essay: 3 hours.**

(Prerequisite: FLS 3113, FLS 3233 or equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish Essay

**FLS 4263 20th Century Spanish Novel and Short Stories: 3 hours.**

(Prerequisite: FLS 3513). Three hours lecture. Reading and critical evaluation of selected Spanish novels and short stories from the Generation of 1898 to the present

**FLS 4273 Modern Spanish Drama: 3 hours.**

(Prerequisite: FLS 3113, FLS 3223 or equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish drama

**FLS 4283 The Contemporary Spanish-American Novel and Short Story: 3 hours.**

(Prerequisite: FLS 3523 or consent of instructor). Three hours lecture. A study of major contemporary Spanish-American novels and short stories

**FLS 4293 Cinema and Spanish Culture: 3 hours.**

(Prerequisite: FLS 3113 or graduate standing in FL). Three hours lecture. An introduction to Spanish cinema, focusing on key films from the time of the Franco dictatorship and after, with a focus on the political and social contexts of the Spanish film industry

**FLS 4323 Spanish Drama of the Golden Age: 3 hours.**

(Prerequisite: FLS 3513). Three hours lecture. A study of dramatic works of Lope de Vega, Tirso de Molina, Calderon, and minor dramatic writers of the 17th century



**FLS 4423 Survey of Spanish Lyric Poetry: 3 hours.**

(Prerequisite: FLS 3513). Three hours lecture. Reading and interpretation of masterpieces of Spanish lyric poetry and poetic theory from the Middle Ages to the present

**FLS 4453 Spanish Culture, 1898-1936: 3 hours.**

(Prerequisite: FLS 3113 or equivalent, or graduate standing in FLS). Three hours lecture. A study of the literary and cultural production of early 20th century Spain, including literary works, visual art, architecture, music, and film from the loss of empire until the Civil War

**FLS 4523 The Renaissance: 3 hours.**

(Prerequisite: FLS 3513). Three hours lecture. Spanish literature and thought of the Renaissance

**FLS 4543 Survey of Modern Spanish-American Literature: 3 hours.**

(Prerequisite: FLS 3223 or equivalent). Three hours lecture. A survey of Spanish-American Literature from Modernism to the present

**FLS 4573 Contemporary Spanish-American Drama: 3 hours.**

(Prerequisite: FLS 3223 or equivalent). Three hours lecture. An analysis of representative works of twenty-century Spanish-American dramatic literature

**FLS 4613 Latin American Cinema: 3 hours.**

(Prerequisite: FLS 3113 or graduate standing in FL). Three hours lecture. An overview of the cultural and historic trends in Latin American cinema

**FLS 4633 Introduction to Spanish Linguistics: 3 hours.**

(Prerequisites: FLS 3233 or consent of instructor). Three hours lecture. Introduction to linguistic analyses and their application to the syntactic, morphological, semantic, phonological, historical, and sociolinguistic aspects of the Spanish language

**FLS 4643 Spanish Phonology: 3 hours.**

(Prerequisite: FLS 3233 or consent of instructor). Three hours lecture. Introduction to the articulatory classification of Spanish sounds. Discussion of the mental organization of these sounds, and the processes which transform them during speech

**FLS 4713 Central American Literature and Culture: 3 hours.**

(Prerequisite: FLS 3113 or equivalent, or graduate standing in FL). Three hours lecture. A study of Central American literature and culture, drawing on major literary and cultural works tied to the region's history

**FLS 4843 Literary Masterpieces by an Emblematic Hispanic Author: 3 hours.**

(Prerequisite: FLS 3113) Three hours lecture. A study of the major works by an influential and emblematic Hispanic author

**FLS 4853 Survey of Spanish-American Poetry: 3 hours.**

(Prerequisite: FLS 3513 or equivalent). Three hours lecture. A panoramic study of the Spanish-American poetry from early to present times

**FLS 4883 Senior Seminar in FLS: 3 hours.**

(Prerequisite: Senior standing in CMLL, with concentration in Spanish). Three hours seminar. This senior-level seminar allows students to explore a specific topic in Hispanic Languages and Literatures from skilled faculty members, and complete a work of substantial independent research upon completion of the course

**FLS 4990 Special Topics in Spanish: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLS 6213 Modern Spanish Women Writers: 3 hours.**

(Prerequisite: FLS 3113, FLS 3223 or equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish women writers

**FLS 6223 Spanish Novel of the Golden Age: 3 hours.**

(Prerequisite: FLS 3513). Three hours lecture. A study of the picaresque novel and the short novel of the Golden Age

**FLS 6243 Modern Spanish Essay: 3 hours.**

(Prerequisite: FLS 3113, FLS 3233 or equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish Essay

**FLS 6273 Modern Spanish Drama: 3 hours.**

(Prerequisite: FLS 3113, FLS 3223 or equivalent, or consent of instructor). Three hours lecture. An introduction to modern Spanish drama

**FLS 6283 The Contemporary Spanish-American Novel and Short Story: 3 hours.**

(Prerequisite: FLS 3523 or consent of instructor). Three hours lecture. A study of major contemporary Spanish-American novels and short stories

**FLS 6293 Cinema and Spanish Culture: 3 hours.**

(Prerequisite: FLS 3113 or graduate standing in FL). Three hours lecture. An introduction to Spanish cinema, focusing on key films from the time of the Franco dictatorship and after, with a focus on the political and social contexts of the Spanish film industry

**FLS 6323 Spanish Drama of the Golden Age: 3 hours.**

(Prerequisite: FLS 3513). Three hours lecture. A study of dramatic works of Lope de Vega, Tirso de Molina, Calderon, and minor dramatic writers of the 17th century

**FLS 6363 Latin American Cultural Studies: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. Introduction to Latin American Cultural Studies theory and methodologies. Study of European and North American branches as a genealogy to frame the main focus on Latin American Cultural Studies

**FLS 6453 Spanish Culture, 1898-1936: 3 hours.**

(Prerequisite: FLS 3113 or equivalent, or graduate standing in FLS). Three hours lecture. A study of the literary and cultural production of early 20th century Spain, including literary works, visual art, architecture, music, and film from the loss of empire until the Civil War

**FLS 6543 Survey of Modern Spanish-American Literature: 3 hours.**

(Prerequisite: FLS 3223 or equivalent). Three hours lecture. A survey of Spanish-American Literature from Modernism to the present

**FLS 6613 Latin American Cinema: 3 hours.**

(Prerequisite: FLS 3113 or graduate standing in FL). Three hours lecture. An overview of the cultural and historic trends in Latin American cinema

**FLS 6633 Introduction to Spanish Linguistics: 3 hours.**

(Prerequisites: FLS 3233 or consent of instructor). Three hours lecture. Introduction to linguistic analyses and their application to the syntactic, morphological, semantic, phonological, historical, and sociolinguistic aspects of the Spanish language

**FLS 6643 Spanish Phonology: 3 hours.**

(Prerequisite: FLS 3233 or consent of instructor). Three hours lecture. Introduction to the articulatory classification of Spanish sounds. Discussion of the mental organization of these sounds, and the processes which transform them during speech

**FLS 6713 Central American Literature and Culture: 3 hours.**

(Prerequisite: FLS 3113 or equivalent, or graduate standing in FL). Three hours lecture. A study of Central American literature and culture, drawing on major literary and cultural works tied to the region's history

**FLS 6843 Literary Masterpieces by an Emblematic Hispanic Author: 3 hours.**

(Prerequisite: FLS 3113) Three hours lecture. A study of the major works by an influential and emblematic Hispanic author

**FLS 6990 Special Topics in Spanish: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLS 7000 Directed Individual Study in Spanish: 1-6 hours.**

Hours and credits to be arranged

**FLS 8223 Seminar in the Picaresque Novel: 3 hours.**

(Prerequisite: Graduate standing)

**FLS 8253 Avant-Garde Literature: 3 hours.**

A study of avant-garde Spanish and Latin American literature in the 20th century

**FLS 8263 Seminar in the Novel of the 20th Century: 3 hours.**

(Prerequisite: Graduate standing)

**FLS 8283 The Contemporary Spanish-American Novel and Short Story: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. A study of major contemporary Spanish-American novels and short stories

**FLS 8990 Special Topics in Spanish: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FLS 9000 Research in Spanish: 1-13 hours.**

Hours and credits to be arranged

## Food, Nutrition Health Promo Courses

**FNH 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**FNH 1003 Introduction to Vitamins and Supplements: 3 hours.**

Three hours lecture. An introductory course to understanding the basics related to the scope, potency, and interplay of regulatory vitamins and supplements in human health and illness

**FNH 1103 Introduction to Food Science, Nutrition and Health Promotion: 3 hours.**

Three hours lecture. An introductory course that relates the importance of food science, nutrition, and health promotion to the community to consideration of current trends in these fields

**FNH 2011 Career Planning and Success Skills in Food Science: 1 hour.**

One hour lecture. The course will introduce students to the job opportunities and skills necessary for success in food industries

**FNH 2112 Food Products Evaluation: 2 hours.**

One hour lecture. Two hours laboratory. Sensory examination of food products; common defects, causes, and remedies. Basic methods of evaluation of different types of foods

**FNH 2201 Nutrition and Dietetics Career Planning: 1 hour.**

(Prerequisite: FSNHP major - Food and Nutrition concentration or consent of instructor). One hour lecture. The course will introduce students to academic pathways, professional communication skills, and opportunities leading to success in the nutrition and dietetics profession

**FNH 2203 Science of Food Preparation: 3 hours.**

(Prerequisites: Grade of "C" or better in CH 1213/1221 or HS major). One hour lecture. Four hours laboratory. A study of foods and the principles underlying handling and preparation of food products to maintain the highest standards of quality. (Same as HS 2203)

**FNH 2233 Meal Management: 3 hours.**

One hour lecture. Four hours laboratory. Planning, preparing and serving meals; emphasis on management of time, energy, and money in relation to feeding the family. (HS 2233)

**FNH 2283 Child Health and Nutrition: 3 hours.**

Three hours lecture. Nutrition requirements during pregnancy and lactation, and of infants and young children; birth defects from metabolic errors; related health of young children. (Same as HS 2283)

**FNH 2293 Individual and Family Nutrition: 3 hours.**

Three hours lecture. Fundamental principles of human nutrition and the practical application of this knowledge in the selection of adequate diets. (Same as HS 2293)

**FNH 2990 Special Topics in Food Science, Nutrition and Health Promotion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FNH 3000 Nutrition Field Experience: 1-3 hours.**

(Prerequisite: Grade of "C" or better in FNH 3701 and Junior or Senior Standing). Supervised work experience for nutrition students in an approved situation. Students can take the class for variable credit, anywhere from 1 to 3 credits, repeatable for up to 3 total credit hours

**FNH 3103 Introduction to Health Professions: 3 hours.**

Three hours lecture. Course provides an overview of the types of careers one can pursue in the health care industry. Students will review desired prerequisite courses, entrance exam requirements, and admissions criteria. An in-depth analysis of the roles and responsibilities of each health care professional will be conducted

**FNH 3111 Food Science, Nutrition and Health Promotion Seminar: 1 hour.**

One hour lecture. Preparation and presentation on specially assigned current topics in Food Science, Nutrition, and Health Promotion

**FNH 3123 Foundations of Rural Health: 3 hours.**

Three hours lecture. This course provides a foundation for understanding the ways that social, economic, political, and cultural factors impact health uniquely in rural places and how to affect positive change for health in that context

**FNH 3142 Meats Judging I: 2 hours.**

Four hours laboratory. To provide students with knowledge and skills in carcass grading, meat evaluation, and safe handling of meat. (Same as ADS 3142)

**FNH 3163 Basic Principles of Health Promotion: 3 hours.**

Three hours lecture. Basic concepts of health promotion. Role of health/fitness professional in developing wellness/prevention oriented interventions to promote healthy lifestyles

**FNH 3263 Research Methods in Food and Nutrition: 3 hours.**

(Prerequisites: Grade of "C" or better in ST 2113 and Junior or Senior Standing, or Consent of Instructor). Two hours lecture. Three hours laboratory. Introduction to food and nutrition research methods, application of computer and related technologies in nutrition research through design and development of a research project

**FNH 3283 The Food Service System: 3 hours.**

(Prerequisite: Grade of "C" or higher in FNH 2203 and Junior or Senior Standing, or PGM major). Three hours lecture. Introduction to the food service system concept, functional subsystems, and management of financial and human resources

**FNH 3311 Meat Processing Laboratory: 1 hour.**

(Prerequisites: At least sophomore standing and concurrent enrollment or completion of ADS/FNH 3313). One hour laboratory. To provide the students with practical knowledge and skills of meat processing and meat products. (Same as ADS 3311)

**FNH 3313 Introduction to Meat Science: 3 hours.**

(Prerequisites: at least sophomore standing). Three hours lecture. To provide students with general principles of meat science and the muscle food industry (Same as ADS 3313)

**FNH 3701 Nutrition Professional Development: 1 hour.**

(Prerequisite: Junior or Senior standing and consent of instructor). Preparation for nutrition field experience, dietetic internship, and careers

**FNH 3723 Community Nutrition: 3 hours.**

(Prerequisite: Grade of "C" or higher in FNH 2293 and Junior or Senior Standing). Three hours lecture. The course addresses the biological economic, social-cultural and policy issues that impact communities by understanding and evaluating the various solutions to improving community health outcomes

**FNH 4000 Directed Individual Study in Food Science, Nutrition and Health Promotion: 1-6 hours.**

Hours and credits to be arranged

**FNH 4013 Nutrition Assessment: 3 hours.**

(Prerequisites: Grade of "C" or better in FNH 2293 and KI 2603 and Junior Standing). Two hours lecture. Two hours laboratory. Selection, utilization, interpretation, and evaluation of anthropometric, laboratory, clinical and dietary methods available for the assessment of nutritional status

**FNH 4114 Analysis of Food Products: 4 hours.**

(Prerequisites: CH 2503). Three hours lecture. Three hours laboratory. Chemistry and technology of food products processing and physical and chemical methods of analyzing foods and biological products

**FNH 4123 Medical Nutrition Therapy I: 3 hours.**

(Prerequisites: Grade of "C" or better in FNH 4013/6013 and Junior or Senior Standing). Three hours lecture. The study of principles of nutrition and pathophysiology of chronic diseases and medical and nutrition management/treatment of chronic diseases and impact on nutritional status

**FNH 4143 Dairy Foods Processing: 3 hours.**

Two hours lecture. Two hours laboratory. Basic concepts of processing, freezing, and concentrating milk and milk products. Emphasis on fluid milk products, frozen dairy desserts, and dried products

**FNH 4164 Quality Assurance of Food Products: 4 hours.**

(Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Principles, methods, and techniques involved in evaluating essential parameters for commercial, state and federal control of food products

**FNH 4173 Food Packaging: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Objectives and requirements of packaging; composition, characteristics, chemical and physical properties, selection and adaptation of packaging materials and packages

**FNH 4193 Social-Cultural Aspects of Food: 3 hours.**

Three hours lecture. A study of international, regional and religious history, customs, beliefs and other impacts upon food preparation and consumption

**FNH 4200 Dual Enroll MUW Culinology Pgm: 1-12 hours.****FNH 4223 Sports Nutrition: 3 hours.**

(Prerequisite: FNH 2293 or consent of instructor). Three hours lecture. Integration of nutrition and exercise physiology illustrating links between training, increased demand for nutrients, appropriate intake of foods, beverages and supplements and performance

**FNH 4233 Medical Nutrition Therapy II: 3 hours.**

(Prerequisite: Grade of C or better in FNH 4013/6013 or consent of instructor) Three hours lecture. The study and application of the principles of medical nutrition therapy in stress, trauma and specific disease conditions

**FNH 4241 Applied Food Chemistry: 1 hour.**

(Prerequisite: BCH 3613 and prior credit for/or current enrollment in FNH 4243/6243). Two hour laboratory. Basic laboratory experiments to provide understanding of the function and interactions of chemical components in food

**FNH 4243 Composition and Chemical Reactions of Foods: 3 hours.**

(Prerequisites: Grade of "C" or better in CH 1213, and CH 2503 or equivalent, and Junior or Senior Standing). Three hours lecture. Nature and chemical behavior of food constituents including proteins, lipids, carbohydrates, minerals, water, enzymes and pigments; properties of food systems as related to commercial preparation. (Same as ADS 4243/6243)

**FNH 4253 Macronutrients: Human Metabolism: 3 hours.**

(Prerequisites: FNH Majors: Grade of "C" or better or concurrent enrollment in BCH 4013 and Junior or Senior Standing; or BCH Major). Three hours face to face lecture or web-based distance instruction. In-depth study of the chemistry and functionality of macronutrients in food systems and their biochemical impact on the human body. (Same as BCH 4253/6253)

**FNH 4283 Purchasing Food and Equipment for Food Service Systems: 3 hours.**

Three hours lecture. Procuring food and equipment for food service systems. Product specifications, cost-effectiveness, value analysis and quality standards

**FNH 4284 Quantity Food Production and Service: 4 hours.**

(Prerequisite: Grade of "C" or higher in FNH 2203 and FNH 3283 and Senior Standing). One hour lecture. Eight hours laboratory. Principles and methods of preparation and service of food in quantity

**FNH 4293 Micronutrients: Human Metabolism: 3 hours.**

(Prerequisites: Grade of "C" or better in BCH 4013 and Junior or Senior Standing). Three hours lecture. Advanced human nutrition and metabolism of regulatory micronutrients

**FNH 4313 Advanced Science of Muscle Foods: 3 hours.**

(Prerequisite: Junior standing or greater, ADS/FNH 3314, CH 1223 and/ or Instructor Consent). Three hours lecture. Exploration of the ultra-structure of muscle, (pre- and post-harvest), and the microbiology, inspection and safety, nutritional properties, and sensory characteristics of muscle foods. (Same as ADS 4313/6313.)

**FNH 4323 Professional Skills for Nutrition and Dietetics: 3 hours.**  
(Prerequisite FNH 2201; Junior or Senior Standing). Three hours lecture. Prepares students to develop professional skills necessary to initiate a career in the field of dietetics emphasizing scope of practice, code of ethics, evaluation and use of professional literature, leadership, team building, cultural humility, and effective communication

**FNH 4333 Food Law: 3 hours.**  
(Prerequisite: Consent of instructor). Two hours lecture. Two hours laboratory. Role of law, mandatory and optional food regulations exercised by state, federal and international agencies on food quality, safety, wholesomeness, nutrition and security

**FNH 4353 Nutrition Throughout the Life Cycle: 3 hours.**  
(Prerequisite: Grade of C or better in FNH 4013/6013, FNH 4123/6123, FNH 4233/6233 and Senior Standing ). Three hours lecture. Study of interrelationships of physiological, biochemical and sociological factors and nutrient needs of individuals and groups during the life cycle; infancy through the later years

**FNH 4363 Research Methods in Food and Nutrition: 3 hours.**  
(Prerequisites: ST 2113 Introduction to Statistics and FNH 2293 Individual and Family Nutrition). Three hour lecture. Introduction to food and nutrition research methods, application of computer and related technologies in nutrition research through design and development of a research project

**FNH 4373 Nutrition Education and Counseling Skills: 3 hours.**  
(Prerequisite: Junior or Senior Standing). Three hours lecture. Examination of nutrition education and counseling in the delivery of food/nutrition interventions. Use of technology, interviewing, activities, and application strategies to enhance dietary change

**FNH 4393 Prevention and Control of Disease: 3 hours.**  
(Prerequisite: FNH 3163, or consent of instructor). Three hours lecture. An examination of how food science, nutrition and health promotion relate to chronic diseases. Prevention, control and detection are examined

**FNH 4414 Microbiology of Foods: 4 hours.**  
(Prerequisite: BIO 3404). Two hours lecture. Four hours laboratory. Isolation and classification of the microorganisms associated with spoilage of commercial and domestic preserved foods. (Same as BIO 4414/6414)

**FNH 4463 Community Food Systems: 3 hours.**  
Two hours lecture. Two hours laboratory. Exploration of aspects in community food systems including planning and design, sustainable growing practices, and human nutrition and health. (Same as LA 4463/6463 and PSS 4463/6463)

**FNH 4480 Food Science Internship: 3-6 hours.**  
(Prerequisites: Consent of instructor/advisor). Individual work experience in food science; students will gain faculty supervised experience in industrial, government, and /or University research settings. (May be taken twice for credit.)

**FNH 4512 Poultry Products Safety and Sanitation: 2 hours.**  
(Prerequisite: Junior standing or greater.) Two hours lecture. Poultry product safety hazards, food safety systems (HACCP), principles and practices of food sanitation related to poultry products and poultry safety regulations. (Same as PO 4512/6512)

**FNH 4514 Poultry Processing: 4 hours.**  
Three hours lecture. Two hours laboratory. Study of commercial poultry processing including poultry inspection, regulations, processed poultry products, egg processing, and food safety. (Same as PO 4514/6514)

**FNH 4553 Current Issues in Food Science: 3 hours.**  
Three hours lecture. Discussion of selected topics in the area of food science. Emphasis on topics published by the IFT's Expert Panel on Food Safety and Nutrition and the IFT Office of Scientific and Public Affairs

**FNH 4563 Food Products Evaluation: 3 hours.**  
Basic principles and applications in food product measurements, including physical (viscosity, texture), chemical (ph, acidity), microbiological (bacteria, yeast), and sensory methods will be discussed. (This course is designed for certification programs and not for students enrolled in degree programs at MSU)

**FNH 4573 Food Engineering Fundamentals: 3 hours.**  
(Prerequisites: MA 1713, PH 1123 or consent of instructor). Three hours lecture. Fundamentals of engineering as applied to food and agricultural products. Emphasis on units and dimensions, thermodynamics, mass and energy balances, fluid flow and heat transfer

**FNH 4583 Food Preservation Technology: 3 hours.**  
Two hours lecture. Two hours laboratory. Basics and unit operations on thermal processing, refrigeration/ freezing, concentration/dehydration, fermentation, preservatives, baking, low thermal processes, modified atmospheres, waste-water, and shelf-life will be discussed

**FNH 4593 New Food Product Development: 3 hours.**  
(Prerequisite: Senior level standing). Two hours lecture. Two hours laboratory. New product development, original idea through preliminary appraisal, economic and technological feasibility studies, laboratory developments, organoleptical and consumer testing, and revisions to final decision making

**FNH 4613 Seafood Processing: 3 hours.**  
Two hours lecture. Two hours laboratory. A study of basic food science and technology principles directed toward seafood and aquaculture food harvesting, processing, marketing and regulation

**FNH 4663 Principles of Functional Foods, Nutrition and Health: 3 hours.**  
(Prerequisite: FNH 2293). Three hours lecture. An introduction to the topic and field of functional foods and nutrition as it relates to health and wellness

**FNH 4773 Introduction to Environmental Health: 3 hours.**  
(Prerequisite: FNH 3163, or consent of instructor). Three hours lecture. Examines the relationship of people to their environment, how the environment can influence physical well-being, and importance of environmental protection to overall community health

**FNH 4783 School and Community Drug Use Prevention: 3 hours.**  
(Prerequisite: FNH 3163, or consent of instructor). Three hours lecture. Evidence-based prevention program for alcohol, tobacco, and other drugs in schools and communities. Focus on prevention through the Coordinated School Health Programs

**FNH 4793 Health Promotion in the Workplace: 3 hours.**  
(Prerequisite: FNH 3163 or permission of instructor). Three hours lecture. Skills and competencies for the development of evidence based workplace health promotion programs. Emphasis is placed on key concepts, resources and tools for creation of wellness teams and creation of health-enhancing workplace environments

**FNH 4990 Food Science, Nutrition and Health Promotion: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**FNH 6013 Nutrition Assessment: 3 hours.**

(Prerequisites: Grade of "C" or better in FNH 2293 and KI 2603 and Junior Standing). Two hours lecture. Two hours laboratory. Selection, utilization, interpretation, and evaluation of anthropometric, laboratory, clinical and dietary methods available for the assessment of nutritional status

**FNH 6114 Analysis of Food Products: 4 hours.**

(Prerequisites: CH 2503). Three hours lecture. Three hours laboratory. Chemistry and technology of food products processing and physical and chemical methods of analyzing foods and biological products

**FNH 6123 Medical Nutrition Therapy I: 3 hours.**

(Prerequisites: Grade of "C" or better in FNH 4013/6013 and Junior or Senior Standing). Three hours lecture. The study of principles of nutrition and pathophysiology of chronic diseases and medical and nutrition management/treatment of chronic diseases and impact on nutritional status

**FNH 6143 Dairy Foods Processing: 3 hours.**

Two hours lecture. Two hours laboratory. Basic concepts of processing, freezing, and concentrating milk and milk products. Emphasis on fluid milk products, frozen dairy desserts, and dried products

**FNH 6164 Quality Assurance of Food Products: 4 hours.**

(Prerequisite: BIO 3304). Two hours lecture. Four hours laboratory. Principles, methods, and techniques involved in evaluating essential parameters for commercial, state and federal control of food products

**FNH 6173 Food Packaging: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Objectives and requirements of packaging; composition, characteristics, chemical and physical properties, selection and adaptation of packaging materials and packages

**FNH 6193 Social-Cultural Aspects of Food: 3 hours.**

Three hours lecture. A study of international, regional and religious history, customs, beliefs and other impacts upon food preparation and consumption

**FNH 6223 Sports Nutrition: 3 hours.**

(Prerequisite: FNH 2293 or consent of instructor). Three hours lecture. Integration of nutrition and exercise physiology illustrating links between training, increased demand for nutrients, appropriate intake of foods, beverages and supplements and performance

**FNH 6233 Medical Nutrition Therapy II: 3 hours.**

(Prerequisite: Grade of C or better in FNH 4013/6013 or consent of instructor) Three hours lecture. The study and application of the principles of medical nutrition therapy in stress, trauma and specific disease conditions

**FNH 6241 Applied Food Chemistry: 1 hour.**

(Prerequisite: BCH 3613 and prior credit for/or current enrollment in FNH 4243/6243). Two hour laboratory. Basic laboratory experiments to provide understanding of the function and interactions of chemical components in food

**FNH 6243 Composition and Chemical Reactions of Foods: 3 hours.**

(Prerequisites: Grade of "C" or better in CH 1213, and CH 2503 or equivalent, and Junior or Senior Standing). Three hours lecture. Nature and chemical behavior of food constituents including proteins, lipids, carbohydrates, minerals, water, enzymes and pigments; properties of food systems as related to commercial preparation. (Same as ADS 4243/6243)

**FNH 6253 Macronutrients: Human Metabolism: 3 hours.**

(Prerequisites: FNH Majors: Grade of "C" or better or concurrent enrollment in BCH 4013 and Junior or Senior Standing; or BCH Major). Three hours face to face lecture or web-based distance instruction. In-depth study of the chemistry and functionality of macronutrients in food systems and their biochemical impact on the human body. (Same as BCH 4253/6253)

**FNH 6283 Purchasing Food and Equipment for Food Service Systems: 3 hours.**

Three hours lecture. Procuring food and equipment for food service systems. Product specifications, cost-effectiveness, value analysis and quality standards

**FNH 6293 Micronutrients: Human Metabolism: 3 hours.**

(Prerequisites: Grade of "C" or better in BCH 4013 and Junior or Senior Standing). Three hours lecture. Advanced human nutrition and metabolism of regulatory micronutrients

**FNH 6313 Advanced Science of Muscle Foods: 3 hours.**

(Prerequisite: Junior standing or greater, ADS/FNH 3314, CH 1223 and/or Instructor Consent). Three hours lecture. Exploration of the ultra-structure of muscle, (pre- and post-harvest), and the microbiology, inspection and safety, nutritional properties, and sensory characteristics of muscle foods. (Same as ADS 4313/6313.)

**FNH 6323 Professional Skills for Nutrition and Dietetics: 3 hours.**

(Prerequisite FNH 2201; Junior or Senior Standing). Three hours lecture. Prepares students to develop professional skills necessary to initiate a career in the field of dietetics emphasizing scope of practice, code of ethics, evaluation and use of professional literature, leadership, team building, cultural humility, and effective communication

**FNH 6333 Food Law: 3 hours.**

(Prerequisite: Consent of instructor). Two hours lecture. Two hours laboratory. Role of law, mandatory and optional food regulations exercised by state, federal and international agencies on food quality, safety, wholesomeness, nutrition and security

**FNH 6353 Nutrition Throughout the Life Cycle: 3 hours.**

(Prerequisite: Grade of C or better in FNH 4013/6013, FNH 4123/6123, FNH 4233/6233 and Senior Standing). Three hours lecture. Study of interrelationships of physiological, biochemical and sociological factors and nutrient needs of individuals and groups during the life cycle; infancy through the later years

**FNH 6363 Research Methods in Food and Nutrition: 3 hours.**

(Prerequisites: ST 2113 Introduction to Statistics and FNH 2293 Individual and Family Nutrition). Three hour lecture. Introduction to food and nutrition research methods, application of computer and related technologies in nutrition research through design and development of a research project

**FNH 6373 Nutrition Education and Counseling Skills: 3 hours.**

(Prerequisite: Junior or Senior Standing). Three hours lecture. Examination of nutrition education and counseling in the delivery of food/nutrition interventions. Use of technology, interviewing, activities, and application strategies to enhance dietary change

**FNH 6393 Prevention and Control of Disease: 3 hours.**

(Prerequisite: FNH 3163, or consent of instructor). Three hours lecture. An examination of how food science, nutrition and health promotion relate to chronic diseases. Prevention, control and detection are examined

**FNH 6414 Microbiology of Foods: 4 hours.**

(Prerequisite: BIO 3404). Two hours lecture. Four hours laboratory. Isolation and classification of the microorganisms associated with spoilage of commercial and domestic preserved foods. (Same as BIO 4414/6414)

**FNH 6463 Community Food Systems: 3 hours.**

Two hours lecture. Two hours laboratory. Exploration of aspects in community food systems including planning and design, sustainable growing practices, and human nutrition and health. (Same as LA 4463/6463 and PSS 4463/6463)

**FNH 6512 Poultry Products Safety and Sanitation: 2 hours.**

(Prerequisite: Junior standing or greater.) Two hours lecture. Poultry product safety hazards, food safety systems (HACCP), principles and practices of food sanitation related to poultry products and poultry safety regulations. (Same as PO 4512/6512)

**FNH 6514 Poultry Processing: 4 hours.**

Three hours lecture. Two hours laboratory. Study of commercial poultry processing including poultry inspection, regulations, processed poultry products, egg processing, and food safety. (Same as PO 4514/6514)

**FNH 6573 Food Engineering Fundamentals: 3 hours.**

(Prerequisites: MA 1713, PH 1123 or consent of instructor). Three hours lecture. Fundamentals of engineering as applied to food and agricultural products. Emphasis on units and dimensions, thermodynamics, mass and energy balances, fluid flow and heat transfer

**FNH 6583 Food Preservation Technology: 3 hours.**

Two hours lecture. Two hours laboratory. Basics and unit operations on thermal processing, refrigeration/ freezing, concentration/dehydration, fermentation, preservatives, baking, low thermal processes, modified atmospheres, waste-water, and shelf-life will be discussed

**FNH 6593 New Food Product Development: 3 hours.**

(Prerequisite: Senior level standing). Two hours lecture. Two hours laboratory. New product development, original idea through preliminary appraisal, economic and technological feasibility studies, laboratory developments, organoleptical and consumer testing, and revisions to final decision making

**FNH 6613 Seafood Processing: 3 hours.**

Two hours lecture. Two hours laboratory. A study of basic food science and technology principles directed toward seafood and aquaculture food harvesting, processing, marketing and regulation

**FNH 6663 Principles of Functional Foods, Nutrition and Health: 3 hours.**

(Prerequisite: FNH 2293). Three hours lecture. An introduction to the topic and field of functional foods and nutrition as it relates to health and wellness

**FNH 6773 Introduction to Environmental Health: 3 hours.**

(Prerequisite: FNH 3163, or consent of instructor). Three hours lecture. Examines the relationship of people to their environment, how the environment can influence physical well-being, and importance of environmental protection to overall community health

**FNH 6783 School and Community Drug Use Prevention: 3 hours.**

(Prerequisite: FNH 3163, or consent of instructor). Three hours lecture. Evidence-based prevention program for alcohol, tobacco, and other drugs in schools and communities. Focus on prevention through the Coordinated School Health Programs

**FNH 6793 Health Promotion in the Workplace: 3 hours.**

(Prerequisite: FNH 3163 or permission of instructor). Three hours lecture. Skills and competencies for the development of evidence based workplace health promotion programs. Emphasis is placed on key concepts, resources and tools for creation of wellness teams and creation of health-enhancing workplace environments

**FNH 6990 Special Topics in Food Science, Nutrition and Health Promotion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**FNH 7000 Directed Individual Study in Food Science, Nutrition and Health Promotion: 1-6 hours.**

Hours and credit to be arranged

**FNH 8111 Food Science, Nutrition, and Health Promotion Seminar: 1 hour.**

One hour lecture. Preparation and presentation of reports on specially assigned current topics in Food Science

**FNH 8113 Advanced Food Microbiology: 3 hours.**

(Prerequisite: BIO 4414 or equivalent). A specialized study of food poisoning outbreaks, including methods used in tracing origins and the investigation of etiological agents. Preventive measures considered

**FNH 8121 Food Science Nutrition and Health Promotion Seminar: 1 hour.**

One hour lecture. Preparation of reports on specially assigned current topics in Food Science

**FNH 8131 Food Science Nutrition and Health Promotion Seminar: 1 hour.**

One hour lecture. Preparation and presentation of reports on specially assigned current topics in Food Science

**FNH 8163 Flavor and Food Acceptance: 3 hours.**

(Prerequisite: CH 2503) Three hours lecture. Sensory responses with emphasis on smell, taste, tact, and appearance as related to foods. Techniques of panel and physicochemical methods of testing

**FNH 8173 Clinical and Applied Mycology: 3 hours.**

(Prerequisites: EPP 4254/6254 or consent of instructor). One hour lecture and four hours laboratory. This course prepares students to identify fungal causal agents associated with agricultural problems, including food science, agronomy, veterinary science, horticulture, forestry, and plant pathology. (Same as EPP 8173)

**FNH 8193 Problems in Health Education: 3 hours.**

Three hours lecture. Includes current information relating to various health problems in our society. Stresses methods of prevention and wellness at different levels of curriculum organization

**FNH 8233 Maternal, Infant, and Child Nutrition: 3 hours.**

Three hours lecture. Nutritional needs during reproduction and growth; problems in nourishing women during the reproductive period, infants, and children; indices of growth and development

**FNH 8243 Public Health Nutrition: 3 hours.**

(Prerequisite: Graduate standing or consent of instructor). Three hours lecture. This course addresses the biological, economic, social-cultural and policy issues that impact communities by understanding and evaluating the various solutions to improving community health outcomes

**FNH 8253 Nutrition and Food Science Research Techniques: 3 hours.**

Spring Semester. One hour lecture. Six hours laboratory. Application of various instruments and techniques for assay of food and biological material

**FNH 8263 Nutritional Genomics: 3 hours.**

(Prerequisite: Grade of C or better in FNH 4253/6253, or consent of instructor). Three hours lecture. An in-depth study of the reciprocal interactions between genomic variations and nutrients and how they impact health

**FNH 8273 Advanced Clinical Nutrition: 3 hours.**

(Prerequisite: Senior level Medical Nutrition Therapy course) Three hours lecture. Study of advanced knowledge of principles of nutrition, pathophysiology and medical management of specific disease states and impact on nutritional status, including current research

**FNH 8286 Supervised Practice Experience: 6 hours.**

(Prerequisite: Admission in the Dietetic Internship/Graduate Studies Program). Supervised practice experience in clinical, community, and food service systems settings. May be repeated for credit

**FNH 8293 Molecular Nutrition: 3 hours.**

(Prerequisite: Grade of C or better in FNH 4243/6243 and FNH 4253/6253, or consent of instructor). Three hours lecture. An in-depth study of the mechanisms of nutrients and their impact on human nutrition and health

**FNH 8333 Food Safety and Security in Public Health: 3 hours.**

(Prerequisite: Enrolled in graduate school or permission of instructor). Three hours lecture. Epidemiology and risk factors of illness from microbial food contaminants. Pre- and post-harvest interventions will be addressed. (Same as CVM 8333)

**FNH 8423 Meat Science: 3 hours.**

Three hours lecture. Basic study of the value of meat and how this information is applied to the evaluation, processing, and preservation of meat, meat products, and meat by-products. (Same as ADS 8423)

**FNH 8443 Health Center Practicum: 3 hours.**

(Prerequisites: FNH 6393, FNH 8513, FNH 8523, FHN 8553, AND primary advisor's permission). Three hours clinical instruction. Supervised rotations and internship in health promotion and wellness coaching in a clinical setting, including the Longest Health Center

**FNH 8473 Advanced Sports Nutrition: 3 hours.**

(Prerequisite: FNH 2293). Three hours lecture. The course integrates nutrition and exercise physiology principles to illustrate the links between training, increased demand for nutrients as a result of training, appropriate intake of foods, beverages and supplements, and excellent performance

**FNH 8513 Theory and Practice of Health Education: 3 hours.**

Three hours lecture. Historical perspectives and current status of health education/promotion. Fundamental constructs of the discipline in school, community, and worksite settings

**FNH 8523 Health Promotion Techniques: 3 hours.**

Three hours lecture. Examination of techniques utilized in delivery of health promotion interventions. Emphasizes uses of technology in development of activities suitable for diverse audiences and settings

**FNH 8543 Health Education for Diverse Populations: 3 hours.**

Three hours lecture. This course is designed to help students identify and develop programs to overcome the health disparities that exist in diverse populations

**FNH 8553 Behavioral Epidemiology: 3 hours.**

Three hour lecture. Behavioral and social environmental issues related to premature morbidity and mortality patterns Current research literature and application of epidemiological principles to health education/promotion

**FNH 8556 Clinical Health Promotion and Wellness Coaching Internship: 6 hours.**

(Prerequisites: FNH 6393, FNH 8513, FNH 8523, FHN 8553, FNH 8443, AND primary advisor's approval). Six hours clinical instruction. Field-based internship in clinical health promotion and wellness coaching at an approved health care facility

**FNH 8563 Principles of Epidemiology and Health Science Research: 3 hours.**

Development of skills to interpret epidemiological research. Evaluation of various study design commonly used in the field of epidemiology related to health sciences

**FNH 8572 Advanced Food Technology: 2 hours.**

(Prerequisite: FNH 6583 and/or consent of instructor). Two hours lecture. Introduction and discussion of recent developments in Food Science and Technology including aseptic processing, microwave technology, food irradiation separation techniques, and modified atmosphere packaging

**FNH 8613 Design and Administration of Health Promotion Programs: 3 hours.**

Three hours lecture. Principles of health promotion planning models applicable to school, community, and worksite programs. Investigation of existing programs and current literature

**FNH 8623 Current Issues in School Health: 3 hours.**

Three hours seminar. Examination of the role of the health educator in the Coordinated School Health Program. Review of current curricular approaches and issues in school health

**FNH 8653 Implementation and Evaluation of Health Promotion Programs: 3 hours.**

(Prerequisite: FNH 8613, or consent of instructor). Three hours lecture. Development and application of evaluation protocols for health promotion programs. Process, impact and outcome measures are examined

**FNH 8673 Applied Projects for Certified Health Education Specialists: 3 hours.**

(Prerequisite: FNH 8513; FNH 8523; FNH 8553; FNH 8613; and FNH 8653, or consent of instructor.) Three hours directed individual study or special project. Experiential projects in health promotion program assessment, design, delivery, and evaluation. Utilization of skills of a Certified Health Education Specialist

**FNH 8713 Applied Public Health Practicum: 3 hours.**

(Prerequisites: Master of Public Health core courses and permission of practicum director). Three hours Applied Health Practicum. A field-based experience for application of key concepts in public health necessary for success as a public health professional

**FNH 8723 Integrative Experience: 3 hours.**

(Prerequisites: Completion of all core Master of Public Health courses AND permission of primary advisor). Three hours practicum. Provide an opportunity to integrate the knowledge and competencies from all Master of Public Health coursework

**FNH 8733 Policy in Public Health and Health Care Systems: 3 hours.**

Three hours lecture. A comprehensive review of health care institutions today and their response to the economic, social/ethical, political/legal, technological, and ecological environments

**FNH 8743 Nutrition Policy: 3 hours.**

Three hours lecture. This course provides an overview of food and nutrition policy concepts and examines interactions among stakeholders affect policy design and implementation. This course will explore historical and contemporary food and nutrition policy issues

**FNH 8753 Nutritional Epidemiology: 3 hours.**

(Prerequisite: FNH 8563 Epidemiology and Health Science Research). Three hours lecture. An introduction to key concepts in epidemiology necessary to design, analyze, interpret, and critically evaluate population-based research in nutrition

**FNH 8773 The Human Microbiota and Optimal Health: 3 hours.**

Three hours lecture. In-depth study to explore and better understand those microorganisms living in our bodies, with a focus on the gut, and the cross-talks between microbiomes and host health

**FNH 8783 Plants and Nutraceuticals: Food as Medicine: 3 hours.**

(Prerequisites: FNH 6663; BCH 6253). Three hours lecture. Investigation of foods and plants along with their nutraceutical or medicinal qualities

**FNH 8793 Functional Nutrition in Chronic Disease Prevention and Management: 3 hours.**

(Prerequisite: FNH 6663; FNH 8293; or BH 6253 or equivalent). Three hours lecture. This course reviews the use of nutrition as medicine to prevent and manage chronic disease

**FNH 8983 Ingredient Technology: 3 hours.**

Three hours lecture. A special study of the major food ingredients including functionality, applications, formulations, and legal considerations for formulated products

**FNH 8990 Special Topics in Food Science, Nutrition and Health Promotion: 1-9 hours.**

Credit and title to be arranged. This course is to be offered on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

**FNH 9000 Research in Food, Nutrition and Health Promotion: 1-13 hours.**

Hours and credits to be arranged

**Forestry Courses****FO 1101 Forest Resources Survey: 1 hour.**

One hour lecture. Survey of the professional resource manager's role and career opportunities in providing forest-based goods and services. Not open to Forest Resources majors with senior standing

**FO 2113 Dendrology: 3 hours.**

(Prerequisite: BIO 1144 or BIO 2113 or equivalent). Two hours lecture. Four hours laboratory. Introduction to the identification and systematic classification of trees and other woody plants. Field exercises to promote the recognition and identification of trees and other woody plants

**FO 2213 Forest Measurements: 3 hours.**

(Prerequisite: ST 2113 or equivalent). Three hours lecture. Principles of measurement for standing and felled trees. Inventory and sampling theory for forested lands

**FO 2443 Essentials of Biotechnology: 3 hours.**

Three hours lecture. An introduction to principles and applications of biotechnology. (Same as CVM 2443)

**FO 2990 Special Topics in Forestry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FO 3003 Internship in Forestry: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Professional work experience with firms or companies, non-governmental organizations, government agencies and other relevant entities. May be taken for credit up to four times but only once as a professional elective

**FO 3012 Introduction to Forest Communities: 2 hours.**

(Prerequisites: PSS 3301, PSS 3303, FO 2113). Field exercises to gain practical knowledge of soil-geology-ecology interrelationships through trips to various physiographic regions

**FO 3015 Forest Description and Analysis: 5 hours.**

(Prerequisite: ST 2113 and FO 2213). Field and laboratory exercises to gain practical experience with forest and land measurement techniques and equipment. Mapping, inventory, and analysis of forested tracts

**FO 3103 Computer Application in Forest Resources: 3 hours.**

(Prerequisite: Three hours of courses in College of Forest Resources or consent of instructor). Two hours lecture. Two hours laboratory. Application of computer concepts in forest resources with emphasis in forestry. Practice and demonstration of general and professional software packages used in upper level courses and professional settings

**FO 3113 Forest Recreation Management: 3 hours.**

Three hours lecture. Studies of the management of forest resources for outdoor recreation. (Same as NREC 3113)

**FO 3203 Forest Fire: 3 hours.**

Two hours lecture. Three hours laboratory. Basic aspects of fire history, fire behavior, fire weather, fire effects, and management of fire. Emphasis on the use of prescribed burning in forest management

**FO 3213 Tree Physiology: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144). Three hours lecture. Physiological principles (photosynthesis, water relations and nutrient uptake) in the context of the unique physical attributes of trees including their large multi-dimensional crowns, long distance transport systems, woody stems, and longevity

**FO 4000 Directed Individual Study in Forestry: 1-6 hours.**

Hours and credits to be arranged

**FO 4113 Forest Resource Economics: 3 hours.**

(Prerequisites: AEC 2713 or equivalent). Three hours lecture. Basic principles of forest resource valuation; economics applied to production, conversion, marketing and consumption of forest products and benefits

**FO 4123 Forest Ecology: 3 hours.**

Three hours lecture. Natural principles governing establishment, development, and functioning of forest ecosystems. Includes ecology, genetics, physiology, tree growth, reproduction, site, stand dynamics, energetics, hydrology, nutrition, and succession

**FO 4203 Fundamentals of Forest Business Data Analysis and Visualization: 3 hours.**

Three hours lecture. Basic principles of spreadsheet operations, worksheet management, formula integration, data analysis, and report building in forestry and natural resource management with emphasis on forest business applications



**FO 4213 Forest Biometrics: 3 hours.**

(Prerequisite: ST 2113, FO 2213 or NREC 3213, or equivalent or consent of instructor). Three hours lecture. Applications of mensurational and statistical principles and techniques in determination of forest growth and yield. Advanced topics of forest resource inventory

**FO 4221 Practice of Silviculture Laboratory: 1 hour.**

(Prerequisite: FO 4123/6123 or WF 4223; co-requisite: FO 4223/6223). Four hours laboratory. Application of silvicultural practices and operations under given forest land management objectives

**FO 4223 Practice of Silviculture: 3 hours.**

(Prerequisite: FO 4123/6123, FO 4121/6121 or WF 3133 and WF 4223; co-requisite: FO 4221/6221). Three hours lecture. Manipulation to obtain desired reproduction and to attain optimum development under given forest land management objectives

**FO 4231 Introduction to Wood Supply Systems: 1 hour.**

(Co-requisite: FO 3015). Investigative field and laboratory exercises used to gain practical knowledge into the structure and performance of wood supply systems

**FO 4233 Forest Operations and Harvesting: 3 hours.**

(Prerequisites: FO 3015, FO 4231/6231, or consent of instructor). Three hours lecture. Study of practical, managerial, and logistic considerations associated with harvesting and other forest operations, as well as their social, environmental, and legal influences

**FO 4253 Timber Procurement: 3 hours.**

(Prerequisites: FO 4231/6231, FO 4233/6233, or consent of instructor). Lectures and field exercises dealing with the problems of timber procurement to include planning for harvest, methods of handling and transport, legal and safety considerations

**FO 4313 Spatial Technologies in Natural Resources Management: 3 hours.**

(Prerequisite: FO 3015 or GR 2313 or consent of instructor). Three hours lecture. Three hours laboratory. Fundamentals of scale, area, height, and stand volume determinations from aerial imagery; planimetric and topographic mapping; image interpretation; GPS and GIS; applications to natural resources. (Same as NREC 4313)

**FO 4323 Forest Resource Management: 3 hours.**

(Prerequisites: FO 4113/6113, FO 4223/6223, FO 4233/6233, FO 4231/6231, FO 4213/6213). Three hours lecture. Three hours laboratory. Application of quantitative decision making techniques to stand-level and forest-wide management problems. Topics include land classification, forest production, optimal rotation analysis, and harvest scheduling

**FO 4343 Forest Administration and Organization: 3 hours.**

(Prerequisite: Junior standing or instructor consent). Three hours lecture. Hierarchy and land structuring of forest organizations. Legal aspects of administering forest land holdings

**FO 4353 Natural Resource Law: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. A comprehensive study of the laws relating to natural resources and forestry with emphasis on tort law, real property law, environmental law, taxation law and contract law. (Same as NREC 4353)

**FO 4403 Intermediate Forest Business Data Analysis and Visualization: 3 hours.**

Three hours lecture. Concepts and applications related to forest business data analysis, mapping, and visualization in the context of forestry and natural resource management

**FO 4411 Remote Sensing Seminar: 1 hour.**

(Prerequisites: Junior Standing). One hour lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, ECE4411/6411, GR 4411/6411)

**FO 4413 Natural Resources Policy: 3 hours.**

(Prerequisite: Senior standing). Three hours lecture. Current topics relating to natural resources policy which affect management decisions and practices in the public and private sectors of natural resources use. (Same as NREC 4413)

**FO 4423 Professional Practice: 3 hours.**

(Prerequisite: FO 4323/6323) Three hours lecture. Four hours laboratory. Forest resource data collection and analysis. Development of forest resource alternatives and recommendations for a specific forest property

**FO 4443 International Forest Resources and Trade: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. A study of the world's wood consumption, marketing arrangements, community forestry, and forestry in economic development

**FO 4453 Remote Sensing Applications: 3 hours.**

(Prerequisite: A basic image interpretation or remote sensing course or consent of instructor). Two hours lecture. Three hours laboratory. An introduction to remote sensing with emphasis on analysis and application of digital image data in inventory, monitoring, and management of renewable natural resources

**FO 4463 Forest Hydrology and Watershed Management: 3 hours.**

(Prerequisite: PSS 3303, FO 3012, FO 4123/6123, or consent of instructor). Three hours lecture. Synthesis of current information on the fundamental properties and processes of forest soils, hydrology, and water quality with emphasis on watershed and ecosystem management factors. (Same as NREC 4463)

**FO 4473 GIS for Natural Resource Management: 3 hours.**

(Prerequisite: Junior standing). Two hours lecture and three hours laboratory. Introduction to geographic information systems (GIS) with emphasis on collection, encoding, storage, retrieval, and analysis of spatial data for use in management of natural resources

**FO 4483 Forest Soils: 3 hours.**

(Prerequisite: PSS 3303, FO 3012, FO 4123/6123, FO 4121/6121, or consent of instructor). Three hours lecture. Synthesize current information on fundamental properties and processes of forest soils with emphasis on applications to silviculture, soil conservation, and sustainable management of forested ecosystems

**FO 4513 Forestry and Conservation for Educators.: 3 hours.**

(Two hours lecture; two hours lab). Importance of forestry and natural resources conservation, application of forestry and conservation principles and practices to educational settings. For non-forestry majors

**FO 4573 Ecology of Managed Forests: 3 hours.**

(Prerequisite: Graduate standing, upper-level FO undergraduate student, or consent of instructor). Three hours lecture. Examination of the ecological factors that influence silvicultural practice in North America. (Same as NREC 4573)

**FO 4663 Consulting Forestry: 3 hours.**

(Prerequisite: FO major, senior or graduate standing and consent of instructor). Three hours lecture. Review of business, legal, and economic issues integral to applying the science of forestry as a service based enterprise

**FO 4683 Introduction to Urban and Community Forestry: 3 hours.**

Three hours lecture. Addresses urban forest management issues and opportunities as well as educational extension/outreach program strategies within the urban forest context. (Same as NREC 4683)

**FO 4703 Forest Business Location Analytics and Intelligence: 3 hours.**

Three hours lecture. Analysis of spatially enabled data to facilitate forest business location and natural resource management decisions

**FO 4771 Seeing the Forest for the Trees: A Career Exploration: 1 hour.**

One hour lecture plus laboratory experience. A course for upper-level, non-Forestry majors providing an overview of forest management, wood products, manufacturing facilities, and career opportunities for non-foresters

**FO 4800 Undergraduate Research in Forestry: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience

**FO 4990 Special Topics in Forestry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FO 6113 Forest Resource Economics: 3 hours.**

(Prerequisites: AEC 2713 or equivalent). Three hours lecture. Basic principles of forest resource valuation; economics applied to production, conversion, marketing and consumption of forest products and benefits

**FO 6123 Forest Ecology: 3 hours.**

Three hours lecture. Natural principles governing establishment, development, and functioning of forest ecosystems. Includes ecology, genetics, physiology, tree growth, reproduction, site, stand dynamics, energetics, hydrology, nutrition, and succession

**FO 6203 Fundamentals of Forest Business Data Analysis and Visualization: 3 hours.**

Three hours lecture. Basic principles of spreadsheet operations, worksheet management, formula integration, data analysis, and report building in forestry and natural resource management with emphasis on forest business applications

**FO 6213 Forest Biometrics: 3 hours.**

(Prerequisite: ST 2113, FO 2213 or NREC 3213, or equivalent or consent of instructor). Three hours lecture. Applications of mensurational and statistical principles and techniques in determination of forest growth and yield. Advanced topics of forest resource inventory

**FO 6221 Practice of Silviculture Laboratory: 1 hour.**

(Prerequisite: FO 4123/6123 or WF 4223; co-requisite: FO 4223/6223). Four hours laboratory. Application of silvicultural practices and operations under given forest land management objectives

**FO 6223 Practice of Silviculture: 3 hours.**

(Prerequisite: FO 4123/6123, FO 4121/6121 or WF 3133 and WF 4223; co-requisite: FO 4221/6221). Three hours lecture. Manipulation to obtain desired reproduction and to attain optimum development under given forest land management objectives

**FO 6231 Introduction to Wood Supply Systems: 1 hour.**

(Co-requisite: FO 3015). Investigative field and laboratory exercises used to gain practical knowledge into the structure and performance of wood supply systems

**FO 6233 Forest Operations and Harvesting: 3 hours.**

(Prerequisites: FO 3015, FO 4231/6231, or consent of instructor). Three hours lecture. Study of practical, managerial, and logistic considerations associated with harvesting and other forest operations, as well as their social, environmental, and legal influences

**FO 6253 Timber Procurement: 3 hours.**

(Prerequisites: FO 4231/6231, FO 4233/6233, or consent of instructor). Lectures and field exercises dealing with the problems of timber procurement to include planning for harvest, methods of handling and transport, legal and safety considerations

**FO 6313 Spatial Technologies in Natural Resources Management: 3 hours.**

(Prerequisite: FO 3015 or GR 2313 or consent of instructor). Three hours lecture. Three hours laboratory. Fundamentals of scale, area, height, and stand volume determinations from aerial imagery; planimetric and topographic mapping; image interpretation; GPS and GIS; applications to natural resources. (Same as NREC 4313)

**FO 6323 Forest Resource Management: 3 hours.**

(Prerequisites: FO 4113/6113, FO 4223/6223, FO 4233/6233, FO 4231/6231, FO 4213/6213). Three hours lecture. Three hours laboratory. Application of quantitative decision making techniques to stand-level and forest-wide management problems. Topics include land classification, forest production, optimal rotation analysis, and harvest scheduling

**FO 6343 Forest Administration and Organization: 3 hours.**

(Prerequisite: Junior standing or instructor consent). Three hours lecture. Hierarchy and land structuring of forest organizations. Legal aspects of administering forest land holdings

**FO 6353 Natural Resource Law: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. A comprehensive study of the laws relating to natural resources and forestry with emphasis on tort law, real property law, environmental law, taxation law and contract law. (Same as NREC 4353)

**FO 6403 Intermediate Forest Business Data Analysis and Visualization: 3 hours.**

Three hours lecture. Concepts and applications related to forest business data analysis, mapping, and visualization in the context of forestry and natural resource management

**FO 6411 Remote Sensing Seminar: 1 hour.**

(Prerequisites: Junior Standing). One hour lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, ECE4411/6411, GR 4411/6411)

**FO 6413 Natural Resources Policy: 3 hours.**

(Prerequisite: Senior standing). Three hours lecture. Current topics relating to natural resources policy which affect management decisions and practices in the public and private sectors of natural resources use. (Same as NREC 4413)

**FO 6423 Professional Practice: 3 hours.**

(Prerequisite: FO 4323/6323) Three hours lecture. Four hours laboratory. Forest resource data collection and analysis. Development of forest resource alternatives and recommendations for a specific forest property

**FO 6443 International Forest Resources and Trade: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. A study of the world's wood consumption, marketing arrangements, community forestry, and forestry in economic development

**FO 6453 Remote Sensing Applications: 3 hours.**

(Prerequisite: A basic image interpretation or remote sensing course or consent of instructor). Two hours lecture. Three hours laboratory. An introduction to remote sensing with emphasis on analysis and application of digital image data in inventory, monitoring, and management of renewable natural resources

**FO 6463 Forest Hydrology and Watershed Management: 3 hours.**

(Prerequisite: PSS 3303, FO 3012, FO 4123/6123, or consent of instructor). Three hours lecture. Synthesis of current information on the fundamental properties and processes of forest soils, hydrology, and water quality with emphasis on watershed and ecosystem management factors. (Same as NREC 4463)

**FO 6473 GIS for Natural Resource Management: 3 hours.**

(Prerequisite: Junior standing). Two hours lecture and three hours laboratory. Introduction to geographic information systems (GIS) with emphasis on collection, encoding, storage, retrieval, and analysis of spatial data for use in management of natural resources

**FO 6483 Forest Soils: 3 hours.**

(Prerequisite: PSS 3303, FO 3012, FO 4123/6123, FO 4121/6121, or consent of instructor). Three hours lecture. Synthesize current information on fundamental properties and processes of forest soils with emphasis on applications to silviculture, soil conservation, and sustainable management of forested ecosystems

**FO 6513 Forestry and Conservation for Educators: 3 hours.**

(Two hours lecture; two hours lab). Importance of forestry and natural resources conservation, application of forestry and conservation principles and practices to educational settings. For non-forestry majors

**FO 6573 Ecology of Managed Forests: 3 hours.**

(Prerequisite: Graduate standing, upper-level FO undergraduate student, or consent of instructor). Three hours lecture. Examination of the ecological factors that influence silvicultural practice in North America. (Same as NREC 4573)

**FO 6663 Consulting Forestry: 3 hours.**

(Prerequisite: FO major, senior or graduate standing and consent of instructor). Three hours lecture. Review of business, legal, and economic issues integral to applying the science of forestry as a service based enterprise

**FO 6683 Introduction to Urban and Community Forestry: 3 hours.**

Three hours lecture. Addresses urban forest management issues and opportunities as well as educational extension/outreach program strategies within the urban forest context. (Same as NREC 4683)

**FO 6703 Forest Business Location Analytics and Intelligence: 3 hours.**

Three hours lecture. Analysis of spatially enabled data to facilitate forest business location and natural resource management decisions

**FO 6990 Special Topics in Forestry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FO 7000 Directed Individual Study in Forestry: 1-6 hours.**

Hours and credits to be arranged

**FO 8111 Graduate Seminar: 1 hour.**

Credit in 2 semesters allowed. Review of and discussion of current forestry issues. Presentation of student reports

**FO 8143 Advanced Forest Economics: 3 hours.**

Three hours lecture. Application of current theory and techniques of economics to forestry. Emphasis is on the use of quantitative tools to improve decision-making in forest resource management

**FO 8153 Quantitative Forest Ecology: 3 hours.**

(Prerequisites: MA 1723 and ST 8114 or consent of instructor). Three hours lecture. Analytical models, fitting model coefficients to data, life tables, spatial patterns, interspecific competition, and species diversity

**FO 8163 Nonmarket Forest Values: 3 hours.**

(Prerequisite: FO 4113 or equivalent or consent of instructor). The course will deal with the valuation of nonmarket, non-timber outputs or amenities derived from the forest

**FO 8173 Advanced Spatial Technologies: 3 hours.**

(Prerequisite: an introductory course in remote sensing and/or geographical information systems or consent of instructor). Three hours lecture. Group discussion and application of integrated remote sensing, image analysis and GIS software tools for assessment of natural resources

**FO 8211 Graduate Seminar: 1 hour.**

Credit in 2 semesters allowed. Review of and discussion of current forestry issues. Presentation of student reports

**FO 8213 Advanced Silviculture: 3 hours.**

(Prerequisite: FO 4223 or consent of instructor). Three hours of lecture and/or field trips once per week. Spring semester. Silvicultural practices in context of the total ecological principles in decision making process. Emphasis on silviculture of bottomland hardwoods

**FO 8233 Advanced Forest Inventory: 3 hours.**

Three hours lecture. Design and analysis of forest resource inventories. Growth functions, yield tables, measures of site quality and stocking, and advanced sampling topics

**FO 8243 Advanced Forest Resource Management and Planning: 3 hours.**

(Prerequisite: FO 8143). Three hours lecture. Emphasis is on the assessment of multiple-use alternatives. Data needs, resource trade-offs, and economic and policy implications are discussed

**FO 8293 Professional Paper: 3 hours.**

(For Master of Science non-thesis option students only). Demonstration of ability to compile, synthesize, and evaluate information, and to effectively communicate analyses and conclusions

**FO 8313 Spatial Statistics for Natural Resources: 3 hours.**

(Prerequisite: ST 4313/6313, and an introductory GIS course, or consent of instructor). Three hours lecture. Concepts and methods of spatial statistics as applied to natural resource monitoring and management

**FO 8323 Forest Ecophysiology: 3 hours.**

Three hours lecture. Physiological processes occurring in forests at the leaf, tree, and ecosystem scale to determine the balance of energy, water, and carbon fluxes within the system

**FO 8333 Silviculture for Multiple Ecosystem Services: 3 hours.**

Three hours lecture. Overview of ecosystem services history and theory and how ecosystem services frameworks can be applied to guide silviculture and forest management

**FO 8353 Ecological Modeling in Natural Resources: 3 hours.**

(Prerequisites: ST 8114 or ST 8253 or equivalent). Three hours lecture. This course introduces the concepts and methods of ecological modeling as applied to natural resources monitoring and management

**FO 8433 Ecological Silviculture: 3 hours.**

Three hours lecture. Approach to silviculture that, sustains biological legacies, emulates developmental processes and emulates natural disturbances

**FO 8443 International Forest Resources and Trade: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. A study of the world's wood consumption, marketing arrangements, dynamics of deforestation, agroforestry and community forestry, country specific forestry issues, and forestry in economic development

**FO 8533 Forest Stand Dynamics: 3 hours.**

Three hours lecture. Graduate course surrounding the study of changes in forest stand structure through time including during and after disturbances

**FO 8571 Emerging Issues in Forest Ecosystems: 1 hour.**

(Prerequisite: Graduate standing or consent of instructor). One hour seminar. Overview of the major biological, ecological, and socio-economic issues facing forest conservation

**FO 8673 Planning and Evaluation in Natural Resources Outreach Education: 3 hours.**

Three hours lecture. Presents methods for needs assessment of forestry extension/outreach education, development of programs to meet client needs, and evaluation of the effectiveness of such programs

**FO 8961 Nobel Topics in Physiology/Medicine and Chemistry: 1 hour.**

(Prerequisite: Graduate standing or consent of instructor). One hour seminar. The course will provide historic and current understanding of topics awarded with a Nobel Prize. May be repeated three times for credit. (Same as CVM 8961 and GNS 8961)

**FO 8973 Scientific Writing: 3 hours.**

(Prerequisite: Graduate standing and consent of instructor) Three hours lecture. The course provides advanced training in research proposal, grant proposal, and manuscript writing. (Same as ADS 8973 and CVM 8973)

**FO 8983 Advanced Biotechnology: 3 hours.**

(Prerequisite: BCH 6603, BCH 6613, BCH 6713 or consent of instructor). Three hours lecture. Advanced biotechnology course with an emphasis on environmental, biopharmaceutical, industrial, and medical technologies. (Same as CVM 8983)

**FO 8990 Special Topics in Forestry: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**FO 9000 Research in Forestry: 1-13 hours.**

Hours and credits to be arranged

**FO 9300 Dissertation Research - International: 1-13 hours.**

Dissertation research involving international travel. Hours and credits to be arranged

## First Year Experience Courses

**FYE 1000 Maroon U 1000: 0 hours.****FYE 1001 First Year Experience: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**FYE 1003 The Mississippi State University Experience: 3 hours.**

(Prerequisite: First time, first-year student). Three hours lecture/discussion. This mission of MSU 101 is to connect students to each other and to the university through intentional classes and activities that help students analyze their new context and plan for student success

## General Agriculture Courses

**GA 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**GA 1111 Survey of Agriculture: 1 hour.**

One hour lecture. A study of the overall function, organization and operation of the agricultural industry in the United States and the world

**GA 2001 Leadership Development: 1 hour.**

(Prerequisite: Application required and approval by instructor). One hour lecture. For Ambassadors of College of Agriculture and Life Sciences only. Focus on recruitment, discussion and study of each department, and community service outreach

**GA 2103 Seminar in International Studies in Agricultural Systems: 3 hours.**

Introduction to world agriculture, farming systems and technologies, crops, trade, and food production and processing. Influence of population and climate on global agriculture. Ethical issues surrounding environment, social, political, and financial aspects of agriculture. (Same as AIS 2103)

**GA 2990 Special Topics in General Agriculture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GA 4000 Directed Individual Study in Agriculture: 1-6 hours.**

Hours and credits to be arranged

**GA 4101 MANRRS Leadership Development: 1 hour.**

One hour lecture. MANRRS: Minorities in Agriculture, Natural Resources and Related Sciences. The course learning objectives are (1) to impart knowledge related to professional development; (2) to create opportunities for networking and career planning through mentored activities; and (3) to develop leadership skills through service and outreach

**GA 4710 Study Tour: 6 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study in agriculture. Variable credit, 1-6 hours, and repeatable

**GA 4800 Undergraduate Research: 13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**GA 4990 Special Topics in General Agriculture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GA 6101 MANRRS Leadership Development: 1 hour.**

One hour lecture. MANRRS: Minorities in Agriculture, Natural Resources and Related Sciences. The course learning objectives are (1) to impart knowledge related to professional development; (2) to create opportunities for networking and career planning through mentored activities; and (3) to develop leadership skills through service and outreach

**GA 6710 Study Tour: 6 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study in agriculture. Variable credit, 1-6 hours, and repeatable

**GA 6990 Special Topics in General Agriculture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GA 7000 Directed Individual Study: 6 hours.**

Hours and credits to be arranged

**GA 8103 College Teaching Practicum: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. College Teaching Practicum. Three hours credit for a supervised/mentored teaching experience. Note: Students must also complete the OGS Graduate Teaching Assistant Training Workshop and GTA Micro-Teaching Classroom Simulations Workshop prior to or concurrently with this course

**GA 8990 Special Topics in General Agriculture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## General Engineering Courses

**GE 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**GE 1011 Introduction to Engineering for Pre-engineers: 1 hour.**

One hour lecture. Introduction to engineering disciplines. Overview of techniques for success in engineering including time management, study skills, technical communication, and career planning. Required for pre-engineering majors

**GE 1021 Engineering Success: 1 hour.**

One hour lecture. This course is designed to facilitate: professional, academic, and personal development. Also, it provides an orientation to Mississippi State University

**GE 1501 Engineering Design Competition: 1 hour.**

(Prerequisite: Consent of Instructor). One hour practicum. May be repeated for credit. Credit received will not be counted towards degree. Students participate in student design competition team, contributing to design and fabrication tasks, writing weekly progress reports, and presenting data

**GE 1711 Project Lead The Way (PLTW) Intro to Engineering Design (IED): 1 hour.**

Credit for Project Lead The Way Introduction to Engineering Design (IED). Requires a high school grade of B or higher in the class and score of 70% or higher on a nationally-normed End of Course Assessment. (Offered only at designated PLTW High Schools.)

**GE 1721 Project Lead The Way (PLTW) Principles of Engineering (PoE): 1 hour.**

Credit for Project Lead The Way Principles of Engineering (PoE). Requires a high school grade of B or higher in the class and score of 70% or higher on a nationally-normed End of Course Assessment. (Offered only at designated PLTW High Schools.)

**GE 1731 Project Lead The Way (PLTW) Engineering Design and Development (EDD): 1 hour.**

Credit for Project Lead The Way Engineering Design and Development (EDD). Requires a high school grade of B or higher in the class and score of 70% or higher on a nationally-normed End of Course Assessment. (Offered only at designated PLTW High Schools.)

**GE 1741 Project Lead The Way (PLTW) Elective: 1 hour.**

Credit for Project Lead The Way elective courses. Requires a high school grade of B or higher in the class and score of 70% or higher on a nationally-normed End of Course Assessment. (Offered only at designated PLTW High Schools.)

**GE 1911 Introduction to Engineering: 1 hour.**

(Prerequisite: Engineering freshman, transfer, or dual-enrollment high school). One hour lecture. Introduction to the various engineering disciplines and careers. Discussion of qualities necessary to be a successful engineering student including learning styles, importance of ethics and the honor code, and the evolution of the engineering profession

**GE 2011 Engineering Recruitment Leadership Seminar: 1 hour.**

(Prerequisite: Consent of instructor). One hour lecture. A course to develop recruiting, communication, and leadership skills. Prepares students to be conversant on the breadth of programs offered in the Bagley College. Restricted to students selected to be Engineering Recruitment Leaders of the Bagley College of Engineering

**GE 2713 Introduction to Engineering and Public Policy: 3 hours.**

(Prerequisite: EN 1113 or EN 1173, or equivalent). Three hours lecture. A multidisciplinary analysis of public policy issues involving engineering and technology and the use of policy science to explore complex policy issues. (Same as PS 2713)

**GE 2990 Special Topics in General Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GE 3011 Engineering Entrepreneurship Seminar: 1 hour.**

Two hours seminar. Current topics in engineering entrepreneurship to enable students to better understand the role of the entrepreneur in creating start-up companies and leading young existing companies

**GE 3513 Technical Writing: 3 hours.**

(Prerequisite: Completion of English Composition requirements; junior standing). Three hours lecture. Instruction and practice in technical writing for scientific and engineering fields, emphasizing analysis and development of correspondence, progress and research reports, instruction, and proposals

**GE 3813 Challenges in Global Engineering: 3 hours.**

(Prerequisite: Junior standing in an engineering major or consent of instructor). Three hours lecture. Issues of globalization in the engineering profession are examined. Critical concepts of international engineering projects and their complex interactions are discussed

**GE 4000 Directed Individual Study in General Engineering: 1-6 hours.**

Hours and credits to be arranged

**GE 4800 Undergraduate Research: 1-13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**GE 4990 Special Topics in General Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GE 6513 Engineering Writing and Presenting: 3 hours.**

(Prerequisite: Graduate standing in an engineering discipline). Three hours lecture. Instruction in writing and presenting for engineering graduate students. Writing/presenting principles and strategies as applied to manuscripts, thesis/dissertation chapters, presentation delivery/slides, and posters

**GE 6990 Special Topics in General Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GE 7000 Directed Individual Study in General Engineering: 1-6 hours.**

Hours and credit to be arranged

**GE 8003 Master of Engineering Capstone Course: 3 hours.**

Three hours lecture. An individualized professional project course open only to candidates for the Master of Engineering. Formal written paper and presentation are required

**GE 8303 Introduction to Military Engineering: 3 hours.**

Three hours lecture. An introduction course on the history and development of military engineering. A background on the development of the missions associated with military engineering and how risks associated with military operations adapts or changes common engineering practices

**GE 8311 MIL MENG Disaster Relief: 1 hour.**

One hour lecture. An interdisciplinary perspective on the field of disaster management and humanitarian assistance while providing a broad-based understanding of the complexities of the disaster management cycle with a specific focus on risk reduction and resiliency. The course emphasizes skills and knowledge relevant to engineering focused students

**GE 8313 Intro to Military Hydrology: 3 hours.**

Three hours lecture. Applying principles from the hydrologic sciences to problems relevant for force protection and force projection. Course will identify tools and datasets that are available for making hydrologic predictions in data sparse regions and apply these tools and datasets to inform tactical and strategic decision-making

**GE 8321 MIL MENG Bridge Assessment for Military Operations: 1 hour.**

One hour lecture. Introduction of the many unique challenges associated with bridge engineering and assessment in support of military operations, which are significantly different to the civilian sector

**GE 8331 MIL MENG Intermodal Transportation Systems: 1 hour.**

One hour lecture. This course will utilize engineering concepts and logistics to address mobility concerns in military engineering, analyze the connectivity of these systems and discuss the ability of the military to push through lines of communication

**GE 8990 Special Topics in General Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GE 9000 Research in General Engineering: 1-13 hours.**

Hours and credits to be arranged

## Geology Courses

**GG 1111 Earth Sciences I Laboratory: 1 hour.**

Two hours laboratory. Laboratory for GG 1113, but may be scheduled without GG 1113. Includes study of earth materials, maps, and aerial photographs. Planned primarily as a science elective for the non-geology major

**GG 1113 Survey of Earth Sciences I: 3 hours.**

Three hours lecture. Study of the Earth in space, the materials of which the Earth is composed, and the processes affecting change on the Earth. Planned primarily as a science elective for the non-geology major

**GG 1121 Earth Sciences II Laboratory: 1 hour.**

Two hours laboratory. Laboratory for GG 1123, but may be scheduled without GG 1123. Includes the study of fossils, geologic maps, and geologic cross sections. Planned primarily as a science elective for the non-geology major

**GG 1123 Survey of Earth Sciences II: 3 hours.**

(Prerequisite: GG 1113). Three hours lecture. Origin and development of the Earth through geologic time. Planned primarily as a science elective for the non-geology major

**GG 1133 Planetary Geology: 3 hours.**

Three hours lecture. Process oriented examination of the planets and their satellites with emphasis on the "Earth-like" planets and moons

**GG 2990 Special Topics in Geosciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GG 3133 Introduction to Environmental Geology: 3 hours.**

(Prerequisite: GG 1113). Three hours lecture. Consideration of those aspects of earth science concerned with problems arising from intensive use of earth by modern society

**GG 3603 Introduction to Oceanography: 3 hours.**

Three hours lecture. A survey of the basic principles and applications of science to the study of the marine environment

**GG 3613 Water Resources: 3 hours.**

Three hours lecture. Introduction to the location, use, recovery and environmental problems of surface and subsurface waters

**GG 4000 Directed Individual Study in Geosciences: 1-6 hours.**

(Prerequisite: Junior standing). Hours and credits to be arranged

**GG 4033 Resources and the Environment: 3 hours.**

Three hours lecture. Formation and development of natural resources involving the basic evolution, planning, and design of a typical lignite coal mine, including environmental monitoring and reclamation

**GG 4063 Earth and Atmospheric Energy Resources: 3 hours.**

Three hours lecture. Formation, deposition, and extraction of fossil fuel resources, including coal, conventional, and unconventional hydrocarbons. Introduction to the geologic, geographic, and climatic aspects of Earth and atmospheric-sourced renewable resources

**GG 4113 Micropaleontology: 3 hours.**

(Prerequisite: GG 1123). Three hours lecture. A study of microscopic fossils. May be taken with GG 4201

**GG 4114 Mineralogy: 4 hours.**

(Prerequisites: GG 1113 and CH 1223). Three hours lecture. Three hours laboratory. The physical and chemical properties of minerals; crystallography, origin, distribution, association, uses, and identification of minerals

**GG 4124 Petrology: 4 hours.**

(Prerequisite: GG 4114). Three hours lecture and two hours laboratory. An investigation of important petrological concepts, including magmatic differentiation, classification of igneous and metamorphic rocks, and interpretation of thin sections of the rocks

**GG 4133 Principles of Paleocology: 3 hours.**

(Prerequisite: GG 1123). Three hours lecture. A study of paleocology with special emphasis on marine paleocology. May be taken with GG 4201

**GG 4153 Engineering Geology: 3 hours.**

(Prerequisite: GG 1113). Two hours lecture. Two hours laboratory. Application of geologic principles to location and construction of engineering structures; engineering properties of geologic materials; engineering application of equipment used by geologists

**GG 4201 Practicum on Paleontology: 1 hour.**

(Prerequisites: GG 1123 and GG 1121). One hour lecture. Two hours laboratory. Laboratory for GG 4203 but may instead be taken with GG 4113 or GG 4133. A practicum in morphology of fossils, biostratigraphy, and paleocology

**GG 4203 Principles of Paleobiology: 3 hours.**

(Prerequisites: GG 1123). Three hours lecture. Three hours laboratory. An introductory study of topics in paleobiology. May be taken with GG 4201

**GG 4233 Applied Geophysics: 3 hours.**

(Prerequisite: PH 1113 or PH 2213). Three hours lecture. A survey of the basic principles and applications of geophysics with major emphasis on petroleum exploration

**GG 4304 Principles of Sedimentary Deposits I: 4 hours.**

(Prerequisite: GG 1113). Three hours lecture. Three hours laboratory. Treatment of sediment and sedimentary rock. Emphasis on texture, fluid processes, deposition, structure, and diagenesis; stratigraphic analysis; and application to subsurface flow systems

**GG 4323 Karst Processes and Landforms: 3 hours.**

(Prerequisite: GG 1113). Three hours lecture. Processes of dissolution and the formation of Karst, pseudokarst features and landscapes. Major impact of diagenesis on rocks, landscape evolution and related subsurface hydrology

**GG 4333 Geowriting: 3 hours.**

Three hours lecture. Prepares students to present geosciences information through research papers and other forms of professional communication. Emphasizes writing for careers or advanced study in the geosciences

**GG 4403 Gulf Coast Stratigraphy: 3 hours.**

(Prerequisite: GG 4304). Three hours lecture or field trips. Systematic study of the stratigraphy of the Gulf Coast; actual field experience substituted for class work when conditions permit

**GG 4414 Structural Geology: 4 hours.**

(Prerequisites: GG 4114). Three hours lecture. Two hours laboratory. Application of the principles of mechanics to the forces deforming the rocks of the Earth's crust; emphasis on structures in sedimentary rocks

**GG 4433 Subsurface Methods: 3 hours.**

One hour lecture. Four hours laboratory. The study of subsurface geologic methods including contouring, sampling study, various types of logging, and the interpretation of subsurface data

**GG 4443 Principles of Sedimentary Deposits II: 3 hours.**

(Prerequisite: GG 4304). Three hours lecture. Application of principles from GG 4304. Introduces facies associations produced in depositional environments, systems, and systems tracts, tectonics and sedimentation, basin classification, and sequence analysis

**GG 4446 Summer Geology Field Camp: 6 hours.**

(Prerequisites: GG 4413, GG 4443, and GG 4124). Three hours lecture and three hours lab. Geologic maps, stratigraphic columns, structural cross-sections and reports will be prepared based on field data collected by the student

**GG 4503 Geomorphology: 3 hours.**

Three hours lecture. The origin and characteristics of land forms based on a consideration of geologic processes, stages of development, and geological structure

**GG 4523 Coastal Environments: 3 hours.**

Three hours lecture. An introduction to world coastal environments, with emphasis upon major shoreline-shaping processes, geographical variation in coastal landforms, human impacts, and environmental concerns

**GG 4533 Geosciences Study Abroad: 3 hours.**

Three hours study abroad. Identification of landforms and geomorphic processes and the field data collection techniques. Emphasis on human-environmental interactions

**GG 4543 Community Engagement in Environmental Geosciences: 3 hours.**

Three hours lecture. Research topics, field practices, and community engagement opportunities related to Environmental Geosciences. Activities include citizen science contributions and design; local field experiences to identify and evaluate various environmental concerns impacting communities; conduct community environmental sustainability evaluations; and develop environmental geosciences-focused community engagement events

**GG 4613 Physical Hydrogeology: 3 hours.**

Three hours lecture. Advanced study of the interrelationship of ground water and its geologic environment with emphasis on occurrence, distribution, and movement

**GG 4623 Chemical Hydrogeology: 3 hours.**

(Prerequisite: GG 4613). Three hours lecture. Advanced study of groundwater and its environment with emphasis on the chemical interaction of water with porous solids and the transport of chemical constituents

**GG 4633 Introduction to Geochemistry: 3 hours.**

(Prerequisite: CH 1223 and GG 1113). Three hours lecture. Survey of fundamental geochemical principles and methods. Learning in this course will be achieved by participation in analysis of published or unpublished datasets with further interpretation and application to the natural systems

**GG 4643 Structural Geology for Industry Applications: 3 hours.**

Two hours lecture, two hours lab. Investigation into geomechanical models of the subsurface as they pertain to the development and failure of geological structures, with emphasis on the effect of structures and stresses in industrial drilling

**GG 4990 Special Topics in Geosciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GG 6033 Resources and the Environment: 3 hours.**

Three hours lecture. Formation and development of natural resources involving the basic evolution, planning, and design of a typical lignite coal mine, including environmental monitoring and reclamation

**GG 6063 Earth and Atmospheric Energy Resources: 3 hours.**

Three hours lecture. Formation, deposition, and extraction of fossil fuel resources, including coal, conventional, and unconventional hydrocarbons. Introduction to the geologic, geographic, and climatic aspects of Earth and atmospheric-sourced renewable resources

**GG 6103 Geology I: Processes and Products: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture (video and online). Principles of physical geology with emphasis on earth materials and processes, rock and mineral identification, and landscape development. Primarily for K-12 science teachers

**GG 6113 Micropaleontology: 3 hours.**

(Prerequisite: GG 1123). Three hours lecture. A study of microscopic fossils. May be taken with GG 4201

**GG 6114 Mineralogy: 4 hours.**

(Prerequisites: GG 1113 and CH 1223). Three hours lecture. Three hours laboratory. The physical and chemical properties of minerals; crystallography, origin, distribution, association, uses, and identification of minerals

**GG 6124 Petrology: 4 hours.**

(Prerequisite: GG 4114). Three hours lecture and two hours laboratory. An investigation of important petrological concepts, including magmatic differentiation, classification of igneous and metamorphic rocks, and interpretation of thin sections of the rocks

**GG 6133 Principles of Paleocology: 3 hours.**

(Prerequisite: GG 1123). Three hours lecture. A study of paleoecology with special emphasis on marine paleoecology. May be taken with GG 4201

**GG 6153 Engineering Geology: 3 hours.**

(Prerequisite: GG 1113). Two hours lecture. Two hours laboratory. Application of geologic principles to location and construction of engineering structures; engineering properties of geologic materials; engineering application of equipment used by geologists

**GG 6201 Practicum in Paleontology: 1 hour.**

(Prerequisites: GG 1123 and GG 1121). One hour lecture. Two hours laboratory. Laboratory for GG 4203 but may instead be taken with GG 4113 or GG 4133. A practicum in morphology of fossils, biostratigraphy, and paleoecology

**GG 6203 Principles of Paleobiology: 3 hours.**

(Prerequisites: GG 1123). Three hours lecture. Three hours laboratory. An introductory study of topics in paleobiology. May be taken with GG 4201

**GG 6233 Applied Geophysics: 3 hours.**

(Prerequisite: PH 1113 or PH 2213). Three hours lecture. A survey of the basic principles and applications of geophysics with major emphasis on petroleum exploration

**GG 6304 Principles of Sedimentary Deposits I: 4 hours.**

(Prerequisite: GG 1113). Three hours lecture. Three hours laboratory. Treatment of sediment and sedimentary rock. Emphasis on texture, fluid processes, deposition, structure, and diagenesis; stratigraphic analysis; and application to subsurface flow systems

**GG 6323 Karst Processes and Landforms: 3 hours.**

(Prerequisite: GG 1113). Three hours lecture. Processes of dissolution and the formation of Karst, pseudokarst features and landscapes. Major impact of diagenesis on rocks, landscape evolution and related subsurface hydrology

**GG 6333 Geowriting: 3 hours.**

Three hours lecture. Prepares students to present geosciences information through research papers and other forms of professional communication. Emphasizes writing for careers or advanced study in the geosciences

**GG 6403 Gulf Coast Stratigraphy: 3 hours.**

(Prerequisite: GG 4304). Three hours lecture or field trips. Systematic study of the stratigraphy of the Gulf Coast; actual field experience substituted for class work when conditions permit

**GG 6414 Structural Geology: 4 hours.**

(Prerequisites: GG 4114). Three hours lecture. Two hours laboratory. Application of the principles of mechanics to the forces deforming the rocks of the Earth's crust; emphasis on structures in sedimentary rocks

**GG 6433 Subsurface Methods: 3 hours.**

One hour lecture. Four hours laboratory. The study of subsurface geologic methods including contouring, sampling study, various types of logging, and the interpretation of subsurface data

**GG 6443 Principles of Sedimentary Deposits II: 3 hours.**

(Prerequisite: GG 4304). Three hours lecture. Application of principles from GG 4304. Introduces facies associations produced in depositional environments, systems, and systems tracts, tectonics and sedimentation, basin classification, and sequence analysis

**GG 6446 Summer Geology Field Camp: 6 hours.**

(Prerequisites: GG 4413, GG 4443, and GG 4124). Three hours lecture and three hours lab. Geologic maps, stratigraphic columns, structural cross-sections and reports will be prepared based on field data collected by the student

**GG 6503 Geomorphology: 3 hours.**

Three hours lecture. The origin and characteristics of land forms based on a consideration of geologic processes, stages of development, and geological structure

**GG 6523 Coastal Environments: 3 hours.**

Three hours lecture. An introduction to world coastal environments, with emphasis upon major shoreline-shaping processes, geographical variation in coastal landforms, human impacts, and environmental concerns

**GG 6533 Geosciences Study Abroad: 3 hours.**

Three hours study abroad. Identification of landforms and geomorphic processes and the field data collection techniques. Emphasis on human-environmental interactions



**GG 6543 Community Engagement in Environmental Geosciences: 3 hours.**

Three hours lecture. Research topics, field practices, and community engagement opportunities related to Environmental Geosciences. Activities include citizen science contributions and design; local field experiences to identify and evaluate various environmental concerns impacting communities; conduct community environmental sustainability evaluations; and develop environmental geosciences-focused community engagement events

**GG 6613 Physical Hydrogeology: 3 hours.**

Three hours lecture. Advanced study of the interrelationship of ground water and its geologic environment with emphasis on occurrence, distribution, and movement

**GG 6623 Chemical Hydrogeology: 3 hours.**

(Prerequisite: GG 4613). Three hours lecture. Advanced study of groundwater and its environment with emphasis on the chemical interaction of water with porous solids and the transport of chemical constituents

**GG 6633 Introduction to Geochemistry: 3 hours.**

(Prerequisite: CH 1223 and GG 1113). Three hours lecture. Survey of fundamental geochemical principles and methods. Learning in this course will be achieved by participation in analysis of published or unpublished datasets with further interpretation and application to the natural systems

**GG 6643 Structural Geology for Industry Applications: 3 hours.**

Two hours lecture, two hours lab. Investigation into geomechanical models of the subsurface as they pertain to the development and failure of geological structures, with emphasis on the effect of structures and stresses in industrial drilling

**GG 6990 Special Topics in Geosciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GG 7000 Directed Individual Study in Geosciences: 1-6 hours.**

Hours and credits to be arranged. (Prerequisite: Consent of student's advisor and instructor). Same as G.C.R.L. MS-700

**GG 8123 Geology II: Earth, Time and Life: 3 hours.**

(Prerequisite: GG 6103). Three hours lecture, video and online. Principles of historical geology with emphasis on geological time, earth history, fossils, evolution, and extinction. Primarily for K-12 science teachers

**GG 8133 Rocks and Minerals: 3 hours.**

Three hours video and online. Principles of mineralogy with an emphasis on rock formation and classification

**GG 8203 Ocean Science: 3 hours.**

Three hours video and online. Comprehensive examination of the ocean world, focusing on the topography, physics, chemistry, and circulation of the oceans. Primarily for K-12 science teachers

**GG 8233 Environmental Geoscience: 3 hours.**

Three hours video and online. Study of current environmental problems associated with the earth science realms; atmosphere, biosphere, hydrosphere, and lithosphere. Primarily for K-12 science teachers

**GG 8313 History of Life: 3 hours.**

Three hours video and online. Paleontological principles with an emphasis on history of life through geological time

**GG 8333 Planetary Science: 3 hours.**

(Prerequisite: GG 6103 or consent of instructor). Three hours lecture, video and online. Examination of mineral matter and geological processes of the moon, the planets, asteroids, comets and meteorites. Primarily for K-12 teachers

**GG 8343 Paleontology of Dinosaurs: 3 hours.**

Three hours lecture video and online. Application of evolutionary and taxonomic principles to the study of dinosaurs and their paleoenvironments. This course is designed as a distance learning course for in-service teachers who are required to teach earth science topics with little or no background knowledge in this subject

**GG 8423 Earthquakes and Volcanoes: 3 hours.**

Three hours video and online. A study of plate tectonic boundary interactions with an emphasis on earthquakes and volcanoes

**GG 8503 Landforms: 3 hours.**

Three hours video and online. Geomorphological principles with an emphasis on landforms of North America and their formation

**GG 8561 Geoscience Seminar: 1 hour.**

(Prerequisite: Graduate standing). Review of current geoscience literature; preparation and presentation of formal papers

**GG 8572 Geologic Literature: 2 hours.**

(Prerequisite: Major in geology). A reading course with emphasis on library research

**GG 8613 Hydrology: 3 hours.**

Three hours lecture, video and online. Investigation of the occurrence, distribution, movement, and chemistry of earth's waters. Emphasis on geological controls of surface and groundwater. Primarily for K-12 science teachers

**GG 8633 Water Biogeochemistry: 3 hours.**

(Prerequisite: GG 4633/6633). Two hours lecture. Two hours laboratory. Inter-disciplinary study of the factors that characterizes oceans, wetlands and inland aquatic systems; global water and nutrient cycling; human effects on biogeochemical cycles

**GG 8643 Carbonate Petrography: 3 hours.**

(Prerequisite: GG 4304 Principles of Sedimentology I or equivalent with permission of instructor). Three hours lecture. Description and analysis of carbonate rocks using visual observation and microscopy

**GG 8713 Regional Geology of Eastern North America: 3 hours.**

(Prerequisite: Major in geology). Three hours lecture. A study of physiography, structure, and stratigraphy of eastern North America

**GG 8733 Geology of North America: 3 hours.**

Three hours video and online. Plate tectonic evolution of the North American continent with emphasis on both process and stratigraphic development

**GG 8743 Basin Analysis: 3 hours.**

Three hours lecture. Advanced geologic basin analysis taught through the application of stratigraphic, structural, geophysical, and sedimentologic techniques and professional tools

**GG 8913 Research, Readings, and Techniques in Geosciences: 3 hours.**

(Prerequisite: consent of instructor). Three hours seminar. Writing and discussion of topics related to the conduct of research in the Geosciences with a focus on faculty research areas

**GG 8990 Special Topics in Geosciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GG 9000 Research in Geology: 1-13 hours.**

Hours and credit to be arranged

**Gen Liberal Arts Courses****GLA 4000 Directed Individual Study in General Liberal Arts: 1-6 hours.**

Hours and credit to be arranged

**GLA 4001 Senior Project: 1 hour.**

(Restricted to GLA majors or permission of the instructor) One hour lecture. Cohesive capstone course that draws together the diverse threads of the liberal arts. This course encourages analysis and criticism of social, ethical, and related issues that challenge the modern world

**GLA 4990 Special Topics in GLA: 1-9 hours.**

This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses

**Genetics Courses****GNS 2990 Special Topics in Genetics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GNS 3103 Genetics I: 3 hours.**

Two hours lecture. Two hours laboratory. (Prerequisites: MA 1313 or higher, BIO 1134 or higher or BIO 2113 or higher ). Principles of heredity, genetic material, and gene expressions. (Same as BIO 3103, PO 3103)

**GNS 4133 Human Genetics: 3 hours.**

(Prerequisite: BIO 1504 or consent of instructor). Three hours lecture. Principles of Mendelian and molecular genetics as applied to humans. Description and causes of human genetic diseases and other anomalies. (Same as BIO 4133/6133)

**GNS 4990 Special Topics in Genetics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GNS 6133 Human Genetics: 3 hours.**

(Prerequisite: BIO 1504 or consent of instructor). Three hours lecture. Principles of Mendelian and molecular genetics as applied to humans. Description and causes of human genetic diseases and other anomalies. (Same as BIO 4133/6133)

**GNS 6990 Special Topics in Genetics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GNS 7000 Directed Individual Study in Genetics: 1-6 hours.**

Hours and credits to be arranged

**GNS 8961 Nobel Topics in Physiology/Medicine and Chemistry: 1 hour.**

(Prerequisite: Graduate standing or consent of instructor). One hour seminar. The course will provide historic and current understanding of topics awarded with a Nobel Prize. (Same as CVM 8961 and FO 8961). May be repeated three times for credit)

**GNS 8990 Special Topics in Genetics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GNS 9000 Research in Genetics: 1-13 hours.**

Hours and credits to be arranged

**Geography Courses****GR 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**GR 1111 Physical Geography Laboratory: 1 hour.**

Two hours laboratory. Lab course for GR 1113 but may be scheduled without GR 1113. Laboratory exploring the study of the different components of the earth system and their interactions, as well as their locations on Earth

**GR 1113 Physical Geography: 3 hours.**

Three hours lecture. Systematic study of the elements of the environmental process that form and characterize the earth's natural landscapes. May be taken as a science elective

**GR 1123 Introduction to World Geography: 3 hours.**

Three hours lecture. A survey of the world's regions, with emphasis upon locational aspects, physical and cultural diversity, and environmental issues

**GR 1131 Weather and Climate Laboratory: 1 hour.**

Two hours laboratory. Laboratory for GR 1133 but may be scheduled without GR 1133. Includes the study of atmospheric composition and structure, atmospheric motion and forces, atmospheric moisture, organized weather systems, weather forecasting, and global climates

**GR 1133 Weather and Climate: 3 hours.**

Three hours lecture. Descriptive study of weather with the objective of gaining appreciation of the variety of atmospheric phenomena. Explanation of daily weather events, their causes and impacts

**GR 1703 Introduction to Climate and Climate Change: 3 hours.**

Three hours lecture. A survey of climate science with a focus on contemporary climate change, paleoclimate, climate impacts, and climate policies

**GR 2013 Human Geography: 3 hours.**

Three hours lecture. Introduction to human geographic study of social, cultural, political and economic systems. Emphasis on concepts of space, place, landscape and nature/society relations

**GR 2313 Maps and Remote Sensing: 3 hours.**

Two hours lecture. Two hours laboratory. Fundamental principles of cartography and remote sensing, including types and applications. Attention is given to interpretation of surface features, environmental problem solving, and environmental planning

**GR 2990 Special Topics in Geography: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GR 3011 Weather Analysis: 1 hour.**

(Prerequisite: GR 1604). Two hours laboratory. Introduction to advanced meteorological analysis concepts including upper air map analysis, sounding analysis, numerical weather prediction, and basic synoptic meteorology analysis concepts

**GR 3113 Conservation of Natural Resources: 3 hours.**

Three hours lecture. Consideration of the current problems associated with the conservation of soils, forests, waters, minerals, and wildlife in the United States and the world

**GR 3303 Survey of Geospatial Technologies: 3 hours.**

(Prerequisite: GR 2313). Three hours lecture. Geographic Information Systems, Remote Sensing and Global Positioning Systems applied to earth systems and science. Includes field excursions for hands on experience with current technologies

**GR 4000 Directed Individual Study in Geography: 1-6 hours.**

Hours and credits to be arranged

**GR 4123 Urban Geography: 3 hours.**

Three hours lecture. Historic trends in distribution and growth of urban settlements, urban location theory; economic bases, functions, and structure of cities and metropolitan areas; urban problems; planning

**GR 4133 Political Ecology: Space, Nature, and Justice: 3 hours.**

Three hours lecture. This course provides an introduction to political ecology, an interdisciplinary approach to understanding human-environmental relations and the unequal causes and consequences of environmental change. Themes include the uneven ecological dynamics of development, resource extraction, and conservation, and the geographical dimensions of environmental justice and sustainability

**GR 4203 Geography of North America: 3 hours.**

Three hours lecture. A regional survey of the United States and Canada with emphasis upon place names, physical landscapes, historical settlement patterns, cultural regions, and environmental issues

**GR 4213 Geography of Latin America: 3 hours.**

Three hours lecture. A regional survey of Latin America with emphasis upon place names, physical environments, cultural landscapes and their evolution, and environmental issues

**GR 4223 Geography of Europe: 3 hours.**

Three hours lecture. A regional survey of Europe with emphasis upon placements, physical environments, cultural landscapes, geopolitical evolution, and environment issues

**GR 4233 Geography of Asia: 3 hours.**

Three hours lecture. A regional survey of Asia with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical conflicts, and environmental issues

**GR 4243 Geography of Russia and the Former Soviet Republics: 3 hours.**

Three hours lecture. A regional survey of the former Soviet Union republics with emphasis upon placenames, physical environments, ethnic diversity, geopolitical evolution, and environmental issues

**GR 4253 Geography of Africa: 3 hours.**

Three hours lecture. A regional survey of the African continent with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical changes, and environmental issues

**GR 4263 Geography of the South: 3 hours.**

Three hours lecture. A regional survey of the South with emphasis upon physical and cultural landscapes, spatial processes, economic development, environmental issues, and racial justice

**GR 4283 Geography of Islamic World: 3 hours.**

A regional survey of Islamic countries of the world with emphasis upon physical landscapes, cultural landscapes and their evolution, geopolitical conflicts and environmental issues

**GR 4293 Caribbean Geography: 3 hours.**

Three hours lecture. A regional survey of the West Indies, including the Greater Antilles, Lesser Antilles, and the Bahamas with emphasis on the physical, historical, demographic, political, cultural, economic, and environmental geographies

**GR 4303 Principles of GIS: 3 hours.**

Two hours lecture and two hours laboratory. Spatial analysis and topological relationships of geographic data using Geographic Information Systems, with emphasis on GIS theory

**GR 4313 Advanced GIS: 3 hours.**

(Prerequisite: GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Vector-based file structure and GIS queries using spatial and geodatabases attributes. Descriptive and prescriptive modeling in the raster domain including regression and linear weighted modeling

**GR 4323 Cartographic Sciences: 3 hours.**

(Prerequisite: Junior or graduate standing or consent of instructor.) Two hours lecture. Two hours laboratory. Principles of cartographic theory and map design. Types of maps, map projections, proportional symbols, use of color, mapping and statistics, interactive maps, and map animation

**GR 4333 Remote Sensing of the Physical Environment: 3 hours.**

Two hours lecture. Two hours laboratory. Examines remote sensing methods applicable to large-area analyses of watershed-level drainage systems, urban landscape, landscape vegetation metrics, physical landscape structural components and atmospheric features

**GR 4343 Advanced Remote Sensing in Geosciences: 3 hours.**

(Prerequisite: Either GR 4333/6333, ECE 4423/6423, or FO 4452/6452). Two hours lecture. Two hours laboratory. Geospatial image analysis; Theoretical basis of radiative transfer in atmosphere and water column; Quantitative remote sensing techniques and geospatial product development

**GR 4353 Geodatabase Design: 3 hours.**

(Prerequisite: GR 4303/6303). Three hours lecture. Examination of Geodatabase structures. Integration of relational databases with Geographic Information Systems. Management of spatial data using geodatabases. Implementation of Geodatabase processes through spatial programming

**GR 4363 Geographic Information Systems Programming: 3 hours.**

(Prerequisite: Either GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Design and implementation of geoprocessing scripts. Incorporation of modeling languages within geographic information systems (GIS) analysis. Seamless integration of other software programs with GIS software

**GR 4411 Remote Sensing Seminar: 1 hour.**

(Prerequisite: Junior Standing). One hour lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on the next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, ECE 4411/6411, FO 4411/6411)

**GR 4423 Weather Forecasting I: 3 hours.**

(Prerequisites: GR 3011 and GR 4733/6733). Two hours lecture. Two hours laboratory. Introduction to the process of creating and disseminating weather forecasts. Use of current weather data in creating daily forecasts for the local area

**GR 4433 Weather Forecasting II: 3 hours.**

(Prerequisite: GR 4423/6423). Two hours lecture. Two hours laboratory. Continuation of Weather Forecasting I. Emphasis placed on disseminating both oral and written forecasts for the local area as well as forecasting unique regional weather

**GR 4443 Weather Prediction I: 3 hours.**

(Prerequisite: GR 4713). Three hours lecture. Weather analysis and forecasting. Emphasis on local, short-term forecasting techniques, including temperature forecasting, precipitation forecasting, and convective forecasting

**GR 4453 Weather Prediction II: 3 hours.**

(Prerequisite: GR 4443 or consent of instructor). Three hours video and online. Continuation of GR 4443. Case studies of weather forecasts. Emphasis on special weather events and places

**GR 4473 Numerical Weather Prediction: 3 hours.**

This course provides students with an overview of the theory, processes, developments and applications of existing numerical weather prediction platforms

**GR 4502 Practicum in Broadcast Meteorology I: 2 hours.**

(Prerequisite: GR 1603). One hour lecture. Two hours laboratory. Introduction to developing a weather story with emphasis on producing weather graphics for television, chroma key mechanics, and weathercast communication

**GR 4512 Practicum in Broadcast Meteorology II: 2 hours.**

(Prerequisite: GR 4502/6502). One hour lecture. Two hours laboratory. Continuation of Practicum in Broadcast Meteorology I with emphasis on weather graphics production, weathercast performance, image, and communication. Supported by lab practice

**GR 4522 Practicum in Broadcast Meteorology III: 2 hours.**

Prerequisite: GR 4512/6512. One hour lecture. Two hours laboratory. Emphasis on advanced weathercasting, including field reporting, severe weather, and building graphics. Students are assigned actual television weather shows, with performance emphasis in the lab

**GR 4532 Practicum in Broadcast Meteorology IV: 2 hours.**

(Prerequisite: GR 4522/6522). One hour lecture. Two hours laboratory. Emphasis on the weathercasting job market in television. Students create actual television weather shows, and focus on producing a resume tape during the semester

**GR 4553 Computer Methods in Meteorology: 3 hours.**

(Prerequisite: GR 1603). Two hours lecture, two hours lab. Overview of computational methods and techniques commonly used in operational meteorology, focusing on scientific visualization and analysis, and numerical weather prediction

**GR 4563 Aviation Meteorology: 3 hours.**

(Prerequisite: GR 1604). Three hours lecture. Overview of meteorological concepts important to the aviation community, including how relevant weather data are collected and disseminated and how atmospheric properties relate to the basic physics of flight and aircraft performance

**GR 4603 Climatology: 3 hours.**

(Prerequisite: GR 1114 or GR 1123). Three hours lecture. Study of the elements and controls of weather and climate, distribution and characteristics of climatic regions

**GR 4613 Applied Climatology: 3 hours.**

(Prerequisites: GR 1603) Two hours lecture. Two hours laboratory. Problem solving in today's world in topics such as bioclimatology, agricultural climatology and land use climatology

**GR 4623 Physical Meteorology: 3 hours.**

(Prerequisite: GR 1603). An investigation of cloud physics/precipitation processes and solar/terrestrial radiation, including atmospheric dynamics, atmospheric electricity, optics, and instrumentation

**GR 4633 Statistical Climatology: 3 hours.**

(Prerequisites: GR 1603 or GG 1113 and MA 1313 or MA 1713). Two hours lecture. Two hours laboratory. A survey of the types of statistical weather data available. Manipulation of the data on various temporal and spatial scales

**GR 4640 Meteorological Internship: 1-6 hours.**

Hours and credits to be arranged. Internship with television station, private company or government agency under supervision of instructor

**GR 4643 Physical Meteorology and Climatology I: 3 hours.**

(Prerequisite: GR 1604 and MA 1323). Three hours lecture. An investigation of the physical aspects of Earth's climate, including interactions between the atmosphere, hydrosphere, and land surface, and how they are affected by climate variability and change

**GR 4693 Physical Meteorology and Climatology II: 3 hours.**

(Prerequisite: MA 1713 and GR 4643). Three hours lecture. An investigation into important physical meteorology concepts, including introductory atmospheric thermodynamics, the planetary boundary layer, and cloud and moisture physics with an emphasis on meteorological theory and applications

**GR 4713 Synoptic Meteorology I: 3 hours.**

(Prerequisites: GR 1603 or equivalent.) Two hours lecture. Two hours laboratory. Fundamental principles behind weather forecasting. Physical processes in the atmosphere, atmospheric circulation systems, air mass analysis, frontogenesis and frontolysis

**GR 4733 Synoptic Meteorology: 3 hours.**

(Prerequisite: GR 1603 and MA 1713) Three hour lecture. Principles and derivation of meteorological theory. Emphasis on energy exchanges, atmospheric moisture, physical processes of atmospheric motion, air masses and fronts, and cyclogenesis

**GR 4753 Satellite and Radar Meteorology: 3 hours.**

(Prerequisite: GR 1603.) Three hours lecture. Study of the history, the operations, and the applications of satellites and radar in weather analysis. Theory of meteorological measurements in determinations of atmospheric structure

**GR 4783 Satellite Meteorology: 3 hours.**

(Prerequisites: GR 4733, GR 4643). Two hours lecture, two hours laboratory. Overview of remote sensing methods and techniques commonly used in satellite meteorology, focusing on physical mechanisms, atmospheric image analysis, and real-time weather applications

**GR 4813 Natural Hazards and Processes: 3 hours.**

(Prerequisites: GR 1114). Three hours lecture. A survey of natural phenomena in geology, oceanography and astronomy as applied to meteorology. Detailed study of earthquakes, volcanoes, ocean movements, and solar activity

**GR 4823 Dynamic Meteorology I: 3 hours.**

(Prerequisite: GR 4733/6733 and MA 1723). Three hours lecture. In-depth examination of theoretical methods for determining atmospheric stability and the tools necessary to interrogate the vertical profile of the atmosphere

**GR 4841 Observations of Severe Local Storms: 1 hour.**

One hour field experience. Real-world practice in forecasting, nowcasting observation, and reporting of severe storms in U.S. Great Plains

**GR 4842 Forecasting Severe Local Storms: 2 hours.**

One hour lecture and two hours lab. This course provides a theoretical overview and practical application of the severe local storms forecasting process

**GR 4843 Field Methods of Severe Local Storms: 3 hours.**

Two hours lecture. One hour field experience. Application of the latest synoptic and mesoscale severe weather forecasting methods concluding with field operations in the U.S. Great Plains

**GR 4863 Forensic Geoscience: 3 hours.**

(Prerequisite: GG 1113, GR 1114 or GR 1604). Three hours lecture. Multidisciplinary study using all branches of geoscience in investigating criminal offenses, reconstructing accidents and as evidence in civil and criminal court cases

**GR 4883 Radar Meteorology: 3 hours.**

(Prerequisite: GR 4733.) Two hours lecture. Two hours lab. Study of the history, the operation, and the application of radar in weather analysis. Theory and application of radar measurements in the determination of meteorological threats

**GR 4913 Thermodynamic Meteorology: 3 hours.**

(Prerequisite: GR 4733/6733 or GR 4713/6713). Three hours lecture. Examination of the meteorological stability within the earth's atmosphere. Focus on analysis of the various stability indices related to predicting severe weather

**GR 4923 Severe Weather: 3 hours.**

(Prerequisites: GR 4913/6913). Three hours lecture. Descriptive study of severe and unusual weather across the earth. Explanation of variations in severe weather in both spatial and temporal scales

**GR 4933 Dynamic Meteorology II: 3 hours.**

Three hours lecture. (Prerequisite GR 4823/6823 and MA 2733) Quantitative analysis and consideration of atmospheric circulation including jet streams, mid-latitude cyclones, vorticity and atmospheric kinetics

**GR 4943 Tropical Meteorology: 3 hours.**

(Prerequisite: GR 4733). Three hours lecture. Topics include the dynamics and circulation of the tropical atmosphere, characteristics of tropical cyclones, and forecasting methodologies for tropical weather

**GR 4963 Mesoscale Meteorology: 3 hours.**

(Prerequisite: GR 4733 or GR 4713). Three hours lecture. Descriptive and physical understanding of Mesoscale processes and their relevance to the synoptic environment. A strong focus will be placed upon Severe Local Storms

**GR 4990 Special Topics in Geography: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GR 6113 Meteorology I: Observations: 3 hours.**

Three hours lecture(online) Principles of meteorology with emphasis on elements, controls, and forecasting of atmospheric phenomena. Concentration on daily weather observation and the movement of weather systems. Primarily for K-12 teachers

**GR 6123 Urban Geography: 3 hours.**

Three hours lecture. Historic trends in distribution and growth of urban settlements, urban location theory; economic bases, functions, and structure of cities and metropolitan areas; urban problems; planning

**GR 6133 Political Ecology: Space, Nature, and Justice: 3 hours.**

Three hours lecture. This course provides an introduction to political ecology, an interdisciplinary approach to understanding human-environmental relations and the unequal causes and consequences of environmental change. Themes include the uneven ecological dynamics of development, resource extraction, and conservation, and the geographical dimensions of environmental justice and sustainability

**GR 6203 Geography of North America: 3 hours.**

Three hours lecture. A regional survey of the United States and Canada with emphasis upon place names, physical landscapes, historical settlement patterns, cultural regions, and environmental issues

**GR 6213 Geography of Latin America: 3 hours.**

Three hours lecture. A regional survey of Latin America with emphasis upon place names, physical environments, cultural landscapes and their evolution, and environmental issues

**GR 6223 Geography of Europe: 3 hours.**

Three hours lecture. A regional survey of Europe with emphasis upon placements, physical environments, cultural landscapes, geopolitical evolution, and environment issues

**GR 6233 Geography of Asia: 3 hours.**

Three hours lecture. A regional survey of Asia with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical conflicts, and environmental issues

**GR 6243 Geography of Russia and the Former Soviet Republics: 3 hours.**

Three hours lecture. A regional survey of the former Soviet Union republics with emphasis upon placenames, physical environments, ethnic diversity, geopolitical evolution, and environmental issues

**GR 6253 Geography of Africa: 3 hours.**

Three hours lecture. A regional survey of the African continent with emphasis upon placenames, physical geography, cultural diversity and cultural landscapes, geopolitical changes, and environmental issues

**GR 6263 Geography of the South: 3 hours.**

Three hours lecture. A regional survey of the South with emphasis upon physical and cultural landscapes, spatial processes, economic development, environmental issues, and racial justice

**GR 6283 Geography of Islamic World: 3 hours.**

A regional survey of Islamic countries of the world with emphasis upon physical landscapes, cultural landscapes and their evolution, geopolitical conflicts and environmental issues

**GR 6293 Caribbean Geography: 3 hours.**

Three hours lecture. A regional survey of the West Indies, including the Greater Antilles, Lesser Antilles, and the Bahamas with emphasis on the physical, historical, demographic, political, cultural, economic, and environmental geographies

**GR 6303 Principles of GIS: 3 hours.**

Two hours lecture and two hours laboratory. Spatial analysis and topological relationships of geographic data using Geographic Information Systems, with emphasis on GIS theory

**GR 6313 Advanced GIS: 3 hours.**

(Prerequisite: GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Vector-based file structure and GIS queries using spatial and geodatabases attributes. Descriptive and prescriptive modeling in the raster domain including regression and linear weighted modeling

**GR 6323 Cartographic Sciences: 3 hours.**

(Prerequisite: Junior or graduate standing or consent of instructor.) Two hours lecture. Two hours laboratory. Principles of cartographic theory and map design. Types of maps, map projections, proportional symbols, use of color, mapping and statistics, interactive maps, and map animation

**GR 6333 Remote Sensing of the Physical Environment: 3 hours.**

Two hours lecture. Two hours laboratory. Examines remote sensing methods applicable to large-area analyses of watershed-level drainage systems, urban landscape, landscape vegetation metrics, physical landscape structural components and atmospheric features

**GR 6343 Advanced Remote Sensing in Geosciences: 3 hours.**

(Prerequisite: Either GR 4333/6333, ECE 4423/6423, or FO 4452/6452). Two hours lecture. Two hours laboratory. Geospatial image analysis; Theoretical basis of radiative transfer in atmosphere and water column; Quantitative remote sensing techniques and geospatial product development

**GR 6353 Geodatabase Design: 3 hours.**

(Prerequisite: GR 4303/6303). Three hours lecture. Examination of Geodatabase structures. Integration of relational databases with Geographic Information Systems. Management of spatial data using geodatabases. Implementation of Geodatabase processes through spatial programming

**GR 6363 Geographic Information Systems Programming: 3 hours.**

(Prerequisite: Either GR 4303/6303 or consent of instructor). Two hours lecture. Two hours laboratory. Design and implementation of geoprocessing scripts. Incorporation of modeling languages within geographic information systems (GIS) analysis. Seamless integration of other software programs with GIS software

**GR 6411 Remote Sensing Seminar: 1 hour.**

(Prerequisite: Junior Standing). One hour lecture. Lectures by remote sensing experts from industry, academia, and governmental agencies on the next-generation systems, applications, and economic and societal impact of remote sensing. May be repeated for credit up to four credits. (Same as PSS 4411/6411, ECE 4411/6411, FO 4411/6411)

**GR 6423 Weather Forecasting I: 3 hours.**

(Prerequisites: GR 3011 and GR 4733/6733). Two hours lecture. Two hours laboratory. Introduction to the process of creating and disseminating weather forecasts. Use of current weather data in creating daily forecasts for the local area

**GR 6433 Weather Forecasting II: 3 hours.**

(Prerequisite: GR 4423/6423). Two hours lecture. Two hours laboratory. Continuation of Weather Forecasting I. Emphasis placed on disseminating both oral and written forecasts for the local area as well as forecasting unique regional weather

**GR 6443 Weather Prediction I: 3 hours.**

(Prerequisite: GR 4713). Three hours lecture. Weather analysis and forecasting. Emphasis on local, short-term forecasting techniques, including temperature forecasting, precipitation forecasting, and convective forecasting

**GR 6473 Numerical Weather Prediction: 3 hours.**

This course provides students with an overview of the theory, processes, developments and applications of existing numerical weather prediction platforms

**GR 6502 Practicum in Broadcast Meteorology I: 2 hours.**

(Prerequisite: GR 1603). One hour lecture. Two hours laboratory. Introduction to developing a weather story with emphasis on producing weather graphics for television, chroma key mechanics, and weathercast communication

**GR 6512 Practicum in Broadcast Meteorology II: 2 hours.**

(Prerequisite: GR 4502/6502). One hour lecture. Two hours laboratory. Continuation of Practicum in Broadcast Meteorology I with emphasis on weather graphics production, weathercast performance, image, and communication. Supported by lab practice

**GR 6522 Practicum in Broadcast Meteorology III: 2 hours.**

Prerequisite: GR 4512/6512. One hour lecture. Two hours laboratory. Emphasis on advanced weathercasting, including field reporting, severe weather, and building graphics. Students are assigned actual television weather shows, with performance emphasis in the lab

**GR 6532 Practicum in Broadcast Meteorology IV: 2 hours.**

(Prerequisite: GR 4522/6522). One hour lecture. Two hours laboratory. Emphasis on the weathercasting job market in television. Students create actual television weather shows, and focus on producing a resume tape during the semester

**GR 6553 Computer Methods in Meteorology: 3 hours.**

(Prerequisite: GR 1603). Two hours lecture, two hours lab. Overview of computational methods and techniques commonly used in operational meteorology, focusing on scientific visualization and analysis, and numerical weather prediction

**GR 6563 Aviation Meteorology: 3 hours.**

(Prerequisite: GR 1604). Three hours lecture. Overview of meteorological concepts important to the aviation community, including how relevant weather data are collected and disseminated and how atmospheric properties relate to the basic physics of flight and aircraft performance

**GR 6603 Climatology: 3 hours.**

(Prerequisite: GR 1114 or GR 1123). Three hours lecture. Study of the elements and controls of weather and climate, distribution and characteristics of climatic regions

**GR 6613 Applied Climatology: 3 hours.**

(Prerequisites: GR 1603) Two hours lecture. Two hours laboratory. Problem solving in today's world in topics such as bioclimatology, agricultural climatology and land use climatology

**GR 6623 Physical Meteorology: 3 hours.**

(Prerequisite: GR 1603). An investigation of cloud physics/precipitation processes and solar/terrestrial radiation, including atmospheric dynamics, atmospheric electricity, optics, and instrumentation

**GR 6633 Statistical Climatology: 3 hours.**

(Prerequisites: GR 1603 or GG 1113 and MA 1313 or MA 1713). Two hours lecture. Two hours laboratory. A survey of the types of statistical weather data available. Manipulation of the data on various temporal and spatial scales

**GR 6640 Meteorological Internship: 1-6 hours.**

Hours and credits to be arranged. Internship with television station, private company or government agency under supervision of instructor

**GR 6643 Physical Meteorology and Climatology I: 3 hours.**

(Prerequisite: GR 1604 and MA 1323). Three hours lecture. An investigation of the physical aspects of Earth's climate, including interactions between the atmosphere, hydrosphere, and land surface, and how they are affected by climate variability and change

**GR 6693 Physical Meteorology and Climatology II: 3 hours.**

(Prerequisite: MA 1713 and GR 4643). Three hours lecture. An investigation into important physical meteorology concepts, including introductory atmospheric thermodynamics, the planetary boundary layer, and cloud and moisture physics with an emphasis on meteorological theory and applications

**GR 6713 Synoptic Meteorology I: 3 hours.**

(Prerequisites: GR 1603 or equivalent.) Two hours lecture. Two hours laboratory. Fundamental principles behind weather forecasting. Physical processes in the atmosphere, atmospheric circulation systems, air mass analysis, frontogenesis and frontolysis

**GR 6733 Synoptic Meteorology: 3 hours.**

(Prerequisite: GR 1603 and MA 1713) Three hour lecture. Principles and derivation of meteorological theory. Emphasis on energy exchanges, atmospheric moisture, physical processes of atmospheric motion, air masses and fronts, and cyclogenesis

**GR 6753 Satellite and Radar Meteorology: 3 hours.**

(Prerequisite: GR 1603.) Three hours lecture. Study of the history, the operations, and the applications of satellites and radar in weather analysis. Theory of meteorological measurements in determinations of atmospheric structure

**GR 6783 Satellite Meteorology: 3 hours.**

(Prerequisites: GR 4733, GR 4643). Two hours lecture, two hours laboratory. Overview of remote sensing methods and techniques commonly used in satellite meteorology, focusing on physical mechanisms, atmospheric image analysis, and real-time weather applications

**GR 6813 Natural Hazards and Processes: 3 hours.**

(Prerequisites: GR 1114). Three hours lecture. A survey of natural phenomena in geology, oceanography and astronomy as applied to meteorology. Detailed study of earthquakes, volcanoes, ocean movements, and solar activity

**GR 6823 Dynamic Meteorology I: 3 hours.**

(Prerequisite: GR 4733/6733 and MA 1723). Three hours lecture. In-depth examination of theoretical methods for determining atmospheric stability and the tools necessary to interrogate the vertical profile of the atmosphere

**GR 6841 Observations of Severe Local Storms: 1 hour.**

One hour field experience. Real-world practice in forecasting, nowcasting observation, and reporting of severe storms in U.S. Great Plains

**GR 6842 Forecasting Severe Local Storms: 2 hours.**

One hour lecture and two hours lab. This course provides a theoretical overview and practical application of the severe local storms forecasting process

**GR 6843 Field Methods of Severe Local Storms: 3 hours.**

Two hours lecture. One hour field experience. Application of the latest synoptic and mesoscale severe weather forecasting methods concluding with field operations in the U.S. Great Plains

**GR 6863 Forensic Geoscience: 3 hours.**

(Prerequisite: GG 1113, GR 1114 or GR 1604). Three hours lecture. Multidisciplinary study using all branches of geoscience in investigating criminal offenses, reconstructing accidents and as evidence in civil and criminal court cases

**GR 6883 Radar Meteorology: 3 hours.**

(Prerequisite: GR 4733.) Two hours lecture. Two hours lab. Study of the history, the operation, and the application of radar in weather analysis. Theory and application of radar measurements in the determination of meteorological threats

**GR 6913 Thermodynamic Meteorology: 3 hours.**

(Prerequisite: GR 4733/6733 or GR 4713/6713). Three hours lecture. Examination of the meteorological stability within the earth's atmosphere. Focus on analysis of the various stability indices related to predicting severe weather

**GR 6923 Severe Weather: 3 hours.**

(Prerequisites: GR 4913/6913). Three hours lecture. Descriptive study of severe and unusual weather across the earth. Explanation of variations in severe weather in both spatial and temporal scales

**GR 6933 Dynamic Meteorology II: 3 hours.**

Three hours lecture. (Prerequisite GR 4823/6823 and MA 2733) Quantitative analysis and consideration of atmospheric circulation including jet streams, mid-latitude cyclones, vorticity and atmospheric kinetics

**GR 6943 Tropical Meteorology: 3 hours.**

(Prerequisite: GR 4733). Three hours lecture. Topics include the dynamics and circulation of the tropical atmosphere, characteristics of tropical cyclones, and forecasting methodologies for tropical weather

**GR 6963 Mesoscale Meteorology: 3 hours.**

(Prerequisite: GR 4733 or GR 4713). Three hours lecture. Descriptive and physical understanding of Mesoscale processes and their relevance to the synoptic environment. A strong focus will be placed upon Severe Local Storms

**GR 6990 Special Topics in Geography: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GR 7000 Directed Individual Study in Geography: 1-6 hours.**

Hours and credits to be arranged

**GR 8123 Meteorology II: Forecasting and Storms: 3 hours.**

(Prerequisite: GR 6113). Three hours lecture, video and online. Continuation of Meteorology I. Emphasis on the forecasting of daily weather events and on severe weather. Primarily for K-12 science teachers

**GR 8133 Foundations in Forecasting: 3 hours.**

Three hours lecture (online). Emphasis on daily weather forecasting at the synoptic and meso scales and introduction and investigation of advanced methods

**GR 8143 Advanced Forecasting Techniques: 3 hours.**

(Prerequisite: Consent of instructor), Three hours lecture. Regional and mesoscale forecasting topics and techniques, including coastal meteorology, mountain meteorology, fire weather, aviation meteorology and winter weather

**GR 8183 Culture, Place, and Space: 3 hours.**

Three hours lecture. This course investigates the relationship between culture, space, and place, introducing key ways social scientists approach these concerns. A central focus is the relationship between modes of social difference—particularly race, gender, and class—and cultural meaning in spatial power relations. (Same as AN 8183)

**GR 8191 Geoscience Review: 1 hour.**

(Prerequisites: 30 hours of GR/GG graduate work). One hour seminar. Conduit for interactions with faculty members to assist students in preparing for comprehensive assessment in distance learning degree programs

**GR 8303 Advanced Geodatabase Systems: 3 hours.**

(Prerequisite: GR 4353/6353). Two hours lecture. Two hours laboratory. Examination of database structures utilized in geospatial information systems. Design and use of geospatial databases through spatial programming in development and implementation of spatial models

**GR 8313 Advanced Human Geography: 3 hours.**

Three hours seminar. Advanced study and discussion of human geographic theories, concepts and methods

**GR 8333 Field Techniques in Remote Sensing: 3 hours.**

(Prerequisite: Either GR 4333/6333, ECE 4423/6423 or FO 4452/6452). Two hours lecture and two hours laboratory. Field spectroscopy or proximal sensing; experimental design and data collection using in situ sensors; data analysis, model calibration, and validation for quantifying biophysical parameters

**GR 8400 Field Methods in Geosciences: 1-3 hours.**

Hours and credits to be arranged. May be taken twice. Provides field experience in the geosciences through planned and supervised outdoor projects and field trips

**GR 8410 Field Methods Seminar: 3-4 hours.**

(3-4 hours, credits to be arranged). (Prerequisite: Consent of instructor). May be repeated for credit two times. A seminar providing synthesis of multiple Geoscience subtopics held in rotating field experience locations

**GR 8423 Virtual Field Methods Seminar: 3 hours.**

Three hours seminar. Synthesis of geoscience sub-topics through collection and dissemination of local field data and through planned and supervised virtual field trip experiences

**GR 8453 Quantitative Analysis in Climatology: 3 hours.**

Three hours lecture. Implementation of quantitative methods in climatology, including modeling, resampling methods and spatial techniques, emphasizing climate analysis software packages and data formats

**GR 8542 Geographic Literature: 2 hours.**

(Prerequisite: Major or minor in geography). A reading course with emphasis on library research

**GR 8553 Research Methods in Geoscience: 3 hours.**

Three hours seminar and forum. Defining research problems, formulating hypotheses, collecting data, using analytical techniques, substantiating conclusions for geoscience topics; written and oral presentations of research projects required

**GR 8563 GIS Research Applications: 3 hours.**

(Prerequisite: GR 6333, GR 6313 or ST 8114). Two hours lecture. Two hours laboratory. This course examines the research cycle from proposal to peer-reviewed publication via case studies in GIS with applications for medical epidemiology, wildfire, and emergency management

**GR 8573 Research in Applied Meteorology: 3 hours.**

Seminar. Discussion and application of current research in applied meteorology. Individual or small group projects with research presentations

**GR 8583 Environmental Geosciences Capstone Experience: 3 hours.**

(Prerequisite: GR 8553). Three hours lecture. Application and synthesis of geosciences theory towards a directed research project. This course is the capstone experience for students in the MS in Environmental Geosciences Non-Thesis concentration. This course should be taken near the end of the program

**GR 8613 Hydrometeorology: 3 hours.**

Three hours lecture-video and online. Hydrometeorological principles with an emphasis on flood forecasting

**GR 8633 Climate Change: 3 hours.**

Three hours lecture. In-depth examination of changes in earth's climate through time. Focus is placed on causes, measurement, implications and complexity of climate change

**GR 8813 Advanced Hazards and Disasters: 3 hours.**

Three hours lecture. Advanced study of the processes, distribution and impacts of hazards and disasters

**GR 8833 Weather and Society: 3 hours.**

Three hours lecture. Study of the role of weather in and on society through readings, discussion and research

**GR 8843 Advanced Mesoscale Meteorology: 3 hours.**

Three hours seminar. Readings, writings and discussion of topics related to the mesoscale atmospheric environment with a strong focus on severe local storms

**GR 8913 Philosophy and Ethics in Geosciences: 3 hours.**

Three hours seminar. Writing and discussion of topics related to the history and philosophy of science, professional and academic ethics, and epistemological issues related to the Geosciences

**GR 8990 Special Topics in Geography: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GR 9000 Research in Geography: 1-13 hours.**

Hours and credits to be arranged

## Graduate Studies Courses

**GRD 9011 Graduate Degree Completion: 1 hour.**

Designed for graduate students who completed all graduation requirements except thesis/dissertation Library submission deadlines for the previous semester. Registration serves to meet the university's continuous enrollment policy. Non-repeatable

**GRD 9300 International Dissertation Research: 1-13 hours.**

Dissertation research involving international travel. Hours and credits to be arranged

## Gender Studies Courses

**GS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members



**GS 1173 Introduction to Gender Studies: 3 hours.**

Three hours lecture. An introduction to theoretical concepts in Gender Studies. This course will examine the influence of the women's movement on the academic development of Gender Studies. (Same as SO 1173 and AN 1173)

**GS 1303 Introduction to Social Justice Studies: 3 hours.**

Three hours lecture. Introductory examination of contemporary justice realities to understand the dynamics of oppression; linking competing theories of social justice to hierarchies grounded in race, ethnicity, nationality, gender, class, and sexuality, and to particular strategies for social transformation and change. (Same as SO 1303 and SJ 1303)

**GS 2990 Special Topic In GS: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GS 3343 Gender, Crime, and Justice: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Gender differences in criminal behavior, victimization, and criminal justice processing, emphasizing the unique experiences of women in all of these areas. (Same as CRM 3343 and SO 3343)

**GS 3513 Women and Literature: Selected Topics: 3 hours.**

(Prerequisites: Completion of EN 1103). Three hours lecture. A study of literary works by or about women. Texts are selected according to theme, genre, and/or historical period. (Same as EN 3513)

**GS 3713 History of African American Women: 3 hours.**

Three hours lecture. Examination of black women from their African origins to the present; emphasizes the social, economic and political engagement of women in American society, including reform movements, family life, business, and the arts. (Same as HI 3713/AAS 3713)

**GS 4000 Directed Individual Study in Gender Studies: 1-6 hours.**

Hours and credits to be arranged

**GS 4133 Feminist Theories: 3 hours.**

(Prerequisite: SO/GS/AN 1173 or consent of instructor). Three hours lecture. Analysis and application of classical and contemporary feminist theories, exploring the intersections of gender with race, ethnicity, socioeconomic status, sexuality, culture, social institutions, and various social contexts. (Same as SO 4133/6133: Feminist Theories and EN 4133/6133: Feminist Theories)

**GS 4143 Gender, Race, and Social Movements: 3 hours.**

Three hours lecture. This course examines theories and research on social movements, gender and race in the United States. (Same as SO 4143/6143 and AAS 4143/6143)

**GS 4233 Gender and Media: 3 hours.**

(Prerequisite: CO 1403 or GS 1173). A critical exploration of discourses of gender and its intersections with sexuality, race, and class as represented in popular forms of media. (Same as CO 4233/6233)

**GS 4263 Gender Communication: 3 hours.**

(Prerequisite: CO 1223 or GS 1173). Three hours lecture. An investigation of the ways in which communication impacts the construction, performance, evaluation, and negotiation of gender. (Same as CO 4263/6263)

**GS 4403 Gender and Sport: 3 hours.**

Three hours lecture. An exploration of how ideologies and inequalities related to gender may be constructed, perpetuated, and/or challenged in and through sport. (Same as SS 4403/6403)

**GS 4413 Sociology of Gender and Sexuality: 3 hours.**

(Prerequisites: SO 1003, or approval of instructor). Three hours lecture. Changing character of gender and sexuality and significance in various social institutions. Intersection between gender, sexuality and other forms of inequality. (Same as SO 4403/6403 Sociology of Gender and Sexuality)

**GS 4503 Gender and Work: 3 hours.**

Three hours lectures. This course presents research and theories on the role of gender in shaping labor market opportunities, experiences, and rewards; remedies for enduring problems, including those applied in the United States' workplace and abroad; and new research directions. (Same as SO 4503/6503 Gender and Work)

**GS 4543 Gender and Food: 3 hours.**

Three hours seminar. A service-learning course exploring the intersections between social inequalities, food and culture, with an emphasis on communities. Overview of historic and contemporary approaches to food system and inequalities. (Same as SO 4543: Gender and Food and SW 4543: Gender and Food)

**GS 4990 Special Topics in Gender Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GS 6133 Feminist Theories: 3 hours.**

(Prerequisite: SO/GS/AN 1173 or consent of instructor). Three hours lecture. Analysis and application of classical and contemporary feminist theories, exploring the intersections of gender with race, ethnicity, socioeconomic status, sexuality, culture, social institutions, and various social contexts. (Same as SO 4133/6133: Feminist Theories and EN 4133/6133: Feminist Theories)

**GS 6143 Gender, Race and Social Movements: 3 hours.**

Three hours lecture. This course examines theories and research on social movements, gender and race in the United States. (Same as SO 4143/6143 and AAS 4143/6143)

**GS 6233 Gender and Media: 3 hours.**

(Prerequisite: CO 1403 or GS 1173). A critical exploration of discourses of gender and its intersections with sexuality, race, and class as represented in popular forms of media. (Same as CO 4233/6233)

**GS 6263 Gender Communication: 3 hours.**

(Prerequisite: CO 1223 or GS 1173). Three hours lecture. An investigation of the ways in which communication impacts the construction, performance, evaluation, and negotiation of gender. (Same as CO 4263/6263)

**GS 6403 Gender and Sport: 3 hours.**

Three hours lecture. An exploration of how ideologies and inequalities related to gender may be constructed, perpetuated, and/or challenged in and through sport. (Same as SS 4403/6403)

**GS 6413 Sociology of Gender and Sexuality: 3 hours.**

(Prerequisites: SO 1003, or approval of instructor). Three hours lecture. Changing character of gender and sexuality and significance in various social institutions. Intersection between gender, sexuality and other forms of inequality. (Same as SO 4403/6403 Sociology of Gender and Sexuality)

**GS 6503 Gender and Work: 3 hours.**

Three hours lectures. This course presents research and theories on the role of gender in shaping labor market opportunities, experiences, and rewards; remedies for enduring problems, including those applied in the United States' workplace and abroad; and new research directions. (Same as SO 4503/6503 Gender and Work)

**GS 6990 Special Topics in Gender Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**GS 7000 Directed Individual Study in Gender Studies: 1-6 hours.**

Hours and credits to be arranged

**GS 8963 Exploring Issues in Gender: 3 hours.**

(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program). Three hours lecture. An intensive introduction to theories of gender structures social, economic and cultural inequalities. Designed for online Diversity Certificate Program students. (Same as SO 8963 )

**GS 8973 Gender and Work: 3 hours.**

(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program). Three hours lecture. An intensive examination of how gender impacts experiences of work from the home to the corporation. Designed for online Diversity Certificate Program Students. (Same as SO 8973)

**GS 8990 Special Topic In GS: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Healthcare Administration Courses

**HCA 3103 Health Information Systems: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. A survey of the components, functions, and processes of Information Systems and applications in healthcare organizations

**HCA 3113 Managing Healthcare Organizations: 3 hours.**

(Prerequisites: junior standing or permission of the instructor). Three hours lecture. Management principles for large and small healthcare organizations including the fundamental principles of planning, organizing, and leading

**HCA 3123 Healthcare Economics: 3 hours.**

(Prerequisites: EC 2123). Three hours lecture. The United States healthcare system and healthcare organization management from an applied economics perspective; topics include costs, profit maximization, pricing, market structure, and government intervention

**HCA 3133 Healthcare Logistics & Supply Chain Management: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. A general survey of the key concepts of healthcare logistics and supply chain management including purchasing, operations, inventory management, demand forecasting, and performance analysis

**HCA 3203 Healthcare Marketing: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. This course explores the principles of marketing and their application in healthcare. Students will learn the essential elements of marketing strategies, including the marketing environment, customer behavior, STP, and the four Ps and their roles in healthcare industries

**HCA 3313 Introduction to the U.S. Healthcare System: 3 hours.**

Three hours lecture. This course explores the US healthcare system. Students examine access, quality and cost, public health, managed care, patient services, and mental healthcare. They examine the role of healthcare professionals and providers. Students will look at how US healthcare compares to other countries

**HCA 3513 Human Resource Management in Healthcare: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. Development of efficient programs for managing human resources in large and small healthcare settings. Emphasizes ethics, equal employment opportunity, performance evaluation, recruitment, selection, education, training, labor relations, resources and capabilities, safety, and health

**HCA 3813 Introduction to Healthcare Law and Regulation: 3 hours.**

Three hours lecture. Overview of health law in the U.S. Covers major laws and regulations that apply to healthcare, the most regulated section of our economy. Students will learn that health law is overlapping layers of federal, state, and local jurisdiction

**HCA 4000 Directed Individual Study in Healthcare Administration: 1-6 hours.**

Hours and credits to be arranged

**HCA 4013 Ethical Issues in Healthcare: 3 hours.**

(Prerequisite: Junior-Standing: N/A; Graduate-standing: MGT 3113 or Consent of Instructor). Three hours lecture. Managerial approaches into the ethical basis of patient care exploring the legal, theistic, cost-benefit, and humanist perspectives used to set corporate policy. (Meridian Campus)

**HCA 4103 Quality Management & Process Improvement in Healthcare: 3 hours.**

(Prerequisite: BQA 2113 or ST 2113 or equivalent). Three hours lecture. Concepts of monitoring and evaluating the quality and appropriateness of patient care and services provided in health care organizations; management tools and modeling techniques for improvement of clinical processes and decision-making

**HCA 4123 Introduction to Health Informatics: 3 hours.**

(Prerequisite: HCA 3103 or equivalent). Three hours lecture. Overview of health informatics and health data analytics; hands-on experience in analytical techniques, modeling, and software using healthcare data

**HCA 4243 Managed Care: 3 hours.**

(Prerequisite: for both HCA 4243 and 6243: MGT 3113 or Consent of Instructor). Three hours lecture. An examination of the healthcare as a progressive system of primary care to long term care. Emphasis on managing costs-best choice services for the patient. (Meridian Campus)

**HCA 4303 Financial Management for Healthcare: 3 hours.**

(Prerequisites: FIN 3123). Three hours lecture. Concepts including budgeting, revenue cycle, cash management, investing, and risk are applied to the financial management of healthcare organizations

**HCA 4404 Strategic Management for Healthcare: 4 hours.**

(Prerequisite: Graduating senior and HCA 3313 and HCA 3123 and HCA 3113 and HCA 4303). Four hours lecture. Administrative process under conditions of uncertainty in large and small healthcare organizations. Emphasis in integrating knowledge acquired in the functional areas of healthcare administration in formulating administrative policies

**HCA 4443 Healthcare Internship: 3 hours.**

(Prerequisite: HCA 3313 and HCA 3813). Internship. A supervised work experience with health care provider. Student will provide a written report to the assigned faculty member at completion of internship

**HCA 4803 Healthcare Policy: 3 hours.**

(Prerequisite: for both HCA 4803 and 6803: HCA 3813 or Consent of Instructor). Three hours lecture. A detailed study of the health care industry using an analysis of the internal resources and external environmental policies utilized by health care providers. (Meridian Campus)

**HCA 4990 Special Topics in Healthcare Administration: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HCA 6013 Ethical Issues in Healthcare: 3 hours.**

(Prerequisite: Junior-Standing: N/A; Graduate-standing: MGT 3113 or Consent of Instructor). Three hours lecture. Managerial approaches into the ethical basis of patient care exploring the legal, theistic, cost-benefit, and humanist perspectives used to set corporate policy. (Meridian Campus)

**HCA 6243 Managed Care: 3 hours.**

(Prerequisite: for both HCA 4243 and 6243: MGT 3113 or Consent of Instructor). Three hours lecture. An examination of the healthcare as a progressive system of primary care to long term care. Emphasis on managing costs-best choice services for the patient. (Meridian Campus)

**HCA 6803 Healthcare Policy: 3 hours.**

(Prerequisite: for both HCA 4803 and 6803: HCA 3813 or Consent of Instructor). Three hours lecture. A detailed study of the health care industry using an analysis of the internal resources and external environmental policies utilized by health care providers. (Meridian Campus)

**HCA 6990 Special Topics in Health Care Administration: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Human Development Family Sci Courses

**HDFS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**HDFS 1813 Individual and Family Development through the Lifespan: 3 hours.**

Three hours lecture. Introduction to individual and family development through the lifespan, conception to death, focusing on social and emotional development, contextual influences on development, and application

**HDFS 2023 Trauma Informed Practice: 3 hours.**

Three hours lecture. This course prepares students to recognize signs of trauma and apply trauma-informed practices when working with children and families. The course is designed for students majoring in HDFS, psychology, and other disciplines where knowledge of the impact of trauma on children and families is pertinent

**HDFS 2123 Perspectives on Child Maltreatment and Child Advocacy: 3 hours.**

Three hours lecture. This course is the introductory course for child advocacy studies. This course covers the history, comparative perspectives, legal framework, reporting, identification and effects of child maltreatment and professional/community responses to child maltreatment

**HDFS 2803 Prenatal and Infant Development: 3 hours.**

Two hours lecture. Two hours laboratory. Biological and environmental influences; behavioral and developmental patterns, from the onset of pregnancy to toddlerhood

**HDFS 2813 Child Development: 3 hours.**

(Prerequisite: HDFS 1813 or consent of instructor). Two hours lecture. Two hours laboratory. Developmental characteristics of children with emphasis on the early years; implications for care and guidance

**HDFS 2990 Special Topics in Human Development and Family Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HDFS 3000 Field Experience: 1-6 hours.**

(Prerequisite: Consent of Instructor). Supervised field experience for Human Development and Family Science students in approved settings; pre-internship learning experience

**HDFS 3123 Global Child Advocacy Issues: 3 hours.**

Three hours lecture. Exploration of global child advocacy issues and the multidisciplinary cultural approaches used to address them

**HDFS 3303 Consumer Economics: 3 hours.**

Three hours lecture. Economic principles as they apply to consumer situations, and the consumer's relation to the American and world economy

**HDFS 3803 Creativity & Play in Young Children: 3 hours.**

Prerequisite: HDFS 2813. Two hours lecture. Two hours laboratory. Selection of appropriate equipment, materials, and activities; program planning for birth to age 5; observation and participation at the Child Development and Family Studies Center

**HDFS 3813 Lifespan Theory: 3 hours.**

(Prerequisites: HDFS 2813 or HDFS 1813). Three hours lecture. An intensified exploration of human development theory, research and methodology used in the study of individuals across the lifespan

**HDFS 3823 Methods & Materials for Early Care and Education Programs: 3 hours.**

(Prerequisites: HDFS 2813, HDFS 3803 and junior standing.) Two hours lecture. Two hours laboratory. Designing curriculum and programming for children birth to 5 years of age with emphasis on children's developmental characteristics as related to appropriate learning experiences

**HDFS 3833 Human Development in the Context of Leisure and Recreation: 3 hours.**

(Prerequisite: HDFS 1813). Three hours lecture. Introduces historical, theoretical, and empirical content focused on leisure and recreation as a context for human development across the lifespan

**HDFS 3843 Guiding Young Children's Behavior & Social Development: 3 hours.**

(Prerequisites: HDFS 2803 and HDFS 2813). Three hours lecture. Examine and design appropriate guidance techniques based on developmental growth patterns and individual differences in young children from birth to 5 years old

**HDFS 3853 Language and Literacy in the Early Years: 3 hours.**

Three hours lecture. Children's development of language and literacy through the early years, including roles of parents, community, childcare providers, and teachers

**HDFS 4000 Directed Individual Study in Human Development and Family Science: 1-6 hours.**

Hours and credits to be arranged

**HDFS 4313 Family Resource Management: 3 hours.**

Three hours lecture. Decision-making in the family and operation of the household as affected by family values, philosophies, resources, and socio-economic conditions

**HDFS 4333 Families, Legislation and Public Policy: 3 hours.**

(Prerequisite: Junior/senior writing or consent of instructor). Three hours lecture. An examination of the impact of legislation and public policy on the well being of the family with emphasis on policy and family change

**HDFS 4403 Introduction to Gerontology: 3 hours.**

Three hours lecture. An introduction to the dynamics of the aging process and strategies for maximizing life satisfaction during aging

**HDFS 4424 Teaching Methods in Agricultural and Human Sciences: 4 hours.**

(Prerequisite: College of Ag and Life Science major and junior standing). Three hours lecture. Two hours laboratory. Planning instruction; selection teaching techniques; developing teaching plans; teaching agricultural/human science topics; using instructional technologies; and evaluating learner progress (Same as AELC/FDM/HDFS 4424/6424)

**HDFS 4462 Curriculum in FCS Education: 2 hours.**

(Prerequisites: Senior standing and admission to teacher education). Two hours lecture. Basis for curriculum planning; exemplar curriculums; and customizing curriculums

**HDFS 4624 Family Life Education Methodology: 4 hours.**

(Prerequisite: HDFS major and junior standing). Three hours lecture. Two hours laboratory. Principles and practices of effective family life education programming. Identifying needs of diverse populations, designing educational programs and materials, teaching human development and family science content, facilitating group processes, and evaluating learner and program outcomes

**HDFS 4701 Internship Preparation: 1 hour.**

(Prerequisite: Junior standing and consent of instructor). One hour lecture. Preparation for an internship in a chosen specialization

**HDFS 4740 PreK-K Teacher Candidacy Internship: 12 hours.**

(Prerequisite: Senior standing and consent of instructor). Individual work experience in an approved preschool/PreK-K setting under supervision of Mississippi State University faculty

**HDFS 4760 Child Development Internship: 12 hours.**

(Prerequisite: Successful completion of all academic coursework and consent of instructor.) Individual work experience in an approved child development setting under supervision of Mississippi State University faculty

**HDFS 4770 Child Life Internship: 12 hours.**

(Prerequisite: Successful completion of all academic coursework and consent of instructor). Individual work experience in an approved child life setting under supervision of Mississippi State University faculty

**HDFS 4780 Youth Development Internship: 12 hours.**

(Prerequisite: Successful completion of all academic coursework and consent of instructor.) Individual work experience in an approved youth development setting under supervision of Mississippi State University faculty

**HDFS 4790 Family Science Internship: 12 hours.**

(Prerequisite: Successful completion of all academic coursework and consent of instructor.) Individual work experience in an approved family services setting under supervision of Mississippi State University faculty

**HDFS 4802 Grief and Bereavement: Support Systems and Practices for Children and Families: 2 hours.**

Two hours lecture. An introduction to current issues, theory, and research related to grief, loss, and bereavement as it impacts children, adolescents, and their families

**HDFS 4803 Parenting: 3 hours.**

(Prerequisite: HDFS 1813 and junior/senior writing, or consent of instructor). Three hours lecture. Study of the child as a part of the family in a dynamic human ecological system

**HDFS 4813 Adult Development: The Middle Years: 3 hours.**

Three hours lecture. Theory and perspectives on adulthood in contemporary society, adjustment to internal and environmental changes, role structures, supportive networks and public policy issues

**HDFS 4823 Development and Administration of Child Service Programs: 3 hours.**

(Prerequisite: HDFS 3813 or concurrent enrollment). Three hours lecture. Planning, administering, and evaluating the organizational structure of a variety of child service programs

**HDFS 4831 Child Life Foundations: 1 hour.**

(Prerequisites: HDFS 2813, junior standing and permission of instructor). One hour lecture. Foundations and history of child life practice including impact of illness on child and family, elements of therapeutic play and medical preparation

**HDFS 4832 Child Life Clinical: 2 hours.**

(Prerequisites: HDFS 2813, HDFS 4833, junior standing and permission of the instructor). Four hours laboratory. This course provides the student with a child life practicum experience in a pediatric health care facility

**HDFS 4833 The Hospitalized Child: 3 hours.**

(Prerequisites: HDFS 3803 and HDFS 3813 or concurrent enrollment, junior standing or permission of the instructor). Three hours lecture. A pre-practicum development approach to the special needs of the hospitalized infant, child and adolescent

**HDFS 4843 Family Interaction: 3 hours.**

Three hours lecture. Interaction within functional families; focus on the family as a system, on diversity and roles, and on effective interactions

**HDFS 4853 The Family: A Human Ecological Perspective: 3 hours.**

Three hours lecture. The impact of internal and external factors on the development of individual and family relationships throughout the life cycle

**HDFS 4863 Consumer Aspects of Aging: 3 hours.**

Three hours lecture. Analysis of the decisions, issues and research related to the consumer aspects of aging from a global and national perspective

**HDFS 4873 Positive Youth Development: 3 hours.**

(Prerequisite: HDFS 1813 and junior/senior writing class or consent of instructor). Three hours lecture. Examines theoretical and empirical foundations of the growing field of Positive Youth Development; examines school and community-based programs that foster PYD

**HDFS 4883 Risk, Resilience and Preventive Interventions: 3 hours.**

(Prerequisite: HDFS 1813 and junior/senior writing; or consent of instructor). Three hours lecture. Theory and research relevant to understanding risk and resilience in human development and family studies application of risk/resilience framework to individual and family preventive interventions

**HDFS 4886 Teaching Internship in FCS Education: 6 hours.**

(Prerequisites: Admissions to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a grade of C or better). Supervised observation and directed teaching in respective field of endorsement

**HDFS 4893 Adolescent Development: 3 hours.**

(Prerequisite: Junior/Senior/Graduate student status; or consent of instructor). Theory and research relevant to understanding the developmental processes and changes of adolescence from a contextual and systemic perspective

**HDFS 4896 Teaching Internship in FCS Education: 6 hours.**

(Prerequisites: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a grade of C or better). Supervised observation and directed teaching in respective field of endorsement

**HDFS 4990 Special Topics in Human Development and Family Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HDFS 6313 Family Resource Management: 3 hours.**

Three hours lecture. Decision-making in the family and operation of the household as affected by family values, philosophies, resources, and socio-economic conditions

**HDFS 6333 Families, Legislation and Public Policy: 3 hours.**

(Prerequisite: Junior/senior writing or consent of instructor). Three hours lecture. An examination of the impact of legislation and public policy on the well being of the family with emphasis on policy and family change

**HDFS 6403 Introduction to Gerontology: 3 hours.**

Three hours lecture. An introduction to the dynamics of the aging process and strategies for maximizing life satisfaction during aging

**HDFS 6424 Teaching Methods in Agricultural and Human Sciences: 4 hours.**

(Prerequisite: College of Ag and Life Science major and junior standing). Three hours lecture. Two hours laboratory. Planning instruction; selection teaching techniques; developing teaching plans; teaching agricultural/human science topics; using instructional technologies; and evaluating learner progress (Same as AELC/FDM/HDFS 4424/6424)

**HDFS 6624 Family Life Education Methodology: 4 hours.**

(Prerequisite: HDFS major and junior standing). Three hours lecture. Two hours laboratory. Principles and practices of effective family life education programming. Identifying needs of diverse populations, designing educational programs and materials, teaching human development and family science content, facilitating group processes, and evaluating learner and program outcomes

**HDFS 6802 Grief and Bereavement: Support Systems and Practices for Children and Families: 2 hours.**

Two hours lecture. An introduction to current issues, theory, and research related to grief, loss, and bereavement as it impacts children, adolescents, and their families

**HDFS 6803 Parenting: 3 hours.**

(Prerequisite: HDFS 1813 and junior/senior writing, or consent of instructor). Three hours lecture. Study of the child as a part of the family in a dynamic human ecological system

**HDFS 6813 Adult Development: The Middle Years: 3 hours.**

Three hours lecture. Theory and perspectives on adulthood in contemporary society, adjustment to internal and environmental changes, role structures, supportive networks and public policy issues

**HDFS 6823 Development and Administration of Child Service Programs: 3 hours.**

(Prerequisite: HDFS 3813 or concurrent enrollment). Three hours lecture. Planning, administering, and evaluating the organizational structure of a variety of child service programs

**HDFS 6833 The Hospitalized Child: 3 hours.**

(Prerequisites: HDFS 3803 and HDFS 3813 or concurrent enrollment, junior standing or permission of the instructor). Three hours lecture. A pre-practicum development approach to the special needs of the hospitalized infant, child and adolescent

**HDFS 6843 Family Interaction: 3 hours.**

Three hours lecture. Interaction within functional families; focus on the family as a system, on diversity and roles, and on effective interactions

**HDFS 6853 The Family: A Human Ecological Perspective: 3 hours.**

Three hours lecture. The impact of internal and external factors on the development of individual and family relationships throughout the life cycle

**HDFS 6863 Consumer Aspects of Aging: 3 hours.**

Three hours lecture. Analysis of the decisions, issues and research related to the consumer aspects of aging from a global and national perspective

**HDFS 6873 Positive Youth Development: 3 hours.**

(Prerequisite: HDFS 1813 and junior/senior writing class or consent of instructor). Three hours lecture. Examines theoretical and empirical foundations of the growing field of Positive Youth Development; examines school and community-based programs that foster PYD

**HDFS 6883 Risk, Resilience and Preventive Interventions: 3 hours.**

(Prerequisite: HDFS 1813 and junior/senior writing; or consent of instructor). Three hours lecture. Theory and research relevant to understanding risk and resilience in human development and family studies application of risk/resilience framework to individual and family preventive interventions

**HDFS 6893 Adolescent Development: 3 hours.**

(Prerequisite: Junior/Senior/Graduate student status; or consent of instructor). Theory and research relevant to understanding the developmental processes and changes of adolescence from a contextual and systemic perspective

**HDFS 6990 Special Topics in Human Development and Family Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HDFS 7000 Directed Individual Study in Human Development and Family Science: 1-6 hours.**

Hours and credits to be arranged

**HDFS 8113 Trends in Infant and Child Development: 3 hours.**

Three hours lecture. Overview of current research in infant and child development; implications for program development and advocacy

**HDFS 8123 The Effects of Poverty on Children and Families: 3 hours.**

Three hours lecture. Exploration of the impact of poverty on children and families, identification of risk/protective factors, and development of family and child interventions to reduce risk

**HDFS 8313 Contemporary Youth Issues: 3 hours.**

Three hours lecture. Current topics in the areas of youth studies and adolescent development

**HDFS 8413 Issues in Family Science: 3 hours.**

Three hours lecture. Extensive examination of current theoretical and research scholarship in critical topics of interest in the study of families

**HDFS 8423 Development of Intimate Relationships: 3 hours.**

Three hours lecture. A multidisciplinary investigation of how intimate relationships in contemporary U.S. society form, develop, maintain, and dissolve

**HDFS 8503 Medical Aspects of Developmental Disabilities in Young Children: 3 hours.**

Three hours lecture. The course provides the early intervention professional with information on health care issues, diagnostic testing, and medical conditions relevant to infants and young children with disabilities

**HDFS 8513 Inclusion and Family-Centered Early Intervention: 3 hours.**

Three hours lecture. The course will focus on the knowledge and skills needed to work effectively with very young children (birth to 5 years), and their families in inclusive and natural environments. Students will explore issues related to the impact that disability has on development

**HDFS 8523 Assessment Practices in Early Intervention: 3 hours.**

Three hours lecture. Assessment as it relates specifically to working with infants, toddlers and preschool children and their families. Topics to be covered will include Special Education Law, IFSP/IEP development, and related topics

**HDFS 8533 Instructional Strategies and Practice for Early Intervention: 3 hours.**

Three hours lecture. This course is designed to create a framework for the effective application of instructional strategies in early intervention. Instructional design and strategies will be illustrated through hands-on activities. Course content is linked to developmental learning theories and evidence-based teaching practices

**HDFS 8543 Practicum I: 3 hours.**

Prerequisite(s): Must be enrolled as a graduate student in the MS in Early Intervention program and have a 3.00 GPA to be eligible for this course. Three hours practicum. University-supervised student teaching experience in an IDEA-Part C home visiting/intervention program

**HDFS 8553 Practicum II: 3 hours.**

Prerequisite(s): Must be enrolled as a graduate student in the MS in Early Intervention and have a 3.00 GPA to be eligible for this course. Three hours practicum. Student teaching experience in inclusive preschool programs for children with disabilities under the direction of a cooperating teacher

**HDFS 8813 Seminar in Human Development and Family Science: 3 hours.**

Three hours lecture. An introduction to the graduate program, faculty research, and policies and procedures. Skills in writing a literature review, grant writing, and giving professional presentations will be learned

**HDFS 8823 Advanced Theories of Human Development and Family Relations: 3 hours.**

Three hours lecture. Advanced study of theories of human development and family studies across the lifespan

**HDFS 8833 Foundations of Human Development and Family Studies: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Examination of the philosophical and theoretical foundations of Human Development and Family Studies

**HDFS 8853 Current Issues in Human Development and Family Science: 3 hours.**

Three hours lecture. An in-depth examination of particular HDFS topics of current interest to faculty and students. Critical evaluation of current research

**HDFS 8990 Special Topics in Human Development and Family Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HDFS 9000 Research in Human Development and Family Sciences: 1-13 hours.**

Hours and credits to be arranged

**Higher Education Courses****HED 4990 Special Topic In HED: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HED 6990 Special Topic In HED: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HED 7000 Directed Individual Study in Higher Education: 1-6 hours.**

Hours and credits to be arranged

**HED 8010 Practicum: 3-6 hours.**

(Prerequisite: Approval of SAHE advisor). Three or six hours supervised field experience and seminar in Student Affairs/Higher Education administration. (Repeatable for up to 6 total credits)

**HED 8013 College Student Wellness & Student Affairs Practice: 3 hours.**

Three hours lecture. Overview of the wellness dimensions affecting contemporary college students, how wellness issues are encountered by student affairs practitioners in the field, and strategies for mitigating wellness-related risk in non-clinical helping roles

**HED 8023 Helping & Intervention Skills in Student Affairs & Higher Education: 3 hours.**

Three hours lecture. Overview and application of counseling-informed helping techniques for non-licensed helping professionals in student affairs, including student intervention & referral, motivational interviewing, conflict management, and de-escalation

**HED 8113 Administrative Leadership in Student Affairs & Higher Education: 3 hours.**

Three hours lecture. A leadership-focused capstone course applying theory to student affairs practice in the context of higher education organizations

**HED 8123 Organization and Governance in Higher Education: 3 hours.**

Three hours lecture. Conceptual and theoretical understandings of organization and governance, along with the context, structure, and operations associated with higher education institutions

**HED 8133 Curriculum and Instruction in Higher Education: 3 hours.**

Three hours lecture. A study of teaching methods and techniques, development of course content and instructional aids, and evaluation of student performance in the college and university setting

**HED 8143 U/Cc Seminar: 3 hours.**

Three hours lecture. An in-depth analysis of current problems, strengths and issues confronting community college and university administrators and faculty

**HED 8223 Seminar in Administration: 3 hours.**

(Prerequisite: Administrative experience or graduate standing). Three hours lecture. Specialized study of selected problems in educational leadership. (Same as EDA 8223)

**HED 8283 Educational Leadership: 3 hours.**

Three hours lecture. Nature of educational leadership. The roles of leadership in staff and program development, diffusion of innovations, and the uses of power in making educational decisions. (Same as EDA 8283)

**HED 8353 Applications of Theory to Educational Administration: 3 hours.**

Three hours lecture. The nature of theory; types of educational administrative theories; uses of organizational and administrative theory in problem solving; applications of general systems theory. (Same as EDA 8353)

**HED 8383 Ethical Decision Making in Educational Administration: 3 hours.**

(Prerequisite: HED 8283). Three hours lecture. Case studies are used to analyze educational decisions. Multiple decision models and ethical concepts are applied to problems and moral dilemmas. (Same as EDA 8383)

**HED 8473 Introduction to Research in Educational Leadership: 3 hours.**

(Prerequisites: HED 8613, or permission of the instructor). Three hours lecture. An introduction to educational research design and methods, including quantitative, qualitative, and mixed methods approaches, with particular attention to applications in educational leadership contexts

**HED 8523 Student Development Theory: 3 hours.**

Three hours lecture. Overview of theories of student development in higher education

**HED 8543 Legal Issues in Student Affairs: 3 hours.**

Three hours lecture. Legal and ethical issues related to the student experience and the field of Student Affairs in American higher education

**HED 8553 Student Affairs in Higher Education: 3 hours.**

Three hours lecture. Overview of the student affairs profession in higher education. Emphasis on history, philosophical foundations, organization, and the role of functional areas within student affairs divisions

**HED 8563 Assessment Strategy in Student Affairs & Higher Education: 3 hours.**

Three hours lecture. Introduces the methods and tools used in Student Affairs and higher education to design program assessment plans and strategies; provides opportunities to implement the use of these tools in specific Student Affairs settings

**HED 8573 Applied Assessment in Student Affairs & Higher Education: 3 hours.**

(Prerequisite: HED 8563 or approval of instructor). Three hours lecture. Advanced methods for assessment in Student Affairs and Higher Education with a particular focus on basic statistical principles and implementing data collection, analysis, and reporting procedures

**HED 8583 Administrative Competency in Student Affairs & Higher Education: Budgets & Supervision: 3 hours.**

Three hour lecture. Examines the theory and application of budgeting and supervision practices in Student Affairs and Higher Education settings, with a particular focus on college students and college student organizations

**HED 8593 Administrative Competency in Student Affairs & Higher Education: Technology, Communication, & Crisis: 3 hours.**

Three hour lecture. Examines the theory and application of technology, communication, and crisis response practices in Student Affairs and Higher Education settings, with a particular focus on college students and college student environments

**HED 8613 Academic Scholarship in Higher Education: 3 hours.**

Three hours lecture. Introduces students to scholarly research, writing, and theoretical traditions in the academic fields of higher education through extensive reading and critique of literature

**HED 8623 Diversity, Globalization and the College Student: 3 hours.**

Three hours lecture. History and theory of social identity within the context of higher education, and exploration of the student experience from the perspective of diverse identity groups, and the relationship of social identity to college student success

**HED 8633 History of American Higher Education: 3 hours.**

Three hours lecture. A study of the evolution of higher education in the United States. Focus is on its origin and trends along with the social, political, cultural, and economic contexts of institutions and their distinctive features

**HED 8643 Advanced Legal Principles in Higher Education: 3 hours.**

Three hours lecture. A study of the law as it affects administrators, employees, faculty, and students in higher education

**HED 8653 Finance and Higher Education: 3 hours.**

Three hours lecture. A study of financial policies, allocation, planning, and budgeting in higher education institutions with emphasis placed on financial analysis and management, patterns of expenditure, sources of revenue, expenditures, and grant writing

**HED 8673 Planning and Institutional Research in Higher Education: 3 hours.**

Three hours lecture. An overview of planning models and approaches, effective reporting techniques, and common functions carried out by institutional research offices. Focus is on concepts, methodologies, research practices, and information systems that support institutional decision-making for improvements

**HED 8683 Policy Issues in Higher Education: 3 hours.**

Three hours lecture. A study of the major policies that shape and inform American higher education. The course explores the theories of policy and policy-making along with the benefits, challenges, and controversies associated with federal, state, system, and institutional policies

**HED 8693 Diversity, Equity, and Inclusion in Higher Education: 3 hours.**

Three hours lecture. This course will examine trends and practices related to diversity, equity, and inclusion in higher education across multiple levels of analysis, including the individual, organizational, and policy levels

**HED 8703 Student Success in Higher Education: 3 hours.**

Three hours lecture. A comprehensive introduction to the scholarship of college student success, relevant conceptual frameworks, target student populations, and challenges associated with achieving related goals

**HED 8713 Introduction to Quantitative Methods in Educational Leadership: 3 hours.**

Three hours lecture. An introduction to the foundational skills necessary to conduct quantitative research in applied educational leadership settings. This will include a conceptual introduction to generalized linear models and underlying statistical concepts, as well as hands-on application

**HED 8723 Advanced Quantitative Methods in Educational Leadership: 3 hours.**

(Prerequisites: HED 8713, or permission of the instructor). Three hours lecture. Conceptual and analytical tools for extending regression-based approaches to quantitative methods in educational leadership. Topics will focus on advancements for addressing common nuances of real world data in educational leadership contexts

**HED 8733 Applications of Quantitative Methods in Educational Leadership: 3 hours.**

(Prerequisites: HED 8713, or permission of the instructor). Three hours lecture. A survey of quantitative research applications in educational leadership settings. Emphasis will be placed on conceptual and applied understanding, with opportunities for students to conduct in-depth and self-directed exploration of advanced analytical approaches of interest

**HED 8743 Survey of Research Methods in Educational Leadership: 3 hours.**

Three hours lecture. A comprehensive introduction to the foundational skills necessary to utilize survey research methods in educational leadership, including critically evaluating the quality of existing surveys and applying empirically based practice to develop new surveys

**HED 8753 Qualitative Inquiry in Educational Leadership: 3 hours.**

(Prerequisites: HED 8613 & HED 8473, or permission of the instructor). Three hours lecture. An overview of qualitative methodology and associated methodological approaches in education. Concepts covered include qualitative research themes, research design, data collection, data analysis, and reporting principles for educational leadership contexts

**HED 8763 Advanced Qualitative Seminar in Educational Leadership: 3 hours.**

(Prerequisites: HED 8753, or permission of the instructor). Three hours lecture. This course will advance students' qualitative skills through hands-on practice designing and conducting qualitative research in educational leadership contexts. Qualitative approaches applied in this course may include case study, ethnography, narrative inquiry, phenomenology, and grounded theory

**HED 8783 Critical Qualitative Inquiry in Educational Leadership: 3 hours.**

(Prerequisites: HED 8753, or permission of the instructor). Three hours lecture. This course provides an exchange of scholarly information about qualitative research paradigms, problems, and methods in educational leadership contexts with particular emphasis on critical qualitative methodological approaches

**HED 8803 Religion, Spirituality, and Interfaith Engagement in Higher Education: 3 hours.**

Three hours lecture. Introduction to the role of religion and spirituality in higher education across various institutional contexts. Particular emphasis placed on considerations for educators interested in fostering worldview development, religious diversity, and interfaith engagement on college campuses

**HED 8823 Race, Racism, and Racialized Incidents in Higher Education: 3 hours.**

Three hours lecture. This course will focus on various aspects of race, racism, and racialized incidents in higher education, as well as how those concepts affect oppressed and marginalized populations on campus

**HED 8833 The Experiences of Black People in Higher Education: 3 hours.**

Three hours lecture. An overview of the experiences of Black people in higher education. Discussions will focus on contemporary scholarship pertaining to Black undergraduate, graduate, faculty, and administrator experiences in higher education contexts

**HED 8990 Special Topics in Higher Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HED 9000 Research in HED: 1-13 hours.**

Hours and credits to be arranged

**HED 9913 Dissertation Seminar in Higher Education: 3 hours.**

(Prerequisites: Permission of instructor). Three hours seminar. Optional or elective course for specialized study in developing dissertation research. May be repeated once for credit

## History Courses

**HI 1003 History of Science in Six Ideas: 3 hours.**

A survey of the historical context and consequences of six concepts (the body, the senses, humanity, nature, power, the cosmos) in the Western world

**HI 1013 History of Technology in Six Objects: 3 hours.**

Three hours lecture. A survey of the history of technology in modern society through a study of six technological artifacts and systems

**HI 1063 Early U.S. History: 3 hours.**

Three hours lecture. A survey of U.S. history through Reconstruction

**HI 1073 Modern U.S. History: 3 hours.**

Three hours lecture. A continuation of HI 1063, covering the period from Reconstruction to the present

**HI 1163 World History Before 1500: 3 hours.**

Three hours lecture. A survey of world history since prehistory until about 1500

**HI 1173 World History Since 1500: 3 hours.**

Three hours lecture. A survey of world history since about 1500 until the present

**HI 1213 Early Western World: 3 hours.**

Three hours lecture. A survey of western world history from ancient times to about 1600

**HI 1223 Modern Western World: 3 hours.**

Three hours lecture. A continuation of HI 1213, covering the period from the 17th century to the present



**HI 1313 East Asian Civilizations to 1300: 3 hours.**

Three hours lecture. A survey of China and Japan and their peoples through a multi-disciplinary approach from pre-history until the thirteenth century

**HI 1323 East Asian Civilizations since 1300: 3 hours.**

Three hours lecture. A survey of China and Japan and their peoples through a multi-disciplinary approach from 1300 to the present

**HI 2990 Special Topics in History: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HI 3013 African American History to 1865: 3 hours.**

Three hours lecture. An historical examination of the life and culture of African Americans in the United States from European colonization to the end of the Civil War. (Same as AAS 3013)

**HI 3023 African American History since 1865: 3 hours.**

Three hours lecture. An historical examination of the life and culture of African Americans in the United States from European colonization to the end of the Civil War. (Same as AAS 3013)

**HI 3133 History of U.S. Popular Culture: 3 hours.**

Three hours lecture. An historical analysis of the development of popular culture, related industries and their impact on American society

**HI 3183 World Environmental History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). A historical analysis of the interaction of humans and the natural world from the Neolithic period to the present

**HI 3333 Mississippi History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of Mississippi history examining economic, social, political, geographical, and cultural aspects of the state's past

**HI 3343 Delta History Service and Experiential Spring Break: 3 hours.**

(Prerequisite: Consent of Instructor) One and a half hours lecture. One and a half hours field experience. Survey of historical and contemporary issues facing the Mississippi Delta region, with week-long service-learning trip to the Mississippi Delta during Spring Break

**HI 3363 History of U.S. Transportation: 3 hours.**

Three hours lecture. Course examines the history of transportation in the United States from the colonial period to the present and its role in constructing an American identity

**HI 3703 The Western Church: Beginning to Reformation: 3 hours.**

(Prerequisites: Completion of any 100-level course in history or philosophy and religion). Three hours lecture. An examination of the institutions, doctrines, and spirituality of the Western Church and their impact on Western European politics, society, and culture. (Same as REL 3703)

**HI 3713 History of African American Women: 3 hours.**

Three hours lecture. Examination of black women from their African origins to the present; emphasizes the social, economic and political engagement of women in American society, including reform movements, family life, business, and the arts. (Same as AAS 3713/GS 3713)

**HI 3743 History of England: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of English history from its origins to the present

**HI 3763 Hitler and Nazi Germany: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of Adolf Hitler's personality and rise to power; and examination of the theory and practice of National Socialism

**HI 3773 History of the Holocaust: 3 hours.**

Prerequisite: Completion of any 1000-level history course or consent of the instructor). Three hours lecture. An examination of the role of perpetrators, victims, and bystanders during the Holocaust

**HI 3783 Modern European Imperialism: 3 hours.**

Prerequisite: Completion of a 1000-level history course or consent of instructor. Three hours lecture. The course surveys European imperialism from 1815 to the post-colonial world

**HI 3813 Modern Latin America: 3 hours.**

(Prerequisite: Completion of any 1000 level history course). Three hours lecture. An introduction to the modern history of the major Latin America nations and their importance to the United States

**HI 3853 The United States and Latin America: 3 hours.**

(Prerequisite: Completion of any 1000 level history course). Three hours lecture. History of foreign policies and diplomatic relations in the nineteenth and twentieth centuries with an emphasis on strategic and security issues

**HI 3893 20th Century World History: 3 hours.**

(Prerequisite: completion of any 1000 level history course). Three hours lecture. Study of the world since 1900 concentrating on the themes of imperialism, nationalism, war, and industrialization

**HI 3903 Historiography and Historical Method: 3 hours.**

(Prerequisites: Junior or Senior standing). Three hours lecture. The writings and interpretations of leading European and American historians, bibliographical aids, methods of research, preparation of bibliographies, practice in writing a research paper

**HI 4000 Directed Individual Study in History: 1-6 hours.**

Hours and credits to be arranged

**HI 4103 Colonial America: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. Study of the earliest English settlements to 1740. Emphasis on Puritanism, interaction with other people, expansion and forming of societal and political institutions

**HI 4123 Jacksonian America 1825 to 1850: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. America from the beginnings of the Jacksonian movement, its political, economic and social battles, through trans-continental expansion and the Mexican War

**HI 4133 Civil War and Reconstruction 1850 to 1877: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. Origins of the secessionist movement and the Civil War, the political and military battles of the War, and the struggle to reunify the nation

**HI 4143 Revolutionary America: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. American provinces from 1740 until 1783. Emphasis on maturation. pluralism, role in British empire, religion, Enlightenment, and causes, ideology, and conduct of the Revolution

**HI 4153 U.S. History 1877 to 1917: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of political, economic, social, and constitutional developments

**HI 4163 U.S. 1917 - 1945: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A study of all major aspects of American government and life through World War II

**HI 4173 U.S. History since 1945: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of all major aspects of American government and life since the end of World War II

**HI 4183 U.S. Economic History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of economic change in the United States and its impact on political and social development. (Same as EC 4183/6183)

**HI 4193 U.S. Environmental History: 3 hours.**

(Prerequisite: Any 1000 level history course) Three hours lecture. A survey of the impact of the environment in shaping the American culture, literature, politics, and economy from European colonization to the present

**HI 4203 Diplomatic History of the U.S.: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A study of American foreign policy from the founding of the Republic to the present time

**HI 4213 History of Grand Strategy & International Security: 3 hours.**

(Prerequisite: Completion of any 1000 level history course) Three hours seminar. A discussion of the historic literature of grand strategy and key events in the history of international relations

**HI 4223 Intelligence Gathering in the 20th Century: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hour lecture. A discussion of myth/reality of intelligence gathering and its use as a military or diplomatic tool

**HI 4233 American Military History: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of the military history of the United States from colonial times to the present

**HI 4243 American Life and Thought: 3 hours.**

Three hours lecture. A survey of the changing lives and ideas of Americans from colonial to modern times. Family life, religion, recreation, dress, communities, social theories, medicine

**HI 4253 History of Religion in America: 3 hours.**

(Prerequisite: Completion of any 1000 level history course). Three hours lecture. Surveys history of religion in America, emphasizing interaction with social and political developments

**HI 4263 America's Vietnam War: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. Analysis of the U.S. conduct of Vietnam War, such as: Cold War context, presidential decision-making, military doctrine, domestic opposition, and legacy

**HI 4273 Women in American History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the economic, political, and social activities of women in American history. Emphasis on Southern women

**HI 4283 History of Southern Women: 3 hours.**

Three hours lecture. The lives and images of women in the South from colonial times to the present. Native-, African-, and European-American woman to be studied

**HI 4293 History of Gender and Science: 3 hours.**

Three hours seminar. Historical survey of scientific research on sex, the role of gender in the culture of science, and the contributions of women to scientific practice

**HI 4303 The Old South: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. Development of the Old South from colonization through the slavery controversy and the Civil War

**HI 4313 The New South: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. Southern life from Reconstruction times to the present

**HI 4323 The American West: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of the western frontier in American history from colonial times to 1900

**HI 4333 Native American History to 1830: 3 hours.**

(Prerequisite: completion of any 1000 level history course). Three hour lecture, Native American history at 1830, concentrating on the theme of survival and adaption to changes wrought by contact with Europeans

**HI 4343 Immigration and Ethnicity in the United States: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A history of American immigration from the colonial period to the present day. Outlines immigration patterns, policies, and the immigrant experience

**HI 4363 African American History and Culture: 3 hours.**

(Prerequisite: Completion of any 1000-level history course) African-Americans from their African origins to the present, emphasizing black-white relations in the making of America. (Same as AAS 4363 )

**HI 4373 History of Modern Civil Rights Movement: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A history of the Black struggle for equality in the United States between 1930 and 1970. (Same as AAS 4373 )

**HI 4383 Native American History Since 1830: 3 hours.**

(Prerequisite: completion of any 1000-level history course) Three hours lecture. Study of American Indian history to the present with emphasis on the loss of Indian autonomy and the struggles to regain it

**HI 4393 Rural America: 3 hours.**

Examines the transformation and cultural significance of rural America from the colonial era to the early 21st century

**HI 4403 The Ancient Near East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as MEC 4403/6403 and REL 4403/6403)

**HI 4413 Ancient Greece and Rome: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of the civilization of ancient Greece and Rome

**HI 4453 Greek History: 3 hours.**

Three hours lecture. Introduction to the history of ancient Greece from the Bronze Age through the height of the Greek city-states and the rise of the kingdom of Macedon. (Same as FL 4423/6423)

**HI 4463 Roman History: 3 hours.**

Three hours lecture. Introduction to the history of Rome from its foundations through the Republic, the Empire, and the ultimate decline in late antiquity. (Same as FL 4433/6433)

**HI 4493 Terrorism in America: 3 hours.**

Three hours lecture. Survey of the impact of domestic and international terrorism on American politics, society, and foreign policy since the Civil War

**HI 4533 History of the Cold War: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The political, social, cultural, and economic history of the Cold War, from its origins in the early twentieth century to its conclusion in 1991

**HI 4553 Science and Technology to Newton: 3 hours.**

Three hours lecture. An examination of the history of science and technology from pre-history to Newton

**HI 4583 China Since 1800: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. China's tumultuous centuries of imperial decline, foreign assault, and nationalist and communist revolutions. Cultural and social transformations and the quest for institutional and economic modernization

**HI 4593 Japan Since 1600: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. Examines the major political, cultural, economic, military and diplomatic events that have brought Japan from sheltered feudalism to international preeminence

**HI 4603 Medieval Civilization: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of medieval institutions and culture

**HI 4613 History of the Soviet Union: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The political, social, cultural and economic development of the Soviet Union from its pre-Revolutionary origins to its collapse in 1991

**HI 4643 Renaissance and Reformation: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The Renaissance and its relation to religion, politics, and social life; origins of the Reformation movement and its effect on Europe in early modern times

**HI 4653 History of Science and Technology: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. Science and technology from Newton to the present, emphasizing the relationship between scientific innovation and technological application

**HI 4673 Europe, 1789-1914: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the political, economic, and intellectual foundations of nineteenth century society

**HI 4683 Europe: The First World War to Hitler: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. European development from the beginning of the First World War to the beginning of the Second World War

**HI 4693 Europe: The Second World War to the Common Market: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. European development from the beginning of the Second World War to the present time

**HI 4713 Tudor and Stuart England: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The development of English institutions during the Tudor and Stuart periods

**HI 4723 History of Britain Since 1688: 3 hours.**

Three hours seminar. Historical survey of Britain since 1688 with particular emphasis on political, economic and cultural change and relations between the component nationalities with the United Kingdom

**HI 4743 War, Diplomacy, and Statecraft in Europe, 1648-1989: 3 hours.**

Three hours seminar. Historical survey of international politics since the eighteenth century within its economic, cultural, and military context

**HI 4753 History of Russia: 3 hours.**

(Prerequisite: Completion of any 1000-level history course.) Three hours lecture. The political, social, cultural, and economic development of Russia from Kievan to Soviet times

**HI 4763 History of Modern Germany: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The history of German institutions in modern times

**HI 4773 History of Modern France: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The history of French institutions in modern times

**HI 4783 African Civilization to 1880: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This is a survey course which traces the major developments in Africa to 1880. (Same as AAS 4783)

**HI 4793 Modern Africa: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This course traces Africa's history from 1880 to the present. It discusses how Africa lost and regained its sovereignty and the dilemma of independence. (Same as AAS 4793)

**HI 4823 Issues in Women's History: 3 hours.**

Three hours lecture. An analysis of major issues in American women's history

**HI 4853 Modern Mexico: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The political, economic, and social development of the Mexican nation from Independence through the age of dictators to the Great Revolution and its aftermath

**HI 4863 Issues in African American History: 3 hours.**

Three hours lecture. An analysis of major issues in African American history

**HI 4883 U.S. History of Medicine: 3 hours.**

Three hour lecture. Survey of the development of the medical profession and public health in the United States. Medical education and practice, scientific research, epidemics and illness emphasized

**HI 4903 The Far East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the impact of western civilization on China, Japan, and India in the nineteenth and twentieth centuries

**HI 4983 African Americans and the Law: 3 hours.**

Prerequisite: Sophomore standing or higher). Three hours lecture. Analysis of the legal and constitutional history of African Americans from the codification of slavery and discrimination in the North to the rise of segregation. (Same as AAS 4983)

**HI 4990 Special Topics in History: 1-9 hours.**

(Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HI 6133 Civil War and Reconstruction 1850 to 1877: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. Origins of the secessionist movement and the Civil War, the political and military battles of the War, and the struggle to reunify the nation

**HI 6143 Revolutionary America: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. American provinces from 1740 until 1783. Emphasis on maturation. pluralism, role in British empire, religion, Enlightenment, and causes, ideology, and conduct of the Revolution

**HI 6153 U.S. History 1877 to 1917: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of political, economic, social, and constitutional developments

**HI 6163 U.S. 1917 - 1945: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A study of all major aspects of American government and life through World War II

**HI 6173 U.S. History Since 1945: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of all major aspects of American government and life since the end of World War II

**HI 6183 U.S. Economic History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of economic change in the United States and its impact on political and social development. (Same as EC 4183/6183)

**HI 6193 U.S. Environmental History: 3 hours.**

(Prerequisite: Any 1000 level history course) Three hours lecture. A survey of the impact of the environment in shaping the American culture, literature, politics, and economy from European colonization to the present

**HI 6203 Diplomatic History of the U.S.: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A study of American foreign policy from the founding of the Republic to the present time

**HI 6213 History of Grand Strategy & International Security: 3 hours.**

(Prerequisite: Completion of any 1000 level history course) Three hours seminar. A discussion of the historic literature of grand strategy and key events in the history of international relations

**HI 6223 Intelligence Gathering in the 20th Century: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hour lecture. A discussion of myth/reality of intelligence gathering and its use as a military or diplomatic tool

**HI 6233 American Military History: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of the military history of the United States from colonial times to the present

**HI 6243 American Life and Thought: 3 hours.**

Three hours lecture. A survey of the changing lives and ideas of Americans from colonial to modern times. Family life, religion, recreation, dress, communities, social theories, medicine

**HI 6253 History of Religion in America: 3 hours.**

(Prerequisite: Completion of any 1000 level history course). Three hours lecture. Surveys history of religion in America, emphasizing interaction with social and political developments

**HI 6263 America's Vietnam War: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. Analysis of the U.S. conduct of Vietnam War, such as: Cold War context, presidential decision-making, military doctrine, domestic opposition, and legacy

**HI 6273 Women in American History: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the economic, political, and social activities of women in American history. Emphasis on Southern women

**HI 6293 History of Gender and Science: 3 hours.**

Three hours seminar. Historical survey of scientific research on sex, the role of gender in the culture of science, and the contributions of women to scientific practice

**HI 6303 The Old South: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. Development of the Old South from colonization through the slavery controversy and the Civil War

**HI 6313 The New South: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. Southern life from Reconstruction times to the present

**HI 6323 The American West: 3 hours.**

(Prerequisites: Completion of any 1000-level history course). Three hours lecture. A survey of the western frontier in American history from colonial times to 1900

**HI 6363 African American History and Culture: 3 hours.**

(Prerequisite: Completion of any 1000-level history course) African-Americans from their African origins to the present, emphasizing black-white relations in the making of America. (Same as AAS 4363 )

**HI 6373 History of Modern Civil Rights Movement: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A history of the Black struggle for equality in the United States between 1930 and 1970. (Same as AAS 4373 )

**HI 6383 Native American History Since 1830: 3 hours.**

(Prerequisite: completion of any 1000-level history course) Three hours lecture. Study of American Indian history to the present with emphasis on the loss of Indian autonomy and the struggles to regain it

**HI 6393 Rural America: 3 hours.**

Examines the transformation and cultural significance of rural America from the colonial era to the early 21st century

**HI 6403 The Ancient Near East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as MEC 4403/6403 and REL 4403/6403)

**HI 6413 Ancient Greece and Rome: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A survey of the civilization of ancient Greece and Rome

**HI 6493 Terrorism in America: 3 hours.**

Three hours lecture. Survey of the impact of domestic and international terrorism on American politics, society, and foreign policy since the Civil War

**HI 6553 Science and Technology to Newton: 3 hours.**

Three hours lecture. An examination of the history of science and technology from pre-history to Newton

**HI 6583 China Since 1800: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. China's tumultuous centuries of imperial decline, foreign assault, and nationalist and communist revolutions. Cultural and social transformations and the quest for institutional and economic modernization

**HI 6593 Japan Since 1600: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. Examines the major political, cultural, economic, military and diplomatic events that have brought Japan from sheltered feudalism to international preeminence

**HI 6603 Medieval Civilization: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. An intensive study of medieval institutions and culture

**HI 6613 History of the Soviet Union: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The political, social, cultural and economic development of the Soviet Union from its pre-Revolutionary origins to its collapse in 1991

**HI 6643 Renaissance and Reformation: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The Renaissance and its relation to religion, politics, and social life; origins of the Reformation movement and its effect on Europe in early modern times

**HI 6653 History of Science and Technology: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. Science and technology from Newton to the present, emphasizing the relationship between scientific innovation and technological application

**HI 6683 Europe: The First World War to Hitler: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. European development from the beginning of the First World War to the beginning of the Second World War

**HI 6693 Europe: The Second World War to the Common Market: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. European development from the beginning of the Second World War to the present time

**HI 6713 Tudor and Stuart England: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The development of English institutions during the Tudor and Stuart periods

**HI 6723 History of Britain Since 1688: 3 hours.**

Three hours seminar. Historical survey of Britain since 1688 with particular emphasis on political, economic and cultural change and relations between the component nationalities with the United Kingdom

**HI 6743 War and Diplomacy in Europe 1648-1989: 3 hours.**

Three hours seminar. Historical survey of international politics since the eighteenth century within its economic, cultural, and military context

**HI 6763 History of Modern Germany: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The history of German institutions in modern times

**HI 6773 History of Modern France: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The history of French institutions in modern times

**HI 6783 African Civilization to 1880: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This is a survey course which traces the major developments in Africa to 1880. (Same as AAS 4783)

**HI 6793 Modern Africa: 3 hours.**

(Prerequisite: Completion of any 1000-level history course or consent of instructor). Three hours lecture. This course traces Africa's history from 1880 to the present. It discusses how Africa lost and regained its sovereignty and the dilemma of independence. (Same as AAS 4793 )

**HI 6823 Issues in Women's History: 3 hours.**

Three hours lecture. An analysis of major issues in American women's history

**HI 6853 Modern Mexico: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. The political, economic, and social development of the Mexican nation from Independence through the age of dictators to the Great Revolution and its aftermath

**HI 6863 Issues in African American History: 3 hours.**

Three hours lecture. An analysis of major issues in African American history

**HI 6883 U.S. History of Medicine: 3 hours.**

Three hour lecture. Survey of the development of the medical profession and public health in the United States. Medical education and practice, scientific research, epidemics and illness emphasized

**HI 6903 The Far East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the impact of western civilization on China, Japan, and India in the nineteenth and twentieth centuries

**HI 6990 Special Topics in History: 1-9 hours.**

(Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HI 7000 Directed Individual Study in History: 1-6 hours.**

Hours and credits to be arranged

**HI 8233 Readings in American Military History: 3 hours.**

(Prerequisite: Graduate standing)

**HI 8523 Readings in European History, 1789-1914: 3 hours.**

(Prerequisite: Graduate standing)

**HI 8543 Diversity and Discrimination Law: 3 hours.**

Three hours lecture. Analysis of federal and state laws and regulations on diversity in the workplace, emphasizing race and national origin, sex, physical disability, religion, and age. (This course is available to students enrolled in the Graduate Online Diversity Certificate Program. It is not open to students seeking to complete degree requirements.) (Same as AAS 8543)

**HI 8603 Racism and the Color Line: 3 hours.**

(Prerequisite: Graduate Standing and enrollment in the Diversity Certificate Program ). Three hours lecture. An analysis of race relations and racial inequality in the United States. Designed for online Diversity Certificate program students. ( Same as AAS 8603)

**HI 8783 Issues in African American History: 3 hours.**

(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program) Three hours lecture. An analysis of major issues in African American history. Designed for online Diversity Certificate Program students

**HI 8793 Race and the Cultural Diversity in the Workplace: 3 hours.**  
(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program). Three hours lecture. An analysis of concepts, issues, and laws relating to race and cultural diversity in public and private organizations. Designed for online Diversity Certificate Program students. (Same as AAS 8793 )

**HI 8803 Graduate Colloquium: 3 hours.**  
(Prerequisite: Graduate standing). Three hours lecture. Topical focus to be determined by the faculty member conducting the colloquium. (May be taken for credit more than once)

**HI 8813 Seminar in U.S. History Before 1877: 3 hours.**  
(Prerequisite: Graduate standing)

**HI 8823 Seminar in U.S. History Since 1877: 3 hours.**  
(Prerequisite: Graduate standing)

**HI 8833 Seminar in Southern History: 3 hours.**  
(Prerequisite: Graduate standing)

**HI 8853 Seminar in European History Before 1789: 3 hours.**  
(Prerequisite: Graduate standing)

**HI 8863 Seminar in European History Since 1789: 3 hours.**  
(Prerequisite: Graduate standing)

**HI 8873 Seminar in History of Science and Technology: 3 hours.**  
Three hours seminar. An intensive study of historical topics relating to the relationships among science, technology, culture, and society from 1700 to the present

**HI 8883 U.S. Agricultural History, 1500-2000: 3 hours.**  
(Prerequisite: Graduate standing). Three hours seminar. An intensive study of agricultural and rural development in the United States and its impact on social, economic, and political changes

**HI 8893 Seminar in History of International Security and Internal Safety: 3 hours.**  
(Prerequisite: Graduate standing) Three hours seminar. An intensive study of historical topics in international security and internal safety from 1700 to present

**HI 8923 Historiography and Historical Method: 3 hours.**  
(Prerequisite: Graduate standing). Three hours lecture. The writings and interpretations of leading European and American historians; bibliographical aids in history; methods of research; preparation of bibliographies; practice in writing a research paper

**HI 8933 Colloquium in Colonial and Revolutionary America: 3 hours.**  
Three hours lecture. A review of the major themes in the history and historiography of North America for the colonial period through the independence of the United States

**HI 8943 Colloquium in the U.S. History from 1787-1877: 3 hours.**  
Three hours lecture. Review of the major themes in the history and historiography of the United States from the ratification of the Constitution to the end of Reconstruction

**HI 8953 Colloquium in the U.S. History from 1877-1945: 3 hours.**  
Three hours lecture. A review of the major themes in the history and historiography of the United States from the end of Reconstruction to the end of the Second World War

**HI 8963 Colloquium in the U.S. History from 1945-present: 3 hours.**  
Three hours lecture. A review of the major themes in the history or historiography of the United States from the end of World War II until the present

**HI 8973 Colloquium U.S. Environmental and Agricultural History: 3 hours.**

Three hours lecture. A review of the major themes in the agricultural history & historiography of the United States

**HI 8983 Introduction to Public History: 3 hours.**  
(Prerequisite: Graduate Standing). Three hours seminar. Introduction to the literature, methods, and applications of public history, which is the practice of making history accessible to the public in various settings outside academia (museums, historical societies, the web, etc.)

**HI 8990 Special Topics in History: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HI 8993 Seminar in the History of Region, Identity, Gender, and Race: 3 hours.**  
(Prerequisite: Graduate Standing). Three hours seminar. An intensive study of historical concepts of region, national and cultural identity, gender, and racial ideology

**HI 9000 Research in History: 1-13 hours.**  
Hours and credits to be arranged

## Honors College Courses

**HON 1081 Honors Forum: 1 hour.**  
One hour lecture. Weekly meeting of honors students. Discussion led by faculty and/or students on various topics

**HON 1091 Honors Forum II: 1 hour.**  
One hour lecture. Weekly meeting of honors students. Discussion led by faculty and/or students on various topics. Repeatable under different topics

**HON 1163 The Quest Begins: 3 hours.**  
Seminar, chronological survey of "core texts" from the Western tradition, from Classical Antiquity to the Enlightenment. Texts (including art, music and film) represent the great ideas from art, science, religion, politics, and culture

**HON 1173 The West and the Wider World: 3 hours.**  
Seminar, chronological survey of "core texts" from the Western tradition, from the eighteenth century to the present. Key non-Western texts will also be taught in order to establish the foundation of thought in modern world

**HON 2003 Oxbridge Tutorial: 3 hours.**  
(Prerequisite: Sophomore standing or above, completion of Composition I and II requirements, instructor's and dean's permission). Tutorial with a faculty member in the tradition of undergraduate education at Oxford and Cambridge. Readings, papers, and/or problem-sets according to a plan devised by the student and their tutor

**HON 2081 Honors Forum III: 1 hour.**  
One hour lecture. Weekly meeting of honors students. Discussion led by faculty and/or students on various topics. Repeatable under different topics

**HON 2091 Honors Forum IV: 1 hour.**  
One hour lecture. Weekly meeting of honors students. Discussion led by faculty and/or students on various topics. Repeatable under different topics

**HON 2990 Special Topics in Honors College: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**HON 3143 Honors Seminar in Social Science: 3 hours.**

(Prerequisite: sophomore standing or above, completion of Composition I and II requirements. Repeatable up to three times under different subtitles). Three hours seminar. An interdisciplinary or problem-based study of social groups, institutions, and other phenomena. Topics and instructors will vary

**HON 3163 Honors Seminar in Natural Sciences: 3 hours.**

(Prerequisite: sophomore standing or above, completion of Composition I and II requirements. Repeatable up to three times under different subtitles). Three hours lecture. An interdisciplinary course concerning a topic of importance in the natural sciences and its impact on society as a whole. Topics and instructors will vary

**HON 3173 Honors Seminar in Fine Arts: 3 hours.**

(Prerequisite: Sophomore standing or above, completion of Composition I and Composition II requirements). Three hours seminar. Repeatable, up to three times, under different subtitles. An investigation of interdisciplinary problems or themes in the visual and performing arts. Readings and discussions, supplemented by lectures and presentations

**HON 3183 Honors Seminar in the Humanities: 3 hours.**

(Prerequisite: Sophomore standing or above, completion of Composition I and II requirements. Repeatable up to three times under different subtitles). Three hours seminar. An investigation of interdisciplinary problems or themes in the human experience. Readings and discussions, supplemented by lectures and presentations

**HON 3193 Internship: 3 hours.**

**HON 4000 Directed Individual Study in Honors College: 1-6 hours.**  
Hours and credits to be arranged

**HON 4003 Oxbridge Tutorial: 3 hours.**

(Prerequisite: Sophomore standing or above, completion of Composition I and II requirements, instructor's and dean's permission). Tutorial with a faculty member in the tradition of undergraduate education at Oxford and Cambridge. Readings, papers, and/or problem-sets according to a plan devised by the student and their tutor

**HON 4093 Honors Thesis: 3 hours.**

(Prerequisite: Junior standing and completion of English Composition requirement). Honors students may elect to conduct advanced research on an approved topic and write an Honors Thesis under the direction of a faculty member in the appropriate discipline. The student will normally register for Thesis credit over 1-2 semesters

**HON 4800 Undergraduate Research in Honors: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**HON 4990 Special Topics in Honors College: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Human Sciences Courses****HS 1701 Survey of Human Sciences: 1 hour.**

One hour lecture. Introduction to the field of Human Sciences through a study of its history and the variety of professional careers available

**HS 1711 Professional Protocol: 1 hour.**

One hour lecture. The essentials of professional protocol and accepted standards of social usage

**HS 2203 Science of Food Preparation: 3 hours.**

(Prerequisites: Grade of "C" or better in CH 1213/1221 or HS major). One hour lecture. Four hours laboratory. A study of foods and the principles underlying handling and preparation of food product to maintain the highest standards of quality. (Same as FNH 2203)

**HS 2283 Child Health and Nutrition: 3 hours.**

Three hours lecture. Nutrition requirements during pregnancy and lactation, and of infants and young children; birth defects from metabolic errors; related health of young children. (Same as FNH 2283)

**HS 2293 Individual and Family Nutrition: 3 hours.**

Three hours lecture. Fundamental principles of human nutrition and the practical application of this knowledge in the selection of adequate diets. (Same as FNH 2293)

**HS 2603 Interior Design Fundamentals: 3 hours.**

Three hours lecture. Introduce a practical approach to the application of interior design in the built environment. (For non interior design students). (Same as ID 2603)

**HS 2664 Textiles for Interiors: 4 hours.**

(Prerequisite CH 1043 ).Three hours lecture. Two hour laboratory. Study of fibers, yarns, fabric structures, dyes, and finishes related to the textile industry. Emphasis on testing and evaluation of interior textiles

**HS 3673 Environments for Special Needs: 3 hours.**

Three hours lecture. Laws, attitudes, conditions, specifications, and environmental issues affecting private and public spaces. (Same ID 3673)

**HS 4323 Consumer Issues and Policy: 3 hours.**

(Prerequisite: HS 3303 or consent of instructor). Three hours lecture. An assessment of policies and programs relating to information, product safety, and channels of appeal for the individual

**HS 4450 Work Experience in Human Sciences Related Occupations: 3-6 hours.**

(3-6) Work experience in two phases of occupational human sciences, development of a program of work, and incorporating the work experience into curricula

**HS 4683 Current Housing Problems of Families: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Analysis of current housing problems confronting families, their historical development, government policies and remedial measures

**HS 4702 Research and Application in Human Sciences: 2 hours.**

(Prerequisite: Senior standing in FDM or HDFS). Two hours lecture. Focus on conducting original research to integrate fundamental Human Sciences principles. Emphasis on professional development and effectiveness in Human Sciences professions. (Same as FDM 4702 and HDFS 4702)

**HS 4710 Study Tour: 1-3 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study in human sciences

**HS 4750 Internship: 5-8 hours.**

(Prerequisite: Minimum of senior standing in the major and consent of instructor). Individual work experience in an approved setting under supervision of Mississippi State University faculty

**HS 6323 Consumer Issues and Policy: 3 hours.**

(Prerequisite: HS 3303 or consent of instructor). Three hours lecture. An assessment of policies and programs relating to information, product safety, and channels of appeal for the individual

**HS 6683 Current Housing Problems of Families: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Analysis of current housing problems confronting families, their historical development, government policies and remedial measures

**HS 6710 Study Tour: 1-3 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study in human sciences

## Health Service Psychology Courses

**HSPY 8413 Integration of Cognitive, Affective, and Social Psychology: 3 hours.**

(Prerequisites: consent of the instructor). Three hours lecture. Theories and principles related to cognitive, affective, and social psychology with integration of these foundations

**HSPY 9730 Internship in Health Service Psychology: 1-6 hours.**

(Prerequisite: consent of instructor). Variable credit (1 to 6 hours) supervised field experience. Supervised internship involving the theory and practice of Health Service Psychology

## International Business Courses

**IB 1001 Introduction to International Business: 1 hour.**

(Prerequisite: International Business major). One hour survey Introduction to International Business to prepare the entering class academically and professionally for successful performance

**IB 2990 Special Topics in International Business: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IB 3900 Internship Work: 1-6 hours.**

(Prerequisite: approval of the International Business Director). Business topics examined by student during work semester. Student evaluations are assigned on satisfactory/unsatisfactory basis

**IB 4000 Directed Individual Study in International Business: 1-6 hours.**

Hours and credits to be arranged

**IB 4103 International Business: 3 hours.**

(Prerequisite: Senior or graduate standing in business or consent of instructor.) An overview of the major forms of international business: Exports and imports, overseas investments, production and marketing operations, licensing, financing and other international business services

**IB 4903 Internship Academic Report: 3 hours.**

(Prerequisite: Satisfactory performance in IB 3900). Individual work experience under faculty guidance in business. Scholarly paper on approved topic required

**IB 4990 Special Topics in International Business: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IB 6103 International Business: 3 hours.**

(Prerequisite: Senior or graduate standing in business or consent of instructor.) An overview of the major forms of international business: Exports and imports, overseas investments, production and marketing operations, licensing, financing and other international business services

**IB 6990 Special Topics in International Business: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IB 7000 Directed Individual Study in International Business: 1-6 hours.**

Hours and credits to be arranged

**IB 8990 Special Topics in International Business: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Interior Design Courses

**ID 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**ID 1683 Interior Design Graphics: 3 hours.**

One hour lecture. Four hours laboratory. Introduction to basic manual drafting and tools/techniques used by interior designers in executing and reading graphic language in two dimensional form

**ID 1694 Interior Design Studio I: 4 hours.**

(Prerequisite: ID 1683). Two hours lecture. Four hours laboratory. Introduction to the basic principles and elements of design using practical and abstract applications in creative problem solving analyzing spatial form and function

**ID 2103 CAD for Interior Design: 3 hours.**

Prerequisite: ID 1683 or consent of instructor. Two hours lecture. Two hours laboratory. Introduction to computer-based design as applied in the interior design field

**ID 2203 Rendering: 3 hours.**

(Prerequisites: Sophomore Standing) Six hours studio. A studio course dealing with concepts, techniques, and media used in executing interior and exterior renderings

**ID 2603 Interior Design Fundamentals: 3 hours.**

Three hours lecture. Introduce a practical approach to the application of interior design in the built environment. (For non-interior design majors). (Same as HS 2603)

**ID 2614 ID Studio II: 4 hours.**

(Prerequisite ART 1123 and ID 1694). Two hours lecture. Four hours laboratory. Introduction to design theory and its application in the development of criteria for interior environments



**ID 2633 Interior Materials, Treatments, and Resources: 3 hours.**  
(Prerequisite: HS 2664 or concurrent enrollment). Three hours lecture. Materials, equipment, services and resources available to the interior designer for meeting clients' needs

**ID 2664 Textiles for Interiors: 4 hours.**  
(Prerequisite CH 1043 or CH 1213). Three hours lecture. Two hour laboratory. Study of fibers, yarns, fabric structures, dyes, and finishes related to the textile industry. Emphasis on testing and evaluation of textiles for interior applications

**ID 3363 3/D CAD/Modeling: 3 hours.**  
(Prerequisites: ID 2103 or BCS 1116 or consent of instructor). Two hours lecture. Two hours laboratory. Advanced computer graphic communication in interior design for the development of technical and perspective drawings created in presentation formats using 3D imaging

**ID 3603 Digital Design for Interiors: 3 hours.**  
Three hours lecture. Introduce innovative software applications for interior design students to create graphic presentations, portfolios, and digital illustrations of interior elements

**ID 3611 Career and Portfolio Development: 1 hour.**  
(Prerequisites: ART 1133, ART 1123, ART 1213, ID 1683, ID 1694, and ID 2614). One hour lecture. Development of an understanding of career possibilities in Interior Design and preparation for the sophomore portfolio review process

**ID 3614 Interior Design Studio III: 4 hours.**  
(Prerequisite: ID 2614). Two hours lecture. Four hours laboratory. Integration of the total building environment, through the application of the design elements and technical aspects of the field

**ID 3624 Interior Design Studio IV: 4 hours.**  
(Prerequisite: ID 3614). Two hours lecture. Four hours laboratory. Actual practice of the contract interior design field through the execution of commercial design problems

**ID 3633 Interior Design Detailing and Construction Documents: 3 hours.**  
(Prerequisites: ID 2103 and ID 3614). Two hours lecture. Two hours laboratory. Systematic intergration of building systems, construction, technology, and materials on interior systems. Detailing of these systems is an extension of the design process

**ID 3643 History of Interiors I: 3 hours.**  
Three hours lecture. A survey of furniture styles, ornament, designers, and accessories associated with period interiors from the early Egyptian period through 1850

**ID 3653 History of Interiors II: 3 hours.**  
(Prerequisite: ID 3643 or consent of instructor). Three hours lecture. Defining advancements/evolutions of design philosophies of furniture and interiors in late 19th and 20th centuries; addressing presentation skills and techniques for interior design professionals

**ID 3663 Color and Lighting for Interiors: 3 hours.**  
(Prerequisite: ID 2615). One hour lecture. Four hours laboratory. Concentrated study of color and light relationships as they apply to the visual, technical and functional aspects of interior spaces

**ID 3673 Environments for Special Needs: 3 hours.**  
Three hours lecture. Laws, attitudes, conditions, specifications, and environmental issues affecting private and public spaces. (Same as HS 3673)

**ID 3813 Study Abroad Seminar I: 3 hours.**  
(Prerequisite: ART 1213 or consent of instructor.) Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor (Same as ART 3813 and ID 3813.)

**ID 3823 Study Abroad Seminar II: 3 hours.**  
(Prerequisite: ART 1213 or consent of instructor.) Three hours seminar. Six weeks of on-site instruction in Italy as part of the CAAD Italy study abroad program. Course content will vary to reflect the expertise of the instructor (Same as ART 3823 and ARC 3823.)

**ID 4000 Directed Individual Study in Interior Design: 6 hours.**  
Hours and credits to be arranged

**ID 4403 Introduction to Historic Preservation: 3 hours.**  
Three hours lecture. An introduction to American historic preservation, its history, principles, and practice. Course may be repeated twice

**ID 4611 Principles of LEED: 1 hour.**  
One hour lecture. A general study of the principles of the Leadership in Energy and Environmental Design(LEED) Program including preparation to take the LEED Green Associate Exam

**ID 4644 Interior Design Studio V: 4 hours.**  
(Prerequisite: ID 3624). Two hours lecture. Four hours laboratory. Integration of the total living environment, through the application of the design elements and technical aspects of the interior design field

**ID 4651 Internship Placement: 1 hour.**  
(Prerequisite: Senior Standing in Interior Design and ID 4663). One hour lecture. Professional opportunities as they relate to internships for interior design students. Preparation of resume and portfolio for procurement of internship

**ID 4654 Interior Design Studio VI: 4 hours.**  
(Prerequisite: ID 4644). Two hours lecture. Four hours laboratory. Advanced study of the commercial interior design field through individual research and the execution of commercial design problems

**ID 4661 Senior Portfolio Production: 1 hour.**  
(Prerequisite: Senior standing in Interior Design). One-hour lecture. Development of printed and digital portfolios and related materials necessary in obtaining an internship and career in interior design

**ID 4662 Professional Practice for Interior Design: 2 hours.**  
(Prerequisite: Senior standing in ID). Two hours lecture. Professional opportunities as they relate to individual competencies. Study of studio procedures, ethics, business and legal aspects

**ID 4673 Integrated Lighting Solutions: 3 hours.**  
(Prerequisite: ID 3673, or ARC 3723, or IE 3123 or permission of instructor). Three hours lecture. Principles of lighting design that addresses lighting analytics and the understanding of lighting as an integrated part of building systems

**ID 4683 Lessons from the Theatre: Architectural Lighting Design: 3 hours.**  
(Three hours lecture). An introduction to the basics of theatre stage lighting and the theoretical approach of applying these principles to architectural lighting design

**ID 4693 Furniture Design: 3 hours.**  
(Prerequisite: ID 2103, ID 3643, ID 3653, and consent of instructor). Two hours lecture. Two hours laboratory. Exploration of the basic methods and processes of furniture design

**ID 4753 Interior Design Internship: 3 hours.**

(Prerequisites: Senior standing, 2.50 GPA and consent of instructor). Individual work experience in an approved setting under supervision of Mississippi State Univ faculty

**ID 4773 Historic Lighting Environments: 3 hours.**

Three hours lecture. A split level interdisciplinary course focusing on historic lighting design. The class will study the emerging lighting technologies that increase efficiency, and improve light quality, while respecting the era, textures, architectural scene and landscape of historic structures

**ID 4990 Special Topics in Interior Design: 1-9 hours.**

(Credit and title to be arrange. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses.(Courses limited to two offerings under one title within two academic years)

**ID 6403 Introduction to Historic Preservation: 3 hours.**

Three hours lecture. An introduction to American historic preservation, its history, principles, and practice. Course may be repeated twice

**ID 6773 Historic Lighting Environments: 3 hours.**

Three hours lecture. A split level interdisciplinary course focusing on historic lighting design. The class will study the emerging lighting technologies that increase efficiency, and improve light quality, while respecting the era, textures, architectural scene and landscape of historic structures

**ID 6990 Special Topics in Interior Design: 1-9 hours.**

(Credit and title to be arrange. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses.(Courses limited to two offerings under one title within two academic years)

**ID 7000 Directed Individual Study in Interior Design: 6 hours.**

Hours and credits to be arranged

**ID 8010 Practicum: 3 hours.**

(Prerequisite ID 8473 and approval of instructor). Three hours supervised field experience and documentation of research in Historic Preservation. (Repeatable one time)

**ID 8153 History of American Architecture and Landscape Architecture: 3 hours.**

Three hours lecture. Explore the Architecture and Landscape Architecture of North America from the colonial period to the present

**ID 8163 Historic Preservation Law: 3 hours.**

Three hours lecture. Examine federal, state, and local laws that protect the cultural heritage, built and natural environments, archeological resources, and the legal framework associated with preservation programs

**ID 8253 Adaptive Reuse of Existing Buildings: 3 hours.**

Three hours lecture. Explore evaluation and application of appropriate treatments and financial incentives for reuse of existing historic buildings in today's environment with an emphasis on the design process

**ID 8263 Interior Details, Furniture, Materials, and Finishes: 3 hours.**

Three hours lecture. Explore interior building details, furnishings, materials available, and interior finishes appropriate for buildings at time of construction

**ID 8273 Building Materials Conservation: 3 hours.**

Three hours lecture. Thematic study of the basic field techniques and skill necessary to accurately interpret the interior fabric of historic structures

**ID 8283 Research Analysis Methods in Historic Preservation: 3 hours.**

Three hours lecture. Application of research analysis methods specific to problems in Historic Preservation

**ID 8353 Internship: 3 hours.**

Three hours field work. Individual work experience in an approved setting under supervision of Mississippi State University faculty

**ID 8453 Preservation Field Studies I: 3 hours.**

Six hours laboratory. Fundamental to the practice of historic preservation is field work. Students will work collaboratively with communities on preservation projects using skills acquired in previous classes

**ID 8463 Historic Preservation Planning: 3 hours.**

Three hours lecture. An introduction to theories of community planning from a Historic Preservation perspective

**ID 8483 Preservation Economics/Advocacy: 3 hours.**

Three hours lecture. Examine economic techniques used in historic preservation projects and the funding and benefits of preserving historic buildings and districts and the real estate development process

**ID 8553 Preservation Field Studies II: 3 hours.**

(Prerequisite: ID 8453). Six hours laboratory. Continuation of ID 8453 with students continuing to collaborate with communities on preservation projects

**ID 9000 Research in Interior Design: 1-13 hours.**

Hours and credits to be arranged

## Interdisciplinary Studies Courses

**IDS 2111 Introduction to Interdisciplinary Studies: 1 hour.**

One hour lecture. Introduction to the field of interdisciplinary studies covering the history of interdisciplinary studies in higher education, fundamentals of interdisciplinary research, and real-world applications of interdisciplinary approaches and degrees

**IDS 2990 Special Topic in Interdisciplinary Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IDS 4111 Professional Seminar: 1 hour.**

(Prerequisite: IDS 2111. Restricted to BSIS majors or consent of instructor). One hour lecture. Introduction to professional opportunities and skills for students earning a BSIS degree

## Industrial Engineering Courses

**IE 1313 Lean Works Systems: 3 hours.**

Three hours lecture. Provides an introduction to fundamental industrial engineering concepts and tools, including career exploration. Introduces theories and concepts related to lean work systems, along with techniques for system evaluation and improvement

**IE 1911 Introduction to Industrial Engineering: 1 hour.**

Three hours laboratory. Concepts of industrial engineering, emphasizing the total systems approach. Introduction to analysis and design of general and industrial systems

**IE 2990 Special Topics in Industrial Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IE 3121 Industrial Ergonomics Laboratory: 1 hour.**

(Undergraduate Students co-requisites: IE 4613 and IE 3123; Graduate Students co-requisite: IE 4613/6613). Three hours laboratory. Application of human factors/ergonomics concepts in structured assignments involving data collection, analysis, and report generation. Hands-on experience with sophisticated testing equipment

**IE 3123 Industrial Ergonomics: 3 hours.**

(Undergraduate Students co-requisites: IE 4613 and IE 3121; Graduate Student co-requisite: IE 4613/6613). Three hours lecture. Analysis of work tasks; ergonomic design principles for manual work design, workplace design, and work environment design; work measurements; and design of wage payment plans

**IE 3323 Manufacturing Processes: 3 hours.**

(Corequisite: IE 3913). Three hours lecture. Manufacturing processes and materials; interrelationship of product design, material properties, and processing methods; processing and assembly methods as an integrated manufacturing system

**IE 3913 Engineering Economy I: 3 hours.**

(Prerequisite: MA 1713). Three hours lecture. Principles of evaluating alternative engineering proposals. Economic measures of effectiveness, costs and cost estimates, basic comparative models, break even and replacement analysis

**IE 4000 Directed Individual Study in Industrial and Systems Engineering: 1-6 hours.**

Hours and credits to be arranged

**IE 4113 Human Factors Engineering: 3 hours.**

(Prerequisite: Junior standing in engineering). Two hours lecture. Three hours laboratory. Human capabilities and limitations affecting communications and responses in man-machine systems. Emphasis on physiological and psychological fundamentals

**IE 4123 Psychology of Human-Computer Interaction: 3 hours.**

(Prerequisite: PSY 3713 or CS 4663/6663 or IE 4113/6113 or consent of instructor). Two hours lecture. Two hours laboratory. Exploration of psychological factors that interact with computer interface usability. Interface design techniques and usability evaluation methods are emphasized. (Same as CS 4673/6673 and PSY 4743/6743)

**IE 4173 Occupational Safety Engineering: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Causes and prevention of industrial accidents. Analysis of hazardous processes and materials. Design of occupational safety systems and programs

**IE 4193 Automotive Engineering: 3 hours.**

Three hours lecture. Fundamentals of automotive engineering including power units, mechanical systems, electrical systems and industrial and systems engineering aspects. (Same as CHE/ECE/ME 4193/6193 )

**IE 4333 Production Control Systems I: 3 hours.**

(Prerequisite: Grade of C or better in IE 4613). Three hours lecture. Principles, analysis, and design of production and inventory planning and control. Demand for forecasting, aggregated planning, inventory management, production scheduling and control systems

**IE 4353 Materials Handling: 3 hours.**

(Prerequisite: Junior or Senior Standing). Three hour lecture. Analysis and design of materials handling systems and components. Introduction to facilities design

**IE 4373 Automation: 3 hours.**

Two hours lecture. Three hours laboratory. Introduction to the various technologies used in both design and manufacturing automation

**IE 4513 Engineering Administration: 3 hours.**

(Prerequisite: Junior or graduate standing in engineering). Three hours lecture. Study of problems confronting the engineering manager. Includes: Organization and communication theory, internal and external relationships and responsibilities, and designing and implementing managerial systems

**IE 4533 Project Management: 3 hours.**

(Prerequisites: Grade of C or better in IE 4613). Three hours lecture. Use of CPM, PERT, and GERT for planning, managing and controlling projects. Computer procedures for complex networks

**IE 4543 Logistics Engineering: 3 hours.**

(Prerequisite: IE 4613 and senior or graduate standing, Co-requisites: IE 4733 or MA 4733). Three hours lecture. Analysis of complex logistics networks. Integration of supply, production, inventory, transportation, and distribution. Strategies for reducing logistics costs and lead times. Customer-supplier partnerships

**IE 4553 Engineering Law and Ethics: 3 hours.**

(Prerequisite: Senior standing in engineering). Three hours lecture. The engineer and his relations to the law, to the public, and the ethics of his profession. Includes contracts, patents, copyrights, sales agreements, engineering specifications

**IE 4573 Process Improvement Engineering: 3 hours.**

Three hours lecture. Introduction to quality and productivity improvement methodologies and tools. The design and implementation of continuous improvement systems in organizations

**IE 4613 Engineering Statistics I: 3 hours.**

(Prerequisite: MA 1723). Three hours lecture. Introduction to statistical analysis. Topics include: probability, probability distributions, data analysis, parameter estimation, statistical intervals, and statistical inferences

**IE 4623 Engineering Statistics II: 3 hours.**

(Prerequisite: Grade of C or better in IE 4613). Three hours lecture. Continuation of IE 4613/6613. Introduction to engineering applications of regression, experimental design and analysis, and nonparametric methods

**IE 4653 Industrial Quality Control: 3 hours.**

(Prerequisite: IE 4613). Three hours lecture. The theory and application of statistical quality control; statistical process control; and statistical acceptance sampling

**IE 4673 Reliability Engineering: 3 hours.**

(Prerequisites: IE 4613 ). Three hours lecture. Probability functions and statistical methods for component life testing and system reliability prediction. System availability and maintainability. Redundancy in time-dependent and time-independent situations

**IE 4683 Machine Learning with Industrial Engineering Applications: 3 hours.**

(Prerequisite: IE 4613/6613: Engineering Statistics I or equivalent; an approved computer programming elective course). Three hours lecture. An introduction to machine learning model design and development for use in IE applications. The topics will include the foundation of Python computational tools, regression, classification, and unsupervised learning

**IE 4713 Operations Research I: 3 hours.**

(Prerequisites: IE 4613). Mathematical techniques of decision making, queuing, networks, simulation and dynamic programming

**IE 4733 Linear Programming: 3 hours.**

(Prerequisites: MA 3113). Three hours lecture. Theory and application of linear programming; formulating optimization models; simplex algorithm, duality and sensitivity analysis, integer programming; branch-and-bound algorithm; real-life applications of linear and integer programming models (Same as MA 4733/6733)

**IE 4743 Engineering Design Optimization: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction to MDO. ( Same as ASE 4553/6553 and EM 4143/6143 )

**IE 4753 Systems Engineering and Analysis: 3 hours.**

(Prerequisite: Grade of C or better in IE 3913 and IE 4613). Three hours lecture. Systems concepts, methodologies, models and tools for analyzing, designing, and improving new and existing human-made systems

**IE 4773 Systems Simulation I: 3 hours.**

(Prerequisite: Grade of C or better in IE 4934, IE 4933 or equivalent programming course, Co-requisite: IE 4623). Three hours lecture. The principles of simulating stochastic systems with an emphasis on the statistics of simulation and the use of discrete-event simulation languages

**IE 4800 Undergraduate Research: 1-13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**IE 4914 Industrial Systems Design: 4 hours.**

(Prerequisite: Grade of C or better in IE 3123, IE 3323, and IE 4333 and consent of instructor). Two hours lecture. Six hours laboratory. The fundamental procedures and techniques in design of operational systems. Emphasis on both sub-systems and total systems

**IE 4923 Six Sigma Methods and Project: 3 hours.**

(Prerequisites: IE 4623/6623, IE 4653/6653) One hour lecture Four hours laboratory. Introduction of six sigma and problem solving methodologies. Application of learned methodologies in selecting, performing, and completing a process involvement project

**IE 4933 Information System in Industrial Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CSE 1233, CSE 1284 or equivalent). Three hours lecture. An introduction to the design and development of information systems for use in industrial engineering applications

**IE 4990 Special Topics in Industrial and Systems Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IE 6113 Human Factors Engineering: 3 hours.**

(Prerequisite: Junior standing in engineering). Two hours lecture. Three hours laboratory. Human capabilities and limitations affecting communications and responses in man-machine systems. Emphasis on physiological and psychological fundamentals

**IE 6123 Psychology of Human-Computer Interaction: 3 hours.**

(Prerequisite: PSY 3713 or CS 4663/6663 or IE 4113/6113 or consent of instructor). Two hours lecture. Two hours laboratory. Exploration of psychological factors that interact with computer interface usability. Interface design techniques and usability evaluation methods are emphasized. (Same as CS 4673/6673 and PSY 4743/6743)

**IE 6173 Occupational Safety Engineering: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Causes and prevention of industrial accidents. Analysis of hazardous processes and materials. Design of occupational safety systems and programs

**IE 6193 Automotive Engineering: 3 hours.**

Three hours lecture. Fundamentals of automotive engineering including power units, mechanical systems, electrical systems and industrial and systems engineering aspects. (Same as CHE/ECE/ME 4193/6193 )

**IE 6333 Production Control Systems I: 3 hours.**

(Prerequisite: Grade of C or better in IE 4613). Three hours lecture. Principles, analysis, and design of production and inventory planning and control. Demand for forecasting, aggregated planning, inventory management , production scheduling and control systems

**IE 6353 Materials Handling: 3 hours.**

(Prerequisite: Junior or Senior Standing). Three hour lecture. Analysis and design of materials handling systems and components. Introduction to facilities design

**IE 6373 Automation: 3 hours.**

Two hours lecture. Three hours laboratory. Introduction to the various technologies used in both design and manufacturing automation

**IE 6513 Engineering Administration: 3 hours.**

(Prerequisite: Junior or graduate standing in engineering). Three hours lecture. Study of problems confronting the engineering manager. Includes: Organization and communication theory, internal and external relationships and responsibilities, and designing and implementing managerial systems

**IE 6533 Project Management: 3 hours.**

(Prerequisites: Grade of C or better in IE 4613). Three hours lecture. Use of CPM, PERT, and GERT for planning, managing and controlling projects. Computer procedures for complex networks

**IE 6543 Logistics Engineering: 3 hours.**

(Prerequisite: IE 4613 and senior or graduate standing, Co-requisites: IE 4733 or MA 4733). Three hours lecture. Analysis of complex logistics networks. Integration of supply, production, inventory, transportation, and distribution. Strategies for reducing logistics costs and lead times. Customer-supplier partnerships

**IE 6553 Engineering Law and Ethics: 3 hours.**

(Prerequisite: Senior standing in engineering). Three hours lecture. The engineer and his relations to the law, to the public, and the ethics of his profession. Includes contracts, patents, copyrights, sales agreements, engineering specifications

**IE 6573 Process Improvement Engineering: 3 hours.**

Three hours lecture. Introduction to quality and productivity improvement methodologies and tools. The design and implementation of continuous improvement systems in organizations

**IE 6613 Engineering Statistics I: 3 hours.**

(Prerequisite: MA 1723). Three hours lecture. Introduction to statistical analysis. Topics include: probability, probability distributions, data analysis, parameter estimation, statistical intervals, and statistical inferences

**IE 6623 Engineering Statistics II: 3 hours.**

(Prerequisite: Grade of C or better in IE 4613). Three hours lecture. Continuation of IE 4613/6613. Introduction to engineering applications of regression, experimental design and analysis, and nonparametric methods

**IE 6653 Industrial Quality Control: 3 hours.**

(Prerequisite: IE 4613). Three hours lecture. The theory and application of statistical quality control; statistical process control; and statistical acceptance sampling

**IE 6673 Reliability Engineering: 3 hours.**

(Prerequisites: IE 4613 ). Three hours lecture. Probability functions and statistical methods for component life testing and system reliability prediction. System availability and maintainability. Redundancy in time-dependent and time-independent situations

**IE 6683 Machine Learning with Industrial Engineering Applications: 3 hours.**

(Prerequisite: IE 4613/6613: Engineering Statistics I or equivalent; an approved computer programming elective course). Three hours lecture. An introduction to machine learning model design and development for use in IE applications. The topics will include the foundation of Python computational tools, regression, classification, and unsupervised learning

**IE 6713 Operations Research I: 3 hours.**

(Prerequisites: IE 4613). Mathematical techniques of decision making, queuing, networks, simulation and dynamic programming

**IE 6733 Linear Programming: 3 hours.**

(Prerequisites: MA 3113). Three hours lecture. Theory and application of linear programming; formulating optimization models; simplex algorithm, duality and sensitivity analysis, integer programming; branch-and-bound algorithm; real-life applications of linear and integer programming models (Same as MA 4733/6733)

**IE 6743 Engineering Design Optimization: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Introduction to optimality criteria and optimization techniques for solving constrained or unconstrained optimization problems. Sensitivity analysis and approximation. Computer application in optimization. Introduction to MDO. ( Same as ASE 4553/6553 and EM 4143/6143 )

**IE 6753 Systems Engineering and Analysis: 3 hours.**

(Prerequisite: Grade of C or better in IE 3913 and IE 4613). Three hours lecture. Systems concepts, methodologies, models and tools for analyzing, designing, and improving new and existing human-made systems

**IE 6773 Systems Simulation I: 3 hours.**

(Prerequisite: Grade of C or better in IE 4934, IE 4933 or equivalent programming course, Co-requisite: IE 4623). Three hours lecture. The principles of simulating stochastic systems with an emphasis on the statistics of simulation and the use of discrete-event simulation languages

**IE 6923 Six Sigma Methods and Project: 3 hours.**

(Prerequisites: IE 4623/6623, IE 4653/6653) One hour lecture Four hours laboratory. Introduction of six sigma and problem solving methodologies. Application of learned methodologies in selecting, performing, and completing a process involvement project

**IE 6933 Information System in Industrial Engineering: 3 hours.**

(Prerequisite: Grade of C or better in CSE 1233, CSE 1284 or equivalent). Three hours lecture. An introduction to the design and development of information systems for use in industrial engineering applications

**IE 6990 Special Topics in Industrial and Systems Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IE 7000 Directed Individual Study in Industrial and Systems Engineering: 1-6 hours.**

Hours and credits to be arranged

**IE 8143 Applied Ergonomics Methods: 3 hours.**

Three hours lecture. Provide practical usage and theoretical background of select tools for ergonomic evaluation of workers and work places, tasks, and environments using real world scenarios

**IE 8153 Cognitive Engineering: 3 hours.**

Three hours lecture. Implications of human perceptual, cognitive, and psycho-motor capabilities on the design of systems for effective, efficient and safe human-machine performance

**IE 8163 Macroergonomics: 3 hours.**

Three hours lecture. Provides a foundational review of Macrergonomics, examining the personnel, technological, and environmental factors influencing organizations. Addresses the relationship between macro- and micro- ergonomics

**IE 8333 Production Control Systems II: 3 hours.**

(Prerequisites: IE 4333 ). Three hours lecture. Inventory systems, static and dynamic production planning, operations scheduling and forecasting systems

**IE 8353 Manufacturing Systems Modeling: 3 hours.**

(Prerequisites: IE 4733 and IE 4773). Three hours lecture. A study of models used to describe and analyze manufacturing systems. Development of models using queuing networks, mathematical programming, simulation, and other techniques

**IE 8583 Enterprise Systems Engineering: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Focuses on the design and improvement of an enterprise through the use of engineering tools and methods, based on the systems perspective of industrial engineering

**IE 8623 Advanced Data Analytics for Complex Systems: 3 hours.**

(Prerequisite: IE 4623 and IE 4683/6683 or equivalent). Three hours lecture. This course will cover a collection of advanced statistical modeling methods including regression-based methods, classification methods, and functional data analysis for complex engineering systems

**IE 8723 Operations Research II: 3 hours.**

(Prerequisite: IE 4713). Problem formulation, general inventory theory, restricted inventory models. Markovian and queuing processes, sequencing and coordination, game theory, search problems

**IE 8733 Decision Theory: 3 hours.**

(Prerequisite: IE 4613). Three hours lecture. A quantitative development of the decision making process. Criteria for decision making. Treatment of risk under uncertainty and in conflict situations

**IE 8743 Nonlinear Programming I: 3 hours.**

(Prerequisite: IE 4733 or MA 4733). Three hours lecture. Optimization of nonlinear functions; quadratic programming, gradient methods, integer programming; Lagrange multipliers and Kuhn-Tucker theory

**IE 8753 Network Flows and Dynamic Programming: 3 hours.**

(Prerequisites: MA 2733 and IE 4613). Three hours lecture. Applications of network optimization problems and simplex algorithm; and dynamic programming to industrial/ management problems. Study of serial/non-serial multistage deterministic and stochastic systems. Principles of optimality

**IE 8763 Stochastic Programming: 3 hours.**

Three hours lecture. An introduction to stochastic optimization, focusing on stochastic programming. Covers applications of stochastic modeling and formulation, important properties of stochastic programs, and solution methods such as decomposition, Monte Carlo methods, and approximation methods

**IE 8773 Systems Simulation II: 3 hours.**

(Prerequisite: IE 4773/6773 ). Three hours lecture. Continuation of IE 4773. Includes: Advanced theory and practice of simulation, the statistics of simulation, simulation languages, and continuous simulations

**IE 8793 Heuristics in Optimization: 3 hours.**

Three hours lecture. A study of heuristic methods and their applications to optimization problems

**IE 8913 Engineering Economy II: 3 hours.**

(Prerequisites: IE 3913 and IE 4613). Three hours lecture. Advanced principles and methods for engineering analysis of industrial problems. Topics include criteria for decisions, project investment and analysis, and elements of risk and uncertainty

**IE 8990 Special Topics in Industrial and Systems Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**IE 9000 Research in Industrial Engineering: 1-13 hours.**

Hours and credits to be arranged

## Industrial Technology Courses

**INDT 1001 Introduction to Industrial Technology: 1 hour.**

One hour lecture. Students will be introduced to the Industrial Technology program, expected degree program outcomes, and program success strategies

**INDT 1003 Technical Drafting and Print Reading: 3 hours.**

Two hours lecture. Two hours lab. Utilizing manual board skills to create technical drawings. Topics include industry-based terminology, drafting tools, scaling, dimensioning, and geometric construction of multi-view and working drawings to communicate design components commonly used in technical design

**INDT 1133 Introduction to PTEC: 3 hours.**

Three hours lecture. This course will focus on the core technology, equipment, and processes found in the process technology environment. Students will learn about the general duties and responsibilities of a process technology technician

**INDT 1813 Basic Industrial Electricity and Electronics: 3 hours.**

(Prerequisites: MA 1313). Two hours lecture. Two hours laboratory. Study of fundamental industrial electrical and electronic principles with experimentation and project construction

**INDT 2113 Introduction to PLC Programming: 3 hours.**

Three hours lecture. Study of fundamental methods in the programming of industrial PLCs with regard to language and logic. Topics include processor units, numbers systems memory organization, relay type devices, timers, counters, data manipulators, and programming

**INDT 2123 Introduction to CNC Programming: 3 hours.**

(Prerequisites: INDT 1003 & MA 1313) Two hours lecture. Two hours laboratory. Study of the fundamentals of machine and cutting tool construction as well as techniques employed in both the setup and programming of CNC machines

**INDT 2323 Welding Technology: 3 hours.**

Two hours lecture. Two hours laboratory. The theory and practical use of welding and cutting technology in industry. Topics include gas, electric, and wire feed welding, plasma arc cutting, and safety standards associated with welding technology

**INDT 2343 Parametric Modeling for 3D Design: 3 hours.**

(Prerequisite: INDT 1003). Two hours lecture. Two hours lab. This course focuses on the fundamentals of 3D parametric modeling. It includes design terminology and concepts associated with 3D modeling, parametric principles, rendering, and model testing

**INDT 2353 Industrial Computer Aided Drafting and Design: 3 hours.**

(Prerequisite: INDT 1003). Two hours lecture. Two hours lab. Fundamental theories and practice of computer aided drafting and design using direct modeling techniques. Special emphasis placed on 2D design for manufacturing

**INDT 2533 Processing of Oil and Gas: 3 hours.**

(Prerequisite: INDT 1133). Two hours lecture. Two hours laboratory. The course provides an overview of the oil and gas industry, including history, equipment, systems process, business model, and societal and environmental impact. The primary emphasis is on safe operations, discovery and exploration, production, transportation, refining, and marketing

**INDT 2613 Industrial Fluid Power: 3 hours.**

Two hours lecture. Two hours laboratory. A practical study of fluid power concepts, components, and systems as it relates to modern industrial applications and to appropriate scientific principles. Hands-on laboratory activities are included in this study

**INDT 3043 Industrial Safety: 3 hours.**

Three hours lecture. Principles and procedures relating to appraisal, organization and administration of safety programs in industrial plants including implementation of occupational safety and health legislation

**INDT 3063 Industrial Human Relations: 3 hours.**

Three hours lecture. This course focuses on the psychological principles of human interactions in day-to-day life. This includes communication skills, empathy, and understanding of common human relations. Specific focus is given to these skills related to industrial supervision

**INDT 3101 Junior Seminar: 1 hour.**

(Prerequisite: INDT 1001 and Junior level). One hour seminar. Preparation and design of Senior project

**INDT 3103 Advanced Industrial Electricity and Electronics: 3 hours.**

(Prerequisite: INDT 1813). Two hours lecture. Two hours laboratory. Continuation of INDT 1814. Study of and experimentation with A/C power, industrial electronics, transistors, and integrated circuitry. This course is a continuation of INDT 1813

**INDT 3133 Process Equipment and Instrumentation: 3 hours.**

Two hours lecture. Two hours laboratory. This course will focus on the core technology, equipment, and processes found in the process technology environment. Students will learn about the general duties and responsibilities of a process technology technician

**INDT 3223 Industrial Materials: 3 hours.**

(Prerequisite: CH 1043 or higher). Three hours lecture. An investigation of the mechanical/characteristic properties of industrial materials including wood, polymers and composites. The influence of these properties on manufacturing and product service requirements

**INDT 3233 Process Systems and Operations: 3 hours.**

(Prerequisite: INDT 1133). Two hours lecture. Two hours laboratory. Overview of the most common systems and operations found in process technology production facilities. Focuses on the safe day-to-day operations, routine maintenance procedures, emergency prevention, and emergency response

**INDT 3243 Industrial Metrology: 3 hours.**

(Prerequisite: Junior Standing). Three hours lecture. A study of the techniques for analysis of production systems, the design of workstations, and the development of time standards

**INDT 3232 Welding Technology II: 3 hours.**

(Prerequisite: INDT 2323). Two hours lecture. Two hours laboratory. The theory and practical use of welding technologies to explore open root v-groove and socket weld joint designs, material preparation, welding codes, Non-Destructive Examination methods and codes, welding procedure qualifications, and welder qualifications

**INDT 3333 Process Quality and Troubleshooting: 3 hours.**

(Prerequisite: INDT 1133). Two hours lecture. Two hours laboratory. This course focuses on key areas of the prevention of problem scenarios through quality monitoring and prevention techniques, and the troubleshooting of such scenarios if they arise

**INDT 3363 Motion and Time Study: 3 hours.**

(Prerequisite: Junior Standing). Two hours lecture. Two hours laboratory. A study of the techniques for analysis of production systems, the design of work stations, and the development of time standards

**INDT 3373 Forecasting and Cost Modeling: 3 hours.**

(Prerequisite: Junior Standing). Three hours lecture. Use of the higher functions of spreadsheet software to undertake costing of manufacturing process routes and to forecast changes in manufacturing scenarios

**INDT 3683 CNC Machining Processes: 3 hours.**

(Prerequisite: INDT 3243 & INDT 2343). Two hours lecture, two hours laboratory. The programming and operation of industrial CNC machine tools, including advanced programming concepts, multi-axis machining, and CAM systems

**INDT 3703 Principles of Packaging: 3 hours.**

(Prerequisite or Corequisite: INDT 2343). Three hours lecture. Basic principles, materials, and design applications of packaging for industry. This course will also discuss labeling and tracking processes for packages to move efficiently from manufacturer to purchaser

**INDT 3713 Packaging Materials: 3 hours.**

(Prerequisite: INDT 3703). Two hours lecture. Two hours lab. This course will provide students with a deeper understanding of packaging materials, their applications, design, and testing protocols

**INDT 3753 Introduction to Industrial Coatings: 3 hours.**

(Prerequisite INDT 2613). Three hours lecture. This course is an introductory course to industrial coatings technologies, their applications, and pretreatment

**INDT 3813 Technical Writing and Presentation for Industry: 3 hours.**

(Prerequisites: Junior Standing). Three hours lecture. The creation of work instructions, manuals, requests for proposals, presentations, justification for equipment, and professional and personal written communications, using different communication media

**INDT 3853 Introduction to Powder Coatings: 3 hours.**

(Prerequisite INDT 2613 and INDT 3753). Two hours lecture. Two hours lab. This course is an introductory course to industrial powder coatings technologies, their applications, surface preparation, and equipment

**INDT 3863 Introduction to Liquid Coatings: 3 hours.**

(Prerequisite: INDT 2613 and INDT 3753). Two hours lecture. Two hours lab. This course is an introductory course to industrial powder coatings technologies, their applications, surface preparation, and equipment

**INDT 3873 Introduction to E-Coatings: 3 hours.**

(Prerequisites: INDT 2613 and INDT 3753). Three hours lecture. This course is an introductory course to industrial e-coatings technologies, their applications, surface preparation, and equipment

**INDT 4000 Directed Individual Study in Industrial Technology: 1-6 hours.**

Hours and credit to be arranged

**INDT 4103 Industrial Control Systems: 3 hours.**

(Prerequisite: INDT 3103). Two hours lecture. Two hours laboratory. Application of basic and advanced industrial electronic principles to industrial control systems and processes

**INDT 4203 Automated Systems: 3 hours.**

(Prerequisite: INDT 2113 and INDT 2613). Two hours lecture. Two hours laboratory. Application of basic and advanced industrial electronic principles to industrial control systems and processes

**INDT 4213 Survey of Energy Sources and Power Technology: 3 hours.**

(Prerequisite: PH 1023 or higher and Junior Standing). Three hours lecture. Scientific and applied approaches to energy conversion, transmission, utilization, and conservation. Covering internal-external combustion, nuclear, fluid, hydroelectric, solar, etc. with an emphasis on current energy problems

**INDT 4224 Quality Assurance: 4 hours.**

(Prerequisites: INDT 3373 & Junior Standing). Four hours lecture. Concepts and procedures to design, plan, assure and audit quality and quality systems, with an introduction to Six Sigma and experimental design

**INDT 4233 Maintenance Management: 3 hours.**

(Prerequisite: Junior Standing). Three hours lecture. Understanding of the concepts and practices of Total Productive Maintenance Management, to give a proactive production maintenance strategy for the future

**INDT 4243 System Design for Industrial Finishing Applications: 3 hours.**

(Prerequisite: INDT 3753). Three hours lecture. This course provides students with an overview of different coating finishing systems, technologies, safety, maintenance, and development of these systems

**INDT 4263 Manufacturing Technology and Processing: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Discussion and appreciation of manufacturing processes with regard to material processing

**INDT 4303 Industrial Robotics: 3 hours.**

(Prerequisite: INDT 4103) Two hours lecture. Two hours laboratory. A study of industrial robotics and applications for production supervisors

**INDT 4373 Lean Six Sigma: 3 hours.**

(Prerequisites: INDT 4224). Three hours lecture. Discussion and applications of Six Sigma within the lean manufacturing environment, to increase quality and reduce costs, to make manufacturers more competitive

**INDT 4403 Automated Systems II: 3 hours.**

(Prerequisite: INDT 4203). Two hours lecture. Two hours laboratory. An advanced study of automated systems and applications for the Industrial Technologist

**INDT 4443 Additive Manufacturing and Rapid Prototyping: 3 hours.**

(Prerequisite: INDT 2343). Two hours lecture. Two hours laboratory. By surveying the current design and technology approaches of the field, the course will teach students the standards and techniques used in Additive Manufacturing & Rapid Prototyping

**INDT 4463 Manufacturing Technology & Processes II: 3 hours.**

(Prerequisite: INDT 4263). Three hours lecture. Discussion and appreciation of manufacturing processes with regard to material processing, including machining and automated and computer-aided manufacturing

**INDT 4703 Sustainable Packaging: 3 hours.**

(Prerequisite: Junior Standing.) Three hours lecture. This course provides students with an overview of different coating finishing systems, technologies, safety, maintenance, and development of these systems

**INDT 4713 Healthcare and Food Packaging: 3 hours.**

(Prerequisite: INDT 3713). Three hours lecture. Study of packing materials and their impact, legal, and economic considerations when used in healthcare and food packaging technologies

**INDT 4801 Senior Seminar: 1 hour.**

(Prerequisites: INDT 3101 and Graduating Semester). One hour seminar. Execution of senior project developed during Junior Seminar

**INDT 6203 Automated Systems: 3 hours.**

(Prerequisite: INDT 2113 and INDT 2613). Two hours lecture. Two hours laboratory. Application of basic and advanced industrial electronic principles to industrial control systems and processes

**INDT 6224 Quality Assurance: 4 hours.**

(Prerequisites: INDT 3373 & Junior Standing). Four hours lecture. Concepts and procedures to design, plan, assure and audit quality and quality systems, with an introduction to Six Sigma and experimental design

**INDT 6233 Maintenance Management: 3 hours.**

(Prerequisite: Junior Standing). Three hours lecture. Understanding of the concepts and practices of Total Productive Maintenance Management, to give a proactive production maintenance strategy for the future

**INDT 6263 Manufacturing Technology and Processing: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Discussion and appreciation of manufacturing processes with regard to material processing

**INDT 6303 Industrial Robotics: 3 hours.**

(Prerequisite: INDT 4103) Two hours lecture. Two hours laboratory. A study of industrial robotics and applications for production supervisors

## Insurance Risk Management Courses

**INS 2003 Personal Money Management: 3 hours.**

Three hours lecture. The individual's acquisition and management of an optimal personal income and expenditure pattern over a lifetime to best meet his/her financial objectives. (Same as FIN 2003. Not open to finance majors or as part of a GBA Finance Concentration.)

**INS 2990 Special Topics in Insurance, Risk Management, and Financial Planning: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**INS 3103 Principles of Insurance: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. A study of the principles and concepts of insurance plus a survey of personal coverages such as Homeowners, Automobile, Life and Health insurance

**INS 3203 Property and Casualty Insurance: 3 hours.**

Three hours lecture. A study of the major issues in property and casualty insurance including property and liability coverages, company operations, rate making, and international concepts

**INS 3303 Life and Health Insurance: 3 hours.**

Three hours lecture. The nature and function of life insurance; policy forms and provisions; reserves; company organization; legal aspects; taxation and practical application

**INS 3403 Financial Planning: 3 hours.**

(Prerequisites: FIN 3123 ). Three hours lecture. A study dealing with the problems of the individual in the creating, conserving, and disposing of an estate through the use of property, securities, and insurance

**INS 3503 Employee Benefits: 3 hours.**

Three hours lecture. A comprehensive study of employee benefit plans available to employers, including the principles and concepts necessary to design and implement successful employee benefit programs

**INS 4000 Directed Individual Study in Risk Management and Insurance: 1-6 hours.**

Hours and credits to be arranged

**INS 4503 Enterprise Risk Management: 3 hours.**

(Prerequisites: INS 3103 ). Three hours lecture. A study of the principles, concepts and techniques to manage pure risk exposures which organizations face while pursuing their objectives

**INS 4990 Special Topics in Risk Management and Insurance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**INS 6503 Enterprise Risk Management: 3 hours.**

(Prerequisites: INS 3103 ). Three hours lecture. A study of the principles, concepts and techniques to manage pure risk exposures which organizations face while pursuing their objectives

**INS 6990 Special Topics in Risk Management and Insurance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**INS 7000 Directed Individual Study in Insurance, Risk Management, and Financial Planning: 1-6 hours.**

Hours and credits to be arranged

**INS 8113 Insurance Education: 3 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Examination of insurance principles for high school teachers. Coverage will include a broad array of related topics to help prepare teachers for the classroom



**INS 8990 Special Topics in Risk Management and Insurance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**International Student Exchange Courses****ISE 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**ISE 1103 Introduction to Global Studies: 3 hours.**

(Prerequisite: Admission into the International Studies Certificate Program.) Three hours lecture. This course provides an overview of global studies to broaden students' cultural perspectives so that they are more prepared to develop a well-rounded world-view

**ISE 4100 International Student Exchange: 19 hours.**

(Prerequisite: Acceptance into the International Student Exchange program. Grades from the host institution will be transferred and recorded at MSU after each semester the student participates in the Program.)

**ISE 4103 Cross-Cultural Leadership: 3 hours.**

(Prerequisite: ISE 1103 and completion of an approved study abroad.) Three hours lecture. Students will examine cross-cultural leadership styles while culminating their international experiences, demonstrating how these experiences are pertinent to their futures and overall global awareness

**ISE 4200 International Student Exchange: 3-19 hours.**

(Prerequisite: Acceptance into the International Student Exchange program. Grades from the host institution will be transferred and recorded at MSU after each semester the student participates in the Program.)

**ISE 4710 Interdisciplinary Study Tour: 1-6 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study

**ISE 4990 Special Topics in International Student Exchange: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ISE 6710 Interdisciplinary Study Tour: 1-6 hours.**

Experiential learning through travel in the United States or abroad focusing on specialized areas of study

**ISE 6990 Special Topics in International Student Exchange: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Kinesiology Courses****KI 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**KI 1803 Health Trends and Topics: 3 hours.**

Three hours lecture. An introductory survey of the multiple dimensions of health. Focus is upon healthy behaviors across the lifespan as well as environmental and social influences

**KI 2023 Foundations of Health Education: 3 hours.**

Three hours lecture. Introduction to the discipline of Health Education. This course entails the examination of fundamental concepts and required competencies of the health educator and how to incorporate in a variety of settings

**KI 2213 Emergency Health Care: 3 hours.**

Three hours lecture. Provide students with knowledge and practical experience necessary to prevent, recognize, and provide basic care for injuries and sudden illnesses until advanced medical care arrives

**KI 2603 Medical Terminology: 3 hours.**

Three hours lecture. A working knowledge of terminology related to the human body through descriptive definitions, practical applications, and medical abbreviations will be developed

**KI 2990 Special Topics in Kinesiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**KI 3273 Athletic Training: 3 hours.**

(Prerequisite: BIO 1004 or BIO 2004). Three hours lecture. Designed for those beginning careers in coaching, physical education, and the fitness profession, the course prepares students to prevent, recognize, and treat of injuries prevalent and manage emergency situations in athletics, physical education, and adult fitness programs

**KI 4000 Directed Individual Study in Kinesiology: 1-9 hours.**

Hours and credits to be arranged

**KI 4990 Special Topics in Kinesiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**KI 6990 Special Topics in Kinesiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**KI 7000 Directed Individual Study in Kinesiology: 1-9 hours.**

Hours and credits to be arranged

**KI 8303 Research in Kinesiology: 3 hours.**

Three hours lecture. Study of the methods and techniques used in kinesiology research. During the course of the semester students prepare a research proposal

**KI 8313 Interpretation of Data in Kinesiology: 3 hours.**

Three hours lecture. Statistical interpretation of qualitative and quantitative data in the various disciplines of kinesiology

**KI 8543 Postural and Locomotor Rehabilitation: 3 hours.**

Three hours lecture. Principles of Neuromechanics in the analysis of posture and locomotion, with special emphasis on rehabilitation of balance and gait disorders

**KI 8553 Exercise Management for Persons with Disabilities: 3 hours.**

Three hours lecture. Focuses on theory, research, and practice in exercise management in special populations

**KI 8563 Motor Behavior in Special Populations: 3 hours.**

Three hours lecture. This course focuses on theory, research, and practice in movement control and learning in special populations

**KI 8603 Disability, Physical Activity and Health: 3 hours.**

Three hours lecture. An examination of health disparities experienced by persons with disabilities with special emphasis on how these disparities can be alleviated with physical activity and exercise

**KI 8710 Internship: 3-6 hours.**

Opportunity for practical experience in the sport industry, fitness/wellness programs, or clinical rehabilitation settings

**KI 8913 Doctoral Seminar in Exercise Science: 3 hours.**

Three hours seminar. Discussions using current research literature in exercise science with in-depth analyses of selected research from exercise physiology, integrative kinesiology, and biobehavioral kinesiology

**KI 8923 Doctoral Seminar in Sports Studies: 3 hours.**

Three hours seminar. Discussions on current research literature in sport studies with in-depth analyses of selected research from the sport industry and cultural, social and historical studies

**KI 8990 Special Topics in Kinesiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**KI 9000 Research in Kinesiology: 1-13 hours.**

Hours and credits to be arranged

## Landscape Architecture Courses

**LA 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**LA 1153 Introduction to Landscape Architecture: 3 hours.**

Six hours studio/lab. Acquaints students with the profession's design vocabulary, application, types of work, and initial experiences dealing with the creation of and evaluation of three dimensional space

**LA 1223 Use of Computers in Landscape Architecture: 3 hours.**

One hour lecture. Four hours studio/lab. A review of computer technology and its application to be the practice of Landscape Architecture

**LA 1333 Landscape Systems and Plant Communities: 3 hours.**

One hour lecture. Four hours laboratory. The nature, scope and relevancy of landscape systems and their respective plant communities as they relate to land planning and landscape architectural design

**LA 1423 History of Landscape Architecture: 3 hours.**

Three hours lecture. Historic development of Landscape Architecture Profession

**LA 1433 Landscape Architecture Creativity: 3 hours.**

One hour lecture. Four hours studio/lab. An exploration of the creative process and methods of expanding conceptual thinking in designed and built projects

**LA 1533 Presentation Methods and Media: 3 hours.**

Six hours studio. A review of the various types of architectural drawings used in landscape architecture. Emphasis on basic hand graphic tools and drawing techniques and their use in design

**LA 1701 Landscape Professional Career Paths Seminar: 1 hour.**

One hour lecture. First-year seminar that explores the diverse career paths for landscape architects and landscape contracting and management professionals

**LA 1711 Landscape Contracting Internship I: 1 hour.**

(Prerequisites: LA 1701, completion of 12 hours and 2.0 GPA) Internship of planned, progressive and supervised learning with a landscape contracting firm

**LA 1803 Landscape Architecture Appreciation: 3 hours.**

Three hours lecture. A survey of landscape architecture encompassing design, construction, management, maintenance and practice. Emphasis on development and improvement of home, neighborhood and community environment. (For non-majors.)

**LA 2453 Site Inventory and Analysis: 3 hours.**

One hour lecture. Four hours studio/lab. The collection, presentation, and use of pertinent site related data. Conventional non-technical methods of presentation of data and computer generated formats are considered and analyzed

**LA 2544 Landscape Architecture Construction I: Materials: 4 hours.**

(Prerequisites: Grade of C or better in LA 1223 and LA 1533). Two hours lecture. Four hours studio. The nature of materials and their physical attributes. Calculations, drawings, and specifications for construction design and details

**LA 2554 Landscape Architecture Design Studio I: 4 hours.**

(Prerequisites: (Grade of C or better in the following courses: LA 1153, LA 1223, LA 1333, and LA 1533). Eight hour studio/lab. A landscape architecture design process applied to sustainable site planning. Emphasis on green infrastructure and application of design principles to site design elements

**LA 2644 Construction II: Grading: 4 hours.**

(Prerequisites: Grade of C or better in the following course: LA 2544). Two hours lecture. Four hours studio. Land surveying, landscape architecture grading, roadway design and alignment, basic staking and layout, and earth volume estimation

**LA 2652 Landscape Architecture Precedent Studies: 2 hours.**

(Prerequisites: LA 2654). On-site travel study to experience and document notable landscape architecture projects, methods of construction, and professional office visits

**LA 2654 Landscape Architecture Design II: Neighborhood Context: 4 hours.**

(Prerequisite: Grade of C or better in LA 2554 and passing of Mid-Performance Portfolio Review). Eight hours studio. Emphasis on design at the neighborhood scale, including block and street network design

**LA 2701 Landscape Contracting Seminar I: 1 hour.**

(Prerequisite: LA 1712). One hour lecture. Weekly seminar to investigate topics related to modern landscape practices experienced in LA 1712 LC Internship I. Formal presentations of internship case studies

**LA 2711 Landscape Contracting Internship II: 1 hour.**

(Prerequisites: LA 1711, LA 2701 and 2.0 GPA). Internship of planned, progressive and supervised learning with a landscape contracting firm

**LA 2990 Special Topics in Landscape Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**LA 3534 Landscape Architecture Construction III - Hydrology: 4 hours.**

(Prerequisites: Grade of C or better in the following course: LA 2644). Two hours lecture. Four hours studio. Calculations for storm- water management, best management practices, surface and subsurface drainage systems, basic hydrology and erosion and sediment control design and practices

**LA 3554 Landscape Architecture Design III - Small Town/Rural Context: 4 hours.**

(Prerequisites: Grade of C or better in the following courses: LA 2644 and LA 2654). Eight hours studio. Emphasis on design at the Community/ Town scale, including place theory and aesthetics

**LA 3603 Design of the Golf Environment: 3 hours.**

(Prerequisite: LA 1803). Three hours lecture. Defining site development concerns of a golf complex, addressing areas of history, design, construction and maintenance

**LA 3623 Urban Planning Theory: 3 hours.**

Three hours lecture. Open to non-majors. Survey of principles and practice of urban planning. Emphasis on the planning process and use of a city's police power to regulate use of land

**LA 3652 Case Studies of Executed Works in Landscape Architecture: 2 hours.**

(Prerequisite: Grade of C or better in the following courses: LA 3655). Special five to ten day on-site observation visit for the study of notable LA projects and construction methods with lectures

**LA 3653 Planting Design Fundamentals in Landscape Architecture: 3 hours.**

(Prerequisites: Grade of C or better in the following courses: LA 1533, LA 2554, and PSS 2423 ) One hour lecture, four hours studio. Using plants as landscape architectural functional elements in a holistic design context. Applying the design elements and principles to design with emphasis on planting design

**LA 3654 Landscape Architecture Design IV: Urban Design: 4 hours.**

(Prerequisites: Grade of C or better in the following course: LA 3554). Eight hours studio/lab. Emphasis on urban planning and design, including consideration of urban fabric, building typologies, transit, streetscapes, pedestrian circulation, open space, hydrology, and natural systems

**LA 3701 Landscape Contracting Seminar II: 1 hour.**

(Prerequisite: LA 2712). One hour lecture. Weekly seminar to investigate topics related to modern landscape practices experienced in LA 2712 LC Internship II. Formal presentations of internship case studies

**LA 3711 Landscape Contracting Internship III: 1 hour.**

(Prerequisites: LA 2711, LA 3701 and 2.0 GPA). Internship of planned, progressive and supervised experiential learning with a landscape contracting firm

**LA 3713 Landscape Contracting I: 3 hours.**

(Prerequisites: ABE 1073 and EG 1513). Two hours lecture. Two hours laboratory. Study of the nature, scope, and application of the varied construction materials used in landscape projects; and, the construction processes related to landscape development

**LA 3721 Landscape Contracting Field Trip I: 1 hour.**

(Prerequisite: LA 1701). Five to ten day trip to visit landscape contracting firms and observe completed works

**LA 3742 Landscape Architecture Internship: 2 hours.**

(Prerequisite: Satisfactory completion of semester six of B.L.A. program with an overall G.P.A. of 3.0 in the Junior Year). Supervised experimental learning with a professional office or public agency

**LA 4000 Directed Individual Study in Landscape Architecture: 1-6 hours.**

Hours and credits to be arranged

**LA 4113 Design Theory and Criticism.: 3 hours.**

(Prerequisite: Undergraduates: Consent of Instructor, Graduates: None). Three hours lecture. An examination of the major theories and criticisms of modern landscape design with emphasis upon developing a critical approach to the profession

**LA 4124 Landscape Architecture Construction V: Construction Documents: 4 hours.**

(Prerequisites: LA 2544 and LA 2644). Two hours lecture. Four hours studio. The course integrates design principles with construction practices, culminating in the preparation of a site design and set of construction documents

**LA 4344 Landscape Architecture Construction IV: 4 hours.**

(Prerequisites: Grade of C or better in the following course: LA 3534 or consent of instructor). Two hours lecture. Four hours laboratory. Preparation of landscape architectural construction plans, details, and specifications for outdoor lighting, for irrigation, and for septic systems

**LA 4443 Exterior Design-Build Studio: 3 hours.**

(Prerequisite: Consent of instructor). Six hours studio/lab. An interdisciplinary exploration of an exterior project focused on sustainable site practices from design concept to implementation

**LA 4463 Community Food Systems: 3 hours.**

Two hours lecture. Two hours laboratory. Exploration of aspects in community food systems including planning and design, sustainable growing practices, and human nutrition and health. (Same as FNH 4463/6463 and PSS 4463/6463)

**LA 4514 Ecological Planting Design: 4 hours.**

(Prerequisites: Undergraduates: ART 1123, LA 1153, LA 1333, LA 1533, PSS 2423; Graduates: LA 8513 or Consent of Instructor). Two hours lecture. Four hours studio. Examine and apply adaptation theory and strategies that emphasize resilient approaches to urban and suburban green infrastructure projects

**LA 4523 Applications for GIS for Landscape Architects: 3 hours.**

(Prerequisite: LA 1223 or consent of instructor). One hour lecture, four hour studio/lab. Applying geographical information systems technology to the practice of Landscape Architecture

**LA 4653 Study Abroad: Gardens and Urban Spaces: 3 hours.**

(Prerequisite: Junior or graduate standing of consent of instructor). Special on-site travel study to experience and document notable landscape architecture projects, methods of construction, and professional offices overseas

**LA 4701 Landscape Contracting Seminar III: 1 hour.**

(Prerequisite: LA 3712). One hour lecture. Weekly seminar to investigate topics related to modern landscape practices experienced in LA 3712 LC Internship III. Formal presentations of internship case studies

**LA 4721 Landscape Contracting Field Trip II: 1 hour.**

(Prerequisite: LA 3721). Five to ten day trip to visit with landscape contracting firms and observe completed works

**LA 4723 Professional Practice of Landscape Architecture: 3 hours.**

Three hours lecture. Office management, contracting, budgeting, design proposals, supervision of construction contracts, professional liability, and professional ethics

**LA 4724 Landscape Contracting II: 4 hours.**

(Prerequisites: LA 3713 or LA 4334). Two hours lecture. Four hours laboratory. Analysis of legal, financial, and management aspects of landscape contracts; and quantity surveying, cost estimation, and critical path management of landscape construction projects

**LA 4733 Landscape Contracting III: 3 hours.**

(Prerequisites: LA 4724, ACC 2013, and MGT 3113). Two hours lecture. Two hours laboratory. Theory and practice of managing a Landscape Construction Firm. Case studies of contemporary issues

**LA 4744 Landscape Contracting IV: 4 hours.**

(Prerequisite: LA 4724 and PSS 4414). Two hours lecture. Two hours laboratory. Application levels studies of post-construction management practices of landscape projects

**LA 4753 Sustainable Landscape Management: 3 hours.**

(Prerequisite: LA 2433). Online course. An examination of methods for sustainable land management. Ecological systems, services, and processes providing the foundation for decision-making in land management

**LA 4754 Design V-Regional: 4 hours.**

(Prerequisite: Grade of C or better in the following course LA 3654). Eight hours studio. Application of spatial analytical techniques, Geographic Information Systems (GIS), and Low Impact Design (LID) strategies architecture at the regional scale

**LA 4843 Sustainable Communities: 3 hours.**

Three hours lecture. Theory and practices that minimize resource use and pollutant production in the human landscape (same as ABE 4843/6843)

**LA 4854 Landscape Architecture Capstone Studio: 4 hours.**

(Prerequisite: Grade of C or better in the following courses: LA 3544, LA 4723, and LA 4754). Eight hours studio. Emphasis on development of an approved terminal project used to demonstrate competency in proposal development, design process, site planning, detail design and construction detailing

**LA 4990 Special Topics in Landscape Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**LA 6113 Design Theory and Criticism: 3 hours.**

(Prerequisite: Undergraduates: Consent of Instructor, Graduates: None). Three hours lecture. An examination of the major theories and criticisms of modern landscape design with emphasis upon developing a critical approach to the profession

**LA 6124 Landscape Architecture Construction V: Construction Documents: 4 hours.**

(Prerequisites: LA 2544 and LA 2644). Two hours lecture. Four hours studio. The course integrates design principles with construction practices, culminating in the preparation of a site design and set of construction documents

**LA 6443 Exterior Design-Build Studio: 3 hours.**

(Prerequisite: Consent of instructor). Six hours studio/lab. An interdisciplinary exploration of an exterior project focused on sustainable site practices from design concept to implementation

**LA 6463 Community Food Systems: 3 hours.**

Two hours lecture. Two hours laboratory. Exploration of aspects in community food systems including planning and design, sustainable growing practices, and human nutrition and health. (Same as FNH 4463/6463 and PSS 4463/6463)

**LA 6514 Ecological Planting Design: 4 hours.**

(Prerequisites: Undergraduates: ART 1123, LA 1153, LA 1333, LA 1533, PSS 2423; Graduates: LA 8513 or Consent of Instructor). Two hours lecture. Four hours studio. Examine and apply adaptation theory and strategies that emphasize resilient approaches to urban and suburban green infrastructure projects

**LA 6523 Applications for GIS for Landscape Architects: 3 hours.**

(Prerequisite: LA 1223 or consent of instructor). One hour lecture, four hour studio/lab. Applying geographical information systems technology to the practice of Landscape Architecture

**LA 6653 Study Abroad: Gardens and Urban Spaces: 3 hours.**

(Prerequisite: Junior or graduate standing or consent of instructor). Special on-site travel study to experience and document notable landscape architecture projects, methods of construction, and professional offices overseas

**LA 6753 Sustainable Landscape Management: 3 hours.**

(Prerequisite: LA 2433). Online course. An examination of methods for sustainable land management. Ecological systems, services, and processes providing the foundation for decision-making in land management

**LA 6843 Sustainable Communities: 3 hours.**

Three hours lecture. Theory and practices that minimize resource use and pollutant production in the human landscape (same as ABE 4843/6843)

**LA 6990 Special Topics in Landscape Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**LA 7000 Directed Individual Study in Landscape Architecture: 1-6 hours.**

Hours and credit to be arranged

**LA 8512 Landscape Architecture Graduate Studio I: 2 hours.**

(Prerequisite: admission to the Master of Landscape Architecture). Four hours studio. Emphasis on holistic approaches to sustainable watershed planning and management. Course deals specifically with prevention of destruction of habitat, biological stress, and hydrologic changes

**LA 8513 Landscape Architecture Graduate Studio I: 3 hours.**

(Prerequisites: Admission to the Master of Landscape Architecture program). Six hours studio. Emphasis on the use and management of water in the landscape. Course deals with both the planning and design of water systems at various scales and contexts

**LA 8522 Landscape Architecture Graduate Studio II: 2 hours.**

(Prerequisite: admission to the Master of Landscape Architecture). Four hours studio. Application of spatial analytical techniques and Geographic Information Systems to the execution of landscape planning problems in the Mississippi region

**LA 8523 Landscape Architecture Graduate Studio II: 3 hours.**

(Prerequisite: LA 8513). Six hours studio. Application of research and theories of the built environment and human health to the execution of landscape planning problems in the Mississippi region

**LA 8532 Landscape Architecture Graduate Studio III: 2 hours.**

(Prerequisite: second year standing in the Master of Landscape Architecture). Four hours studio. Emphasis on community based planning and design, including consideration of natural resource planning, main street revitalization, open space planning, community design, and small town planning

**LA 8533 Landscape Architecture Graduate Studio III: 3 hours.**

(Prerequisite: LA 8523). Six hours studio. Emphasis on the design and planning of communities that integrate human and environmental systems. Broadly considers human and wildlife habitats at various scales and context

**LA 8545 LA Studio IV-Case Study: 5 hours.**

(Prerequisite: LA 8533, LA 8741 and a signed proposal). Ten hours studio. A culminating course in which students complete a case study, an in-depth project critique and a design of a project of similar size and scope

**LA 8613 Research Methods in Landscape Architecture: 3 hours.**

Three hours lecture. Application of research methods specific to problems in Landscape Architecture

**LA 8711 Seminar in Watershed Planning and Management: 1 hour.**

(Prerequisite: admission to the Master of Landscape Architecture program or consent of the instructor). One hour seminar. Examination of major elements of watershed planning and management pertinent to landscape architecture, with particular emphasis on emerging trends in the field

**LA 8721 Seminar in Landscape Management: 1 hour.**

(Prerequisite: admission to the Master of Landscape Architecture program or consent of the instructor). One hour seminar. Examination of major elements of landscape management pertinent to landscape architecture, with particular emphasis on emerging trends in the field

**LA 8731 Seminar in Community Based Planning: 1 hour.**

(Prerequisite: second year standing in the Master of Landscape Architecture program or consent of the instructor). One hour seminar. Examination of major elements of community based planning pertinent to landscape architecture, with particular emphasis on emerging trends in the field

**LA 8741 Proposal Writing Seminar: 1 hour.**

(Prerequisite: second year standing in the Master of Landscape Architecture program or consent of instructor). One hour seminar. Preparation of detailed written proposals of a variety of types including the proposal for the student's thesis or case study (non-thesis) project

**LA 8751 Seminar in Contemporary Design Issues: 1 hour.**

(Prerequisite: second year standing in the Master of Landscape Architecture program or consent of instructor). One hour seminar. Exploration and debate of current design, research and planning issues in landscape architecture

**LA 8990 Special Topics in Landscape Architecture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**LA 9000 Research in Landscape Architecture: 1-13 hours.**

Hours and credits to be arranged

## Library Courses

**LIB 4800 Undergraduate Research: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**LIB 9010 Electronic Thesis/Dissertation Format and Submission: 0 hours.**

(Prerequisite: Co-registration required in appropriate 8000 or 9000 course). Designed to assist students with the format and submission process for turning in Theses and Dissertations before graduation. Must be taken during student's final semester. Repeatable up to three times

## Learning Skills Courses

**LSK 0003 Developmental Reading: 3 hours.****LSK 0023 Developmental Studies Laboratory: 3 hours.**

Six hours laboratory. Computer tutorials and study skills for intermediate algebra, basic English and effective reading. Designed especially for students who have attended the Summer Developmental Program

**LSK 0103 Intermediate Reading: 3 hours.**

(Prerequisite: A score of 16 or below on the Reading section of the ACT.) Emphasizes and develops reading skills, including comprehension, vocabulary development, and reading rate. Credit for this course will not be applicable toward any degree or grade point average

**LSK 1001 Freshman Seminar: 1 hour.**

Multi-disciplined, campus-wide approach to orientation to the university, and strategies for employing personal and university resources

**LSK 1011 Study Skills for College: 1 hour.**

Development of study principles and skills needed for college

**LSK 1013 Effective Reading: 3 hours.**

(Is designed to prepare a student to comprehend college level reading materials) Three hours lecture. Comprehension and vocabulary improvement through the use of computer-aided-instruction and directed group activities

**LSK 1021 Seminar for the Transfer Student: 1 hour.**

(Restrictions: Transfer students only). One hour seminar. Acquaints transfer students with various academic and support units and connects core success strategies for use of personal and university resources for higher-level cognitive skills

**LSK 1023 College Reading and Study Skills: 3 hours.**

Three hours lecture. Development of reading and study skills needed for college

**LSK 1033 Fundamentals of Achievement: 3 hours.**

(Restrictions: Specifically for students on Academic Suspension or students failing to maintain satisfactory academic progress). Three hours lecture. Fundamentals focus is on student behaviors and attitude that are most consistently identifies with achieving success in college including time management, testing, memory, and communication

**LSK 1041 College Success I: 1 hour.**

One hour lecture. College Success I focuses on study skills that enable one to better learn, understand, and retain what is being taught in the new college environment

**LSK 1043 Life Skills for the Student Athlete: 3 hours.**

Three hours lecture. Focuses on issues student athletes face in transitioning to college and in successfully meeting challenges in the classroom, on the field and in the workforce

**LSK 1063 Luckyday Scholars Program: 3 hours.**

Three hours lecture. The Luckyday Scholars Seminar will introduce Luckyday scholars to the Luckyday community, university community, and Starkville community and provide an understanding of their role as contributors and leaders as they begin to grow professionally through servant-leadership through the four Luckyday values: scholarship, community, service, leadership

**LSK 1101 Freshman Success Strategies I: 1 hour.**

One hour lecture. Aids students in the transition from high school to college, providing information and experiences designed to help students succeed academically and socially, and progress toward graduation and fulfilling lives and careers

**LSK 1102 Academic Learning Strategies for Math: 2 hours.**

(Restrictions: Students who have not enrolled in and have not received credit for MA 1313). Two hours lecture. Mathematical study skills and basic math concepts with which students struggle in preparation to take or taken in conjunction with MA 0103 (Intermediate Algebra),

**LSK 1112 Academic Learning Strategies for English: 2 hours.**

Two hours lecture. (Restrictions: Students who have not enrolled in or received credit for EN 1103). Academic Learning Strategies for English is designed for students who would benefit from strengthening basic writing skills to take in conjunction with EN 0103 (Basic English)

**LSK 1131 Fundamentals of Success: 1 hour.**

(Prerequisite: LSK 1033). One hour lecture. The student behaviors and attitudes that were developed in Fundamentals of Achievement are built upon to strengthen the positive academic and life habits created

**LSK 1141 College Success II: 1 hour.**

(Restrictions: Specifically designed for MSU Promise Students after their first semester at MSU). (Prerequisite: LSK 1041 College Success I). One hour lecture. College Success II focuses on the study skills and student habits presented in College Success I and builds on their foundation for continual college success

**LSK 2010 Praxis: Academic Core Enrichment -PACE: 3 hours.**

(Restrictions: Education Majors). One to three variable credit hours lecture. PACE is designed to provide education majors with a thorough review of the basic skills necessary to pass the PRAXIS I Pre-Professional Skills Test in reading, writing, and mathematics

**LSK 2013 Speed Reading: 3 hours.**

Three hours lecture per week. Development of techniques for increasing rate of comprehension for all types of reading material

**LSK 2990 Special Topics in Learning Skills: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**LSK 4000 Directed Indiv Study: 1-6 hours.**

Hours and credits to be arranged

**LSK 4800 Undergraduate Research: 13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**LSK 4990 Special Topics in Learning Skills: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**LSK 6013 Academic Writing for Graduate Students: 3 hours.**

Three hour lecture. Development of writing skills commensurate with the demands of graduate level courses and the work placements of those with advanced degrees. (Credit received for this course will not be applicable toward any degree)

**LSK 6990 Special Topics in Learning Skills: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**LSK 8990 Special Topics in Learning Skills: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Mathematics Courses

**MA 0003 Developmental Mathematics: 3 hours.**

(MA 0003 is a developmental course designed to prepare a student for university mathematics courses at the level of MA 1313 College Algebra: credit received for this course will not be applicable toward a degree).

Three hours lecture. Real numbers fractions, decimal fractions, percent, algebraic expressions, factoring, algebraic fractions, linear equations/inequalities, integral exponents, quadratic equations

**MA 0103 Intermediate Algebra: 3 hours.**

(MA 0103 is designed to prepare a student for MA 1313 College Algebra) Two hours lecture. Two hours laboratory. Real numbers, algebraic expressions, factoring, algebraic fractions, linear equations/inequalities, quadratic equations, Pythagorean Theorem. Does not count toward any degree. Students with a math subscore of 17 or 18 must take this course in the summer or spring terms at MSU, transfer credit from another institution, or test out of the course by taking a departmental test

**MA 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**MA 1103 College Algebra Linked Lab- Corequisite Model: 3 hours.**

(Prerequisite: MACT 17 or 18 and ACT 20 or above). Two hours lecture. Two hours laboratory. Review of fundamentals; linear and quadratic equations; inequalities; functions; simultaneous equations; topics in the theory of equations

**MA 1213 Math in Your World: 3 hours.**

(Prerequisites: ACT Math Sub-score 19 or above or grade of C or better in MA 0103). Topics will include but are not limited to ratios & proportions, unit conversions, formula manipulation, logical reasoning, financial literacy, general number sense, and the use of Excel to solve real world problems

**MA 1313 College Algebra: 3 hours.**

(Students with credit in MA 1713 will not receive credit for this course; Prerequisite: ACT math subscore 19, or grade of C or better in MA 0103). Two hour lecture. Two hours laboratory. Review of fundamentals; linear and quadratic equations; inequalities; functions; simultaneous equations; topics in the theory of equations

**MA 1323 Trigonometry: 3 hours.**

(Students with credit in MA 1713 will not receive credit for this course; Prerequisite: ACT Math subscore 24 (or higher for some sections), or grade of C or better in MA 1103 or MA 1313). Three hours lecture. The trigonometric functions: identities; trigonometric equations; applications

**MA 1413 Structure of the Real Number System: 3 hours.**

(Prerequisite: C or better in either MA 1103 or MA 1313 or an ACT Math sub-score of 24). Three hours lecture. The nature of mathematics; introductory logic; structure and development of the real number system. (For Elementary and Special Education majors only)

**MA 1423 Problem Solving with Real Numbers: 3 hours.**

(Prerequisite: C or better in MA 1413). Three hours lecture. Proportions, percent problems, probability, counting principles, statistics. (For Elementary of Special Education majors only)

**MA 1433 Informal Geometry and Measurement: 3 hours.**

(Prerequisites: C or better in both MA 1413 and MA 1423). Three hours lecture. Measurements and informal geometry. (For Elementary and Special Education majors only)

**MA 1453 Precalculus: 3 hours.**

(Prerequisites: Math ACT 24 or C or better in MA 1103 or MA 1313). Three hours lecture. Properties, applications, and graphs of linear, quadratic, polynomial, exponential, logarithmic, and trigonometric functions, identities, equations, and inverses. (Degree credit will not be granted for MA 1453 and either MA 1313/1323)

**MA 1613 Calculus for Business and Life Sciences I: 3 hours.**

(Prerequisite: ACT Math subscore 24, or grade of C or better in MA 1103 or MA 1313). Three hours lecture. Algebraic and some transcendental functions, solutions of systems of linear equations, limits, continuity, derivatives, applications

**MA 1713 Calculus I: 3 hours.**

(Prerequisite: ACT Math subscore 26, or grade of C or better in 1323 or 1453). Three hours lecture. Analytic geometry; functions; limits; continuity; derivatives of algebraic and transcendental functions; applications of the derivative. Honors section available

**MA 1723 Calculus II: 3 hours.**

(Prerequisite: Grade of C or better in MA 1713). Three hours lecture. Anti-differentiation; the definite integral; applications of the definite integral; integration of transcendental functions; other techniques of integration. Honors section available

**MA 2113 Introduction to Statistics: 3 hours.**

(Prerequisite: ACT Math subscore 24 (or higher for some sections) or grade of C or better in MA 1103 or MA 1313 or MA 1213). Two hours lecture. Two hours laboratory. Introduction to descriptive statistics, random variables, probability distributions, estimation, confidence intervals, & hypothesis testing. Computer instruction for analysis. (Same as ST 2113)

**MA 2733 Calculus III: 3 hours.**

(Prerequisite: Grade of C or better in MA 1723). Three hours lecture. Parametric and Polar Equations; infinite series; introduction to vectors; vector functions. Honors section available

**MA 2743 Calculus IV: 3 hours.**

(Prerequisite: Grade of C or better in MA 2733). Three hours lecture. Differential calculus of functions of several variables; multiple integration; vector calculus. Honors section available

**MA 2923 Introduction to Modern Scientific Computing: 3 hours.**

(Prerequisite: MA 1713 or equivalent). Three hours lecture. Basic programming skills and applications to scientific computing; iteration and recursion; accuracy and efficiency issues; matrix operations; data interpolation; unconstrained optimization; regression analysis; multiple local minima problems. Prior programming experience is not required

**MA 2990 Special Topics in Mathematics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MA 3053 Foundations of Mathematics: 3 hours.**

(Prerequisite: MA 1723). Three hours lecture. The logical structure of mathematics; the nature of a mathematical proof; applications to the basic principles of algebra and calculus

**MA 3113 Introduction to Linear Algebra: 3 hours.**

(Prerequisite: MA 1723). Three hours lecture. Basic principles of linear algebra; vector spaces; matrices; matrix algebra; linear transformations; systems of linear equations; eigenvalues and eigenvectors; orthogonality and Gram-Schmidt process

**MA 3123 Introduction to Statistical Inference: 3 hours.**

(Prerequisite: ACT math subscore 24, or grade of C or better in MA 1313). Two hours lecture. Two hours laboratory. Basic concepts and methods of statistics, including descriptive statistics, probability, random variables, sampling distribution, estimation, hypothesis testing, introduction to analysis of variance, simple linear regression. (Same as ST 3123)

**MA 3163 Introduction to Modern Algebra: 3 hours.**

(Prerequisite: MA 3113 and MA 3053). Three hours lecture. Rings, integral domains, and fields with special emphasis on the integers, rational numbers, real numbers and complex numbers; theory of polynomials

**MA 3253 Differential Equations I: 3 hours.**

(Prerequisite: MA 2743 or coregistration in MA 2743). Origin and solutions of first and second order differential equations; Laplace Transform methods; applications

**MA 3353 Differential Equations II: 3 hours.**

(Prerequisite: MA 3253). Three hours lecture. Systems of differential equations; matrix representations; infinite series solution of ordinary differential equations; selected special functions; boundary-value problems; orthogonal functions: Fourier series

**MA 3463 Foundations of Geometry: 3 hours.**

(Prerequisite: MA 1723 and MA 3053) Three hours lecture. The structural nature of geometry; modern methods in geometry: finite geometrics

**MA 3513 History of Mathematics: 3 hours.**

(Prerequisite: MA 2733 or coregistration in MA 2733). Three hours lecture. A historical development of mathematicians and their most important contributions will be emphasized

**MA 4000 Directed Individual Study in Mathematics: 1-6 hours.**

Hours and credits to be arranged

**MA 4133 Discrete Mathematics: 3 hours.**

(Prerequisites: MA 3163 or consent of instructor). Three hours lecture. Sets, relations, functions, combinatorics, review of group and ring theory, Burnside's theorem, Polya's counting theory, group codes, finite fields, cyclic codes, and error-correcting codes

**MA 4143 Graph Theory: 3 hours.**

(Prerequisites: MA 3113 or consent of instructor). Three hours lecture. Basic concepts, graphs, and matrices, algebraic graph theory, planarity and nonplanarity, Hamiltonian graphs, digraphs, network flows, and applications

**MA 4153 Matrices and Linear Algebra: 3 hours.**

(Prerequisites: MA 3113 and MA 3253). Three hours lecture. Linear transformations and matrices; eigen values and similarity transformations; linear functionals, bilinear and quadratic forms; orthogonal and unitary transformations; normal matrices; applications of linear algebra

**MA 4163 Group Theory: 3 hours.**

(Prerequisite: MA 3163 or consent of the instructor). Three hours lecture. Elementary properties: normal subgroups; factor groups; homomorphisms and isomorphisms; Abelian groups; Sylow theorems; composition series; solvable groups

**MA 4173 Number Theory: 3 hours.**

(Prerequisite: MA 3113). Three hours lecture. Divisibility: congruences; quadratic reciprocity; Diophantine equations; continued fractions

**MA 4183 Mathematical Foundations of Machine Learning: 3 hours.**

(Prerequisite: MA 2743 and MA 3113). Three hours lecture. Basic machine learning principles and classifiers; gradient-based methods for optimization; data preprocessing techniques; feature selection methods; quadratic programming; Lagrange multipliers and duality; kernel methods; mathematics and applications for deep learning

**MA 4213 Senior Seminar in Mathematics: 3 hours.**

(Prerequisites: MA 3163 and MA 3253 and MA 4633) Three hours lecture. Students explore topics in current mathematical research, write expository articles, and give oral presentations. Refinement of specialized writing skills needed for effective mathematical communication

**MA 4243 Data Analysis I: 3 hours.**

(Prerequisite: MA 2743. Corequisite: MA 3113). Three hours lecture. Data description and descriptive statistics, probability and probability distributions, parametric one-sample and two-sample inference procedures, simple linear regression, one-way ANOVA. Use of SAS. (Same as ST 4243/6243)

**MA 4253 Data Analysis II: 3 hours.**

(Prerequisite: MA 4243/6243 and MA 3113). Three hours lecture. Multiple linear regression; fixed, mixed, and random effect models; block designs; two-factor analysis of variance; three-factor analysis of variance; analysis of covariance. Use of SAS. (Same as ST 4253/6253)

**MA 4313 Numerical Analysis I: 3 hours.**

(Prerequisites: CSE 1233 or equivalent, MA 3113, and MA 2743). Three hours lecture. Matrix operations; error analysis; norms of vectors and matrices; transformations; matrix functions; numerical solutions of systems of linear equations; stability; matrix inversion; eigen value problems; approximations

**MA 4323 Numerical Analysis II: 3 hours.**

(Prerequisites: CSE 1233 or equivalent. MA 3113 and MA 3253). Three hours lecture. Numerical solution of equations; error analysis; finite difference methods; numerical differentiation and integration; series expansions; difference equations; numerical solution of differential equations

**MA 4343 Mathematical Modeling with Biological and Ecological Applications: 3 hours.**

(Prerequisites: MA 2743 & MA 3253). Three hours lecture. This course covers the mathematical theory of classical and modern mathematical models relating to biological and ecological applications

**MA 4373 Introduction to Partial Differential Equations: 3 hours.**

(Prerequisite: MA 3253). Three hours lecture. Linear operators: linear first order equations; the wave equation; Green's function and Sturm-Liouville problems; Fourier series; the heat equation; Laplace's equation

**MA 4523 Introduction to Probability: 3 hours.**

(Prerequisite: MA 2733). Three hours lecture. Basic concepts of probability, conditional probability, independence, random variables, discrete and continuous probability distributions, moment generating function, moments, special distributions, central limit theorem. (Same as ST 4523/6523)

**MA 4533 Introduction to Probability and Random Processes: 3 hours.**

(Prerequisites: MA 3113 and MA 2743). Three hours lecture. Probability, law of large numbers, central limit theorem, sampling distributions, confidence intervals, hypothesis testing, linear regression, random processes, correlation functions, frequency and time domain analysis. (Credit can not be earned for this course and MA/ST 4523/6523)

**MA 4543 Introduction to Mathematical Statistics I: 3 hours.**

(Prerequisite: MA 2743.) Three hours lecture. Combinatorics; probability, random variables, discrete and continuous distributions, generating functions, moments, special distributions, multivariate distributions, independence, distributions of functions of random variables. (Same as ST 4543/6543.)

**MA 4573 Introduction to Mathematical Statistics II: 3 hours.**

(Prerequisite: MA 4543/6543.) Three hours lecture. Continuation of MA-ST 4543/6543. Transformations, sampling distributions, limiting distributions, point estimation, interval estimation, hypothesis testing, likelihood ratio tests, analysis of variance, regression, chi-square tests. (Same as ST 4573/6573.)

**MA 4633 Advanced Calculus I: 3 hours.**

(Prerequisite: MA 2743 and MA 3053). Three hours lecture. Theoretical investigation of functions; limits; differentiability and related topics in calculus

**MA 4643 Advanced Calculus II: 3 hours.**

(Prerequisite: MA 4633/6633). Three hours lecture. Rigorous development of the definite integral; sequences and series of functions; convergence criteria; improper integrals

**MA 4733 Linear Programming: 3 hours.**

(Prerequisites: MA 3113). Three hours lecture. Theory and application of linear programming; simplex algorithm, revised simplex algorithm, duality and sensitivity analysis, transportation and assignment problem algorithms, interger and goal programming. (Same as IE 4733/6733)

**MA 4753 Applied Complex Variables: 3 hours.**

(Prerequisite: MA 2743). Three hours lecture. Analytic functions: Taylor and Laurent expansions; Cauchy theorems and integrals; residues; contour integration; introduction to conformal mapping

**MA 4933 Mathematical Analysis I: 3 hours.**

(Prerequisite: MA 4633/6633 or equivalent). Three hours lecture. Metric and topological spaces; functions of bounded variation and differentiability in normed spaces

**MA 4943 Mathematical Analysis II: 3 hours.**

(Prerequisite: MA 4933/6933). Three hours lecture. Riemann-Stieltjes integration, sequences and series of functions; implicit function theorem; multiple integration



**MA 4953 Elementary Topology: 3 hours.**

(Prerequisite: MA 4633/6633). Three hours lecture. Definition of a topological space, metric space, continuity in metric spaces and topological spaces; sequences; accumulation points; compactness, separability

**MA 4990 Special Topics in Mathematics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MA 6133 Discrete Mathematics: 3 hours.**

(Prerequisites: MA 3163 or consent of instructor). Three hours lecture. Sets, relations, functions, combinatorics, review of group and ring theory, Burnside's theorem, Pólya's counting theory, group codes, finite fields, cyclic codes, and error-correcting codes

**MA 6143 Graph Theory: 3 hours.**

(Prerequisites: MA 3113 or consent of instructor). Three hours lecture. Basic concepts, graphs, and matrices, algebraic graph theory, planarity and nonplanarity, Hamiltonian graphs, digraphs, network flows, and applications

**MA 6153 Matrices and Linear Algebra: 3 hours.**

(Prerequisites: MA 3113 and MA 3253). Three hours lecture. Linear transformations and matrices; eigen values and similarity transformations; linear functionals, bilinear and quadratic forms; orthogonal and unitary transformations; normal matrices; applications of linear algebra

**MA 6163 Group Theory: 3 hours.**

(Prerequisite: MA 3163 or consent of the instructor). Three hours lecture. Elementary properties: normal subgroups; factor groups; homomorphisms and isomorphisms; Abelian groups; Sylow theorems; composition series; solvable groups

**MA 6173 Number Theory: 3 hours.**

(Prerequisite: MA 3113). Three hours lecture. Divisibility: congruences; quadratic reciprocity; Diophantine equations; continued fractions

**MA 6183 Mathematical Foundations of Machine Learning: 3 hours.**

(Prerequisite: MA 2743 and MA 3113). Three hours lecture. Basic machine learning principles and classifiers; gradient-based methods for optimization; data preprocessing techniques; feature selection methods; quadratic programming; Lagrange multipliers and duality; kernel methods; mathematics and applications for deep learning

**MA 6243 Data Analysis I: 3 hours.**

(Prerequisite: MA 2743. Corequisite: MA 3113). Three hours lecture. Data description and descriptive statistics, probability and probability distributions, parametric one-sample and two-sample inference procedures, simple linear regression, one-way ANOVA. Use of SAS. (Same as ST 4243/6243)

**MA 6253 Data Analysis II: 3 hours.**

(Prerequisite: MA 4243/6243 and MA 3113). Three hours lecture. Multiple linear regression; fixed, mixed, and random effect models; block designs; two-factor analysis of variance; three-factor analysis of variance; analysis of covariance. Use of SAS. (Same as ST 4253/6253)

**MA 6313 Numerical Analysis I: 3 hours.**

(Prerequisites: CSE 1233 or equivalent, MA 3113, and MA 2743). Three hours lecture. Matrix operations; error analysis; norms of vectors and matrices; transformations; matrix functions; numerical solutions of systems of linear equations; stability; matrix inversion; eigen value problems; approximations

**MA 6323 Numerical Analysis II: 3 hours.**

(Prerequisites: CSE 1233 or equivalent, MA 3113 and MA 3253). Three hours lecture. Numerical solution of equations; error analysis; finite difference methods; numerical differentiation and integration; series expansions; difference equations; numerical solution of differential equations

**MA 6343 Mathematical Modeling with Biological and Ecological Applications: 3 hours.**

(Prerequisites: MA 2743 & MA 3253). Three hours lecture. This course covers the mathematical theory of classical and modern mathematical models relating to biological and ecological applications

**MA 6373 Introduction to Partial Differential Equations: 3 hours.**

(Prerequisite: MA 3253). Three hours lecture. Linear operators: linear first order equations; the wave equation; Green's function and Sturm-Liouville problems; Fourier series; the heat equation; Laplace's equation

**MA 6523 Introduction to Probability: 3 hours.**

(Prerequisite: MA 2733). Three hours lecture. Basic concepts of probability, conditional probability, independence, random variables, discrete and continuous probability distributions, moment generating function, moments, special distributions, central limit theorem. (Same as ST 4523/6523)

**MA 6533 Introduction to Probability and Random Processes: 3 hours.**

(Prerequisites: MA 3113 and MA 2743). Three hours lecture. Probability, law of large numbers, central limit theorem, sampling distributions, confidence intervals, hypothesis testing, linear regression, random processes, correlation functions, frequency and time domain analysis. (Credit can not be earned for this course and MA/ST 4523/6523)

**MA 6543 Introduction to Mathematical Statistics I: 3 hours.**

(Prerequisite: MA 2743.) Three hours lecture. Combinatorics; probability, random variables, discrete and continuous distributions, generating functions, moments, special distributions, multivariate distributions, independence, distributions of functions of random variables. (Same as ST 4543/6543.)

**MA 6573 Introduction to Mathematical Statistics II: 3 hours.**

(Prerequisite: MA 4543/6543.) Three hours lecture. Continuation of MA-ST 4543/6543. Transformations, sampling distributions, limiting distributions, point estimation, interval estimation, hypothesis testing, likelihood ratio tests, analysis of variance, regression, chi-square tests. (Same as ST 4573/6573.)

**MA 6633 Advanced Calculus I: 3 hours.**

(Prerequisite: MA 2743 and MA 3053). Three hours lecture. Theoretical investigation of functions; limits; differentiability and related topics in calculus

**MA 6643 Advanced Calculus II: 3 hours.**

(Prerequisite: MA 4633/6633). Three hours lecture. Rigorous development of the definite integral; sequences and series of functions; convergence criteria; improper integrals

**MA 6733 Linear Programming: 3 hours.**

(Prerequisites: MA 3113). Three hours lecture. Theory and application of linear programming; simplex algorithm, revised simplex algorithm, duality and sensitivity analysis, transportation and assignment problem algorithms, interger and goal programming. (Same as IE 4733/6733)

**MA 6753 Applied Complex Variables: 3 hours.**

(Prerequisite: MA 2743). Three hours lecture. Analytic functions: Taylor and Laurent expansions; Cauchy theorems and integrals; residues; contour integration; introduction to conformal mapping

**MA 6933 Mathematical Analysis I: 3 hours.**

(Prerequisite: MA 4633/6633 or equivalent). Three hours lecture. Metric and topological spaces; functions of bounded variation and differentiability in normed spaces

**MA 6943 Mathematical Analysis II: 3 hours.**

(Prerequisite: MA 4933/6933). Three hours lecture. Riemann-Stieltjes integration, sequences and series of functions; implicit function theorem; multiple integration

**MA 6953 Elementary Topology: 3 hours.**

(Prerequisite: MA 4633/6633). Three hours lecture. Definition of a topological space, metric space, continuity in metric spaces and topological spaces; sequences; accumulation points; compactness, separability

**MA 6990 Special Topics in Mathematics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MA 7000 Directed Individual Study in Mathematics: 1-6 hours.**

Hours and credits to be arranged

**MA 8113 Modern Higher Algebra I: 3 hours.**

(Prerequisite: MA 4163/6163). Three hours lecture. A study of the basic mathematical systems with emphasis on rings, fields, and vector spaces

**MA 8123 Modern Higher Algebra II: 3 hours.**

(Prerequisite: MA 8113). Three hours lecture. A continuation of the topics introduced in MA 8113

**MA 8203 Foundations of Applied Mathematics I: 3 hours.**

(Prerequisites: MA 3113, MA 3253 or consent of instructor.) Three hours lecture. Principles of applied mathematics including topics from perturbation theory, calculus of variations, and partial differential equations. Emphasis of applications from heat transfer, mechanics, fluids

**MA 8213 Foundations of Applied Mathematics II: 3 hours.**

(Prerequisite: MA 8203). Three hours lecture. A continuation of MA 8203 including topics from wave propagation, stability, and similarity methods

**MA 8253 Operational Mathematics: 3 hours.**

(Prerequisite: MA 4753/6753). Three hours lecture. Theory and applications of Laplace, Fourier, and other integral transformations: introduction to the theory of generalized functions

**MA 8273 Special Functions: 3 hours.**

Three hours lecture. Infinite series solutions, origin and properties of the special functions of mathematical physics

**MA 8283 Calculus of Variations: 3 hours.**

Three hours lecture. Functionals: weak and strong extrema; necessary conditions for extrema; sufficient conditions for extrema; constrained extrema; direct methods; applications

**MA 8293 Integral Equations: 3 hours.**

Three hours lecture. Equations of Fredholm type: symmetric kernels; Hilbert-Schmidt theory; singular integral equations; applications; selected topics

**MA 8313 Ordinary Differential Equations I: 3 hours.**

Three hours lecture. Linear systems of differential equations; existence and uniqueness; second order systems; systems with constant coefficients; periodic systems; matrix comparison theorems; applications and selected topics

**MA 8323 Ordinary Differential Equations II: 3 hours.**

(Prerequisite: MA 8313). Three hours lecture. Existence, uniqueness, continuation of solutions of nonlinear systems; properties of solutions of linear and nonlinear equations including boundedness, oscillation, asymptotic behavior, stability, and periodicity; application

**MA 8333 Partial Differential Equations I: 3 hours.**

(Prerequisite: MA 4373/6373 or consent of instructor). Three hours lecture. Solution techniques; existence and uniqueness of solutions to elliptic, parabolic, and hyperbolic equations; Green's functions

**MA 8343 Partial Differential Equations II: 3 hours.**

(Prerequisite: MA 8333). Three hours lecture. A continuation of the topics introduced in MA 8333

**MA 8363 Numerical Solution of Systems of Nonlinear Equations: 3 hours.**

(Prerequisites: MA 4313/6313 and MA 4323/6323). Three hours lecture. Basic concepts in the numerical solution of systems of nonlinear equations with applications to unconstrained optimization

**MA 8383 Numerical Solution of Ordinary Differential Equations I: 3 hours.**

(Prerequisites: MA 4313/6313 and MA 4323/6323). Three hours lecture. General single-step, multistep, multivalued, and extrapolation methods for systems of nonlinear equations; convergence; error bounds; error estimates; stability; methods for stiff systems; current literature

**MA 8443 Numerical Solution of Partial Differential Equations I: 3 hours.**

(Prerequisites: MA 4313/6313, MA 4323/6323, and MA 4373/6373 or consent of instructor). Three hours lecture. Basic concepts in the finite difference and finite element methods; methods for parabolic equations; analysis of stability and convergence

**MA 8453 Numerical Solution of Partial Differential Equations II: 3 hours.**

(Prerequisite: MA 8443). Three hours lecture. Methods for elliptic equations; iterative procedures; integral equation methods; methods for hyperbolic equations; stability; dissipation and dispersion

**MA 8463 Numerical Linear Algebra: 3 hours.**

(Prerequisite: MA 4313/6313 and MA 4323/6323 or consent of the instructor). Three hours lecture. Gaussian elimination and its variants; iterative methods for linear systems; the least-squares problem; QR factorization; singular value decomposition; principal component analysis; eigenvalue problems; iterative methods for eigenvalue problems; applications to data mining

**MA 8633 Real Analysis I: 3 hours.**

(Prerequisite: MA 4943/6943). Three hours lecture. Lebesgue measure and Lebesgue integrals; convergence theorems, differentiation and  $L$  spaces

**MA 8643 Real Analysis II: 3 hours.**

(Prerequisite: MA 8633). Three hours lecture. General measures; the Radon-Nikodym theorem and other topics

**MA 8663 Functional Analysis I: 3 hours.**

(Prerequisite: MA 8643). Three hours lecture. Hilbert spaces; Banach spaces; locally convex spaces; Hahn-Banach and closed graph theorems; principle of uniform boundedness; weak topologies

**MA 8673 Functional Analysis II: 3 hours.**

(Prerequisite: MA 8663). Three hours lecture. Continuation of topics introduced in MA 8663

**MA 8713 Complex Analysis I: 3 hours.**

(Prerequisite: MA 4943/6943 or consent of instructor). Three hours lecture. Complex numbers: functions of a complex variable; continuity; differentiation and integration of complex functions; transformations in the complex plane

**MA 8723 Complex Analysis II: 3 hours.**

(Prerequisite: MA 8713). Three hours lecture. Series; analytic continuation; Riemann surfaces; theory of residues

**MA 8913 Introduction to Topology I: 3 hours.**

(Prerequisite: MA 4643/6643 or MA 4953/6953). Three hours lecture. Basic general topology; introduction of homotopy and homology groups

**MA 8923 Introduction to Topology II: 3 hours.**

(Prerequisite: MA 8913). Three hours lecture. Continuation of topics introduced in MA 8913

**MA 8981 Teaching Seminar: 1 hour.**

One hour lecture. Preparation for service as instructors in mathematics and statistics courses; includes practice lectures and exam preparation. (May be taken for credit more than once.)

**MA 8990 Special Topics in Mathematics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MA 9000 Research in Mathematics: 1-13 hours.**

Hours and credits to be arranged

**MA 9313 Selected Topics in Ordinary Differential Equations: 3 hours.**

(Prerequisite: MA 8313 and consent of instructor). (May be taken for credit more than once). Three hours lecture. Topics to be chosen from such areas as Bifurcation Theory, Biological Modeling, Control Theory, Dynamical Systems, Functional Differential Equations, Nonlinear Oscillations, and Quantitative Behavior

**MA 9333 Selected Topics in Partial Differential Equations: 3 hours.**

(Prerequisite: MA 8333 and consent of instructor). (May be taken for credit more than once). Three hours lecture. Topics to be chosen from such areas as Bifurcation Theory, Boundary Integral Methods, Evolution Equations, Maximum and Variational Principles, and Spectral Methods

**MA 9413 Selected Topics in Numerical Analysis: 3 hours.**

(Prerequisite: Consent of instructor). (May be taken for credit more than once). Three hours lecture. Current topics in Numerical Analysis. The subject matter may vary from year to year

**MA 9633 Selected Topics in Analysis: 3 hours.**

(Prerequisite: MA 8643 and consent of instructor). (May be taken for credit more than once). Three hours lecture. Topics will be chosen from areas of analysis of current interest

## Mechanical Engineering Courses

**ME 1111 Introduction to Mechanical Engineering: 1 hour.**

(Prerequisite: ACT Math subscore 26, or grade of C or better in MA 1323). One hour lecture. Introduction to the mechanical engineering curriculum, the profession, and career opportunities. The role of the department, college, university; student roles and responsibilities. Introductory concepts

**ME 2133 Modeling and Manufacturing: 3 hours.**

(Prerequisite: Grade of C or better in ME 1111 and Sophomore standing). Two hours lecture. Three hours laboratory. Introduction to industry standard safety practices, measuring tools and applications, manufacturing and fabrication options, assembly best practices, as well as elementary drafting and design techniques using solid modeling software

**ME 2990 Special Topics in Mechanical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ME 3103 Experimental Measurements and Techniques: 3 hours.**

(Co-requisites: ME 3523 and GE 3513). Two hours lecture. Two hours laboratory. Measurements: accuracy/usefulness; reporting; uncertainty analysis and design of experiments; data acquisition; measurement of length, area, volume, temperature, pressure, flow, strain, and force

**ME 3113 Engineering Analysis: 3 hours.**

(Prerequisites: Grade of C or better in MA 3113, MA 3253, PH 2213, and CSE 1233 or equivalent course). Three hours lecture. Analysis of engineering problems requiring the use of engineering fundamentals and mathematical techniques of analysis with computer applications

**ME 3163 Introduction to Mechanical Design with Finite Element Analysis: 3 hours.**

Three hours lecture. Instruction in stresses, strains, displacements, static failure with finite element analysis of major strength of materials problems

**ME 3313 Heat Transfer: 3 hours.**

(Prerequisites: Grade of C or better in EM 3313, MA 3253, and ME 3533 or ME 3513). Three hours lecture. A study of the fundamental principles of heat transfer; processes; steady and transient conduction in solids; thermal radiation; and convective processes

**ME 3403 Materials for Mechanical Engineering Design: 3 hours.**

(Prerequisites: Grade of C or better in CH 1223 and EM 2413, corequisite EM 3213). Three hours lecture. Behavior, testing and processing of engineering materials. Emphasis is placed on the inter- relation of design with processing and material selection

**ME 3423 Mechanics of Machinery: 3 hours.**

(Prerequisites: Grade of C or better in EM 2433 and ME 3113). Three hours lecture. Analysis of mechanisms for motions, velocities, accelerations and forces

**ME 3513 Thermodynamics I: 3 hours.**

(Prerequisites: Grade of C or better in CH 1213, CH 1211, MA 2733, and PH 2213). Three hours lecture. Definitions; properties of a pure substance; work and heat; First and Second Laws; entropy; ideal gases

**ME 3523 Thermodynamics II: 3 hours.**

(Prerequisite: Grade of C or better in ME 3513 and CH 1223). Three hours lecture. Mixtures of ideal gases; irreversibility and availability; vapor power cycles; gas power cycles; refrigeration and heat pump cycles; flow through nozzles and turbine blades, Psychrometry

**ME 3613 System Dynamics: 3 hours.**

(Prerequisites: Grade of C or better in EM 2433, ME 3113, and EM 3313). Three hours lecture. Mathematical description of mechanical, electrical, hydraulic and pneumatic systems. Transient and frequency response of linear systems

**ME 4000 Directed Individual Study in Mechanical Engineering: 1-6 hours.**

Hours and credits to be arranged

**ME 4111 Professional Development Seminar: 1 hour.**

(Prerequisite: Senior standing or consent of instructor). One hour lecture. Preparation for career readiness including professional communication, career outcomes, professional/ethical responsibility, and the impact of engineering solutions in global, economic, environmental, and societal contexts

**ME 4113 Material Selection in Design: 3 hours.**

(Prerequisite: ME 3403 or equivalent). Three hours lecture. Principles of materials selection related to mechanical design requirements

**ME 4123 Failure of Engineering Materials: 3 hours.**

(Prerequisite: EM 3213 ) Three hours lecture. The failure of constituent materials using real -world case studies is the focus. Experimental and analytical techniques for failure analysis and prevention are covered. (Same as CE 4323/6323)

**ME 4133 Mechanical Metallurgy: 3 hours.**

(Prerequisite: ME 3403 or equivalent). Three hours lecture. The mechanical and metallurgical fundamentals of metals are discussed. Mechanical fundamentals cover the stress and strain relationships and metallurgical fundamentals cover the microstructure

**ME 4193 Automotive Engineering: 3 hours.**

Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical system and industrial and systems engineering aspects. (Same as CHE/ECE/IE 4193/6193)

**ME 4223 Mechanical Systems Analysis: 3 hours.**

(Prerequisites: EM 3413 or ME 3613 and senior standing). Three hours lecture. Fourier methods, shock spectra, signature analysis, relation to specific phenomena and malfunctions; acoustical aids; field measurement analysis; random functions, correlations; mobility and impedance methods

**ME 4233 Fundamentals of Finite Element Analysis: 3 hours.**

Three hours lecture. This course focuses on the implementation of the finite element (FE) method with commercially-available FE software and the basic mathematical theory of finite element analysis. Topics include mechanical response with a survey of thermal analysis and advanced topics (e.g., nonlinear problems and dynamic loading)

**ME 4301 Thermo-Fluids Laboratory: 1 hour.**

(Prerequisites: ME 3103, ME 3313, ME 3523, Grade of C or better in EM 3313, and a technical junior-level writing course). Two hours laboratory. Selection, use of pressure, temperatures, fluid flow, heat transfer instrumentation. Experiments with fluid flow, thermodynamic systems, heat transfer. Statistical design of experiments

**ME 4333 Energy Systems Design: 3 hours.**

(Prerequisites: ME 3313 and ME 3113). Three hours lecture. Comprehensive design problems requiring engineering decisions, data acquisition, codes/standards compliance. Emphasis upon energy systems components: heat exchangers, piping networks, pumps. Fluid transients, system modeling

**ME 4343 Intermediate Heat Transfer: 3 hours.**

(Prerequisite: ME 3313). Three hours lecture. Condensation and boiling, analytical and numerical techniques for conduction and convection, gray-body and spectral-dependent radiation, transient and steady-state thermal modeling

**ME 4353 Alternate Energy Sources: 3 hours.**

(Prerequisite: ME 3313). Three hours lecture. Analysis and design of systems using energy derived from solar, hydro, geothermal, wind, ocean, waste, and biomass sources

**ME 4373 Air Conditioning: 3 hours.**

(Prerequisites: ME 3523 and ME 3313). Three hours lecture. Psychometrics; comfort conditions; determination of heat losses and gains; determination of sizes of elements; energy usage estimating; residential and commercial systems

**ME 4393 Power Generation Systems: 3 hours.**

(Prerequisites: ME 3313 and ME 3523). Three hours lecture. Evaluation and optimization of power generation systems with emphasis on optimization methods, system simulation, and economics. Energetic, economic, and environmental issues as well as exergy analysis may be incorporated in this course

**ME 4401 Solid Mechanics Laboratory: 1 hour.**

(Prerequisites: ME 3103, ME 3403, Grade of C or better in EM 3213 and EM 2433, and a technical junior-level writing course). Two hours laboratory. Selection and use of strain gages, dimensional measurements, load cells, accelerometers; hands-on experiments with quasi-static and dynamic-impact testing, spring constants and vibrations

**ME 4403 Machine Design: 3 hours.**

(Prerequisite: Grade of C or better in EM 3213, ME 2133, and ME 3423; Co-requisite ME 3403). Three hours lecture. Applied stress analysis and material strength theories for sizing and selecting materials of machine elements. Selection of gears, cams, belts, springs. Design projects

**ME 4413 Casting and Joining: 3 hours.**

(Prerequisite: ME 3403 or consent of instructor). Three hours lecture. Fundamentals of solidification in casting and joining processes, including design applications

**ME 4423 Machining and Forming: 3 hours.**

(Prerequisite: ME 3403 or consent of instructor). Three hours lecture. Fundamentals of mechanical processing of joining processes, including design applications. metals, including bulk and sheet forming techniques

**ME 4433 Capstone Design and Innovation: 3 hours.**

(Prerequisites: ME 3423 and ME 4403). Two hours lecture, two hours laboratory. Semester capstone design experience simulating professional mechanical engineering practice. Emphasis is on the application of engineering fundamentals to a comprehensive design project utilizing computer-aided design and analysis tools

**ME 4443 Mechanical Systems Design: 3 hours.**

(Prerequisites: ME 3423 and ME 4403). Three hours lecture. Mechanical design projects involving analysis; industrial standards and considerations for safety and manufacturability; the use of computers in design and manufacturing automation (CAD/CAM)

**ME 4453 Lubrication: 3 hours.**

(Prerequisite: Senior standing). Three hours lecture. Friction of solids and fluids. Lubricants. Theory of sliding bearings. Multi-dimensional bearings with constant forces and velocities. Film, hydrodynamic, and gas lubrication. Design of bearings

**ME 4463 Engineering Design: 3 hours.**

(Prerequisites: ME 3613 and Senior standing). Three hours lecture. In-depth topics in mechanical design. Design of friction devices, hydrodynamic drives, and shells of revolution. Design for thermal creep, thermal stresses, surface contact, and impact

**ME 4543 Combustion Engines: 3 hours.**

(Prerequisites: ME 3523 and ME 3313). Three hours lecture. Application of thermodynamics, heat transfer, and combustion in the determination of performance characteristics of various engines, e.g., internal combustion, jet, and rocket engines

**ME 4623 Control Systems: 3 hours.**

(Prerequisites: ME 3613 and ECE 3283). Three hours lecture. Principles of closed loop mechanical, electrical, hydraulic, pneumatic, and thermodynamic systems. Design of control systems

**ME 4624 Experimental Methods in Materials Research: 4 hours.**

(Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or permission of instructors). Three hours lecture. Three hours laboratory. An introduction to research methodologies commonly used in the evaluation of treatments, and mechanical testing. (Same as ABE 4624/6624 and CHE 4624/6624)

**ME 4643 Introduction to Vibrations and Controls: 3 hours.**

(Prerequisite: ME 3613). Three hours lecture. Review of Laplace Transforms. Introduction to vibrations, Fourier analysis, linearization, system modeling and feedback controls

**ME 4743 Labview: 3 hours.**

(Prerequisite: ME 3701 or equivalent Labview experience). Two hours lecture. Three hours laboratory. Labview programming for applications in laboratory data acquisition (DQA). Basic and intermediate graphical programming theory with emphasis on transducer measurements and triggering

**ME 4800 Undergraduate Research: 13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**ME 4823 Compressible Flow and Turbomachinery: 3 hours.**

(Prerequisites: EM 3313 and ME 3523). Three hours lecture. Fundamental principles, shock and expansion waves, generalized one-dimensional flows, simple processes, energy transfer in turbomachines, turbomachine efficiencies, multi-dimensional effects

**ME 4833 Intermediate Fluid Mechanics: 3 hours.**

(Prerequisite: EM 3313). Three hours lecture. Differential equations of fluid mechanics, Newtonian and non-Newtonian fluids, boundary-layer theory, laminar and turbulent solutions, compressible flow with applications

**ME 4990 Special Topics in Mechanical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ME 6113 Material Selection in Design: 3 hours.**

(Prerequisite: ME 3403 or equivalent). Three hours lecture. Principles of materials selection related to mechanical design requirements

**ME 6123 Failure of Engineering Materials: 3 hours.**

(Prerequisite: EM 3213) Three hours lecture. The failure of constituent materials using real-world case studies is the focus. Experimental and analytical techniques for failure analysis and prevention are covered. (Same as CE 4323/6323)

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Three hours lecture. Fundamentals of automotive engineering, including power units, mechanical systems, electrical system and industrial and systems engineering aspects. (Same as CHE/ECE/IE 4193/6193)

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(Prerequisites: EM 3413 or ME 3613 and senior standing). Three hours lecture. Fourier methods, shock spectra, signature analysis, relation to specific phenomena and malfunctions; acoustical aids; field measurement analysis; random functions, correlations; mobility and impedance methods

**ME 6233 Fundamentals of Finite Element Analysis: 3 hours.**

Three hours lecture. This course focuses on the implementation of the finite element (FE) method with commercially-available FE software and the basic mathematical theory of finite element analysis. Topics include mechanical response with a survey of thermal analysis and advanced topics (e.g., nonlinear problems and dynamic loading)

**ME 6333 Energy Systems Design: 3 hours.**

(Prerequisites: ME 3313 and ME 3113). Three hours lecture. Comprehensive design problems requiring engineering decisions, data acquisition, codes/standards compliance. Emphasis upon energy systems components: heat exchangers, piping networks, pumps. Fluid transients, system modeling

**ME 6343 Intermediate Heat Transfer: 3 hours.**

(Prerequisite: ME 3313). Three hours lecture. Condensation and boiling, analytical and numerical techniques for conduction and convection, gray-body and spectral-dependent radiation, transient and steady-state thermal modeling

**ME 6353 Alternate Energy Sources: 3 hours.**

(Prerequisite: ME 3313). Three hours lecture. Analysis and design of systems using energy derived from solar, hydro, geothermal, wind, ocean, waste, and biomass sources

**ME 6373 Air Conditioning: 3 hours.**

(Prerequisites: ME 3523 and ME 3313). Three hours lecture. Psychometrics; comfort conditions; determination of heat losses and gains; determination of sizes of elements; energy usage estimating; residential and commercial systems

**ME 6393 Power Generation Systems: 3 hours.**

(Prerequisites: ME 3313 and ME 3523). Three hours lecture. Evaluation and optimization of power generation systems with emphasis on optimization methods, system simulation, and economics. Energetic, economic, and environmental issues as well as exergy analysis may be incorporated in this course

**ME 6413 Casting and Joining: 3 hours.**

(Prerequisite: ME 3403 or consent of instructor). Three hours lecture. Fundamentals of solidification in casting and joining processes, including design applications

**ME 6423 Machining and Forming: 3 hours.**

(Prerequisite: ME 3403 or consent of instructor). Three hours lecture. Fundamentals of mechanical processing of joining processes, including design applications. metals, including bulk and sheet forming techniques

**ME 6443 Mechanical Systems Design: 3 hours.**

(Prerequisites: ME 3423 and ME 4403). Three hours lecture. Mechanical design projects involving analysis; industrial standards and considerations for safety and manufacturability; the use of computers in design and manufacturing automation (CAD/CAM)

**ME 6453 Lubrication: 3 hours.**

(Prerequisite: Senior standing). Three hours lecture. Friction of solids and fluids. Lubricants. Theory of sliding bearings. Multi-dimensional bearings with constant forces and velocities. Film, hydrodynamic, and gas lubrication. Design of bearings

**ME 6463 Engineering Design: 3 hours.**

(Prerequisites: ME 3613 and Senior standing). Three hours lecture. In-depth topics in mechanical design. Design of friction devices, hydrodynamic drives, and shells of revolution. Design for thermal creep, thermal stresses, surface contact, and impact

**ME 6543 Combustion Engines: 3 hours.**

(Prerequisites: ME 3523 and ME 3313). Three hours lecture. Application of thermodynamics, heat transfer, and combustion in the determination of performance characteristics of various engines, e.g., internal combustion, jet, and rocket engines

**ME 6623 Control Systems: 3 hours.**

(Prerequisites: ME 3613 and ECE 3283). Three hours lecture. Principles of closed loop mechanical, electrical, hydraulic, pneumatic, and thermodynamic systems. Design of control systems

**ME 6624 Experimental Methods in Materials Research: 4 hours.**

(Prerequisites: CHE 3413 or ABE 3813 or ME 3403 or permission of instructors). Three hours lecture. Three hours laboratory. An introduction to research methodologies commonly used in the evaluation of treatments, and mechanical testing. (Same as ABE 4624/6624 and CHE 4624/6624)

**ME 6643 Introduction to Vibrations and Controls: 3 hours.**

(Prerequisite: ME 3613). Three hours lecture. Review of Laplace Transforms. Introduction to vibrations, Fourier analysis, linearization, system modeling and feedback controls

**ME 6743 Labview: 3 hours.**

(Prerequisite: ME 3701 or equivalent Labview experience). Two hours lecture. Three hours laboratory. Labview programming for applications in laboratory data acquisition (DQA). Basic and intermediate graphical programming theory with emphasis on transducer measurements and triggering

**ME 6823 Compressible Flow and Turbomachinery: 3 hours.**

(Prerequisites: EM 3313 and ME 3523). Three hours lecture. Fundamental principles, shock and expansion waves, generalized one-dimensional flows, simple processes, energy transfer in turbomachines, turbomachine efficiencies, multi-dimensional effects

**ME 6833 Intermediate Fluid Mechanics: 3 hours.**

(Prerequisite: EM 3313). Three hours lecture. Differential equations of fluid mechanics, Newtonian and non-Newtonian fluids, boundary-layer theory, laminar and turbulent solutions, compressible flow with applications

**ME 6990 Special Topics in Mechanical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ME 7000 Directed Individual Study in Mechanical Engineering: 1-6 hours.**

Hours and credits to be arranged

**ME 8011 Graduate Seminar: 1 hour.**

Presentation and discussion of research and current mechanical engineering literature by students, faculty, and visiting lecturers. Attendance required for students in Mechanical Engineering Graduate Program

**ME 8144 Transmission Electro Microscopy: 4 hours.**

(Prerequisite: Consent of Instructor). One hour lecture. Six hours laboratory. Introduction to TEM including life sciences (tissue) and engineering (crystalline materials) topics. (Same as EPP 8144)

**ME 8213 Engineering Analysis: 3 hours.**

Three hours lecture. The formulation of mathematical methods of advanced engineering problems and the use of mathematical techniques for their solution: equilibrium, eigenvalue, and propagation problems

**ME 8223 Inelasticity: 3 hours.**

(Prerequisite: EM 8113 and EM 8203) Three hours lecture. This course covers plasticity, creep, viscoelasticity, and inelastic behavior in relation to microstructure-property relations, constitutive modeling at different length scales, and computational simulations. (Same as CE 8323)

**ME 8243 Finite Elements in Mechanical Engineering: 3 hours.**

(Prerequisites: ME 4403 and EM 3213). Three hours lecture. Concepts and applications of finite element analysis in mechanical engineering problems

**ME 8253 Fatigue in Engineering Design: 3 hours.**

Three hours lecture. Prediction and prevention of fatigue failure in metallic materials

**ME 8313 Conductive Heat Transfer: 3 hours.**

Three hours lecture. Closed form analytical and approximate numerical solutions to one, two, and three dimensional steady-state and transient problems in conduction heat transfer

**ME 8333 Convective Heat Transfer: 3 hours.**

Three hours lecture. Analytical and empirical methods of solution of problems in laminar and turbulent, natural and forced convective heat transfer. Stability; thermal boundary layer techniques; multiphase systems

**ME 8353 Advanced Energy Conversion: 3 hours.**

(Prerequisite: Graduate standing in Mechanical Engineering or consent of instructor). Three hours lecture. Physical process in advanced energy conversion technologies, with practical application to devices/energy cycles. Emphasis on fuel cells, photovoltaics, and related materials engineering issues

**ME 8373 Integrated Computational Materials Engineering: 3 hours.**

(Prerequisites: EM 3213 and ME 3403). Three hours lecture. Survey course of various length scale computational analysis related to materials modeling. Emphasis upon projects and exercises

**ME 8513 Classical Thermodynamics: 3 hours.**

Three hours lecture. Postulational treatment of the physical laws of equilibrium, thermostatics. Equations of state, processes, equilibrium stability, reactive systems, phase transitions

**ME 8613 Dynamical Systems: 3 hours.**

Three hours lecture. Mathematical description and simulation of systems with mechanical, electrical, pneumatic, and hydraulic components; state variables; bondgraphs; stability; observability and controllability

**ME 8733 Experimental Procedures: 3 hours.**

Three hours lecture. Design of experiments; instrumentation; data acquisition; and correlation and evaluation of results

**ME 8813 Viscous Flow I: 3 hours.**

Three hours lecture. Fundamental laws of motion for a viscous fluid; classical solutions of the Navier-Stokes equations; inviscid flow solutions; laminar boundary layers; stability criteria

**ME 8823 Viscous Flow II: 3 hours.**

(Prerequisite: ME 8813 or equivalent). Three hours lecture. Numerical solution techniques for viscous flow equations. Turbulence and turbulence modeling. Current literature and topics

**ME 8843 Unstructured Grid Technology: 3 hours.**

(Prerequisites: ASE 8413, proficiency in computer programming, and consent of instructor). Three hours lecture. Unstructured grid generation based on Delaunay, Advancing-Front, Iterative Point Placement, and Local-Reconnection techniques. Implementation of unstructured Finite-Element/Volume methods for engineering applications

**ME 8990 Special Topics in Mechanical Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ME 9000 Research in Mechanical Engineering: 1-13 hours.**

Hours and credits to be arranged

**Middle Eastern Culture Courses****MEC 2233 Introduction to Old Testament Archaeology: 3 hours.**

Three hours lecture. A survey of the Old Testament in the light of archaeological research. This approach is chronological-historical-archaeological. (Same as REL 2233)

**MEC 2990 Special Topics in Middle Eastern Culture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MEC 3473 Islam: 3 hours.**

Three hours lecture. A survey of Islamic history, beliefs and practices, law, theology, philosophy and mysticism. (Same as REL 3473)

**MEC 3540 Archaeological Travel and Participation Program: 1-6 hours.**

Participation in excavations in the Near East and related lecture program. (Same as AN 3540 and REL 3540)

**MEC 3553 Near Eastern Archaeology: 3 hours.**

Three hours lecture. Introduction to the contributions made by archaeological research to ancient Near Eastern history and prehistory, with special emphasis on the Syro-Palestinian area. (Same as AN 3553 and REL 3553)

**MEC 4403 The Ancient Near East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as HI 4403/6403 and REL 4403/6403)

**MEC 6403 The Ancient Near East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as HI 4403/6403 and REL 4403/6403)

**Management Courses****MGT 1011 Ideation: 1 hour.**

(Prerequisite: Admission to MVP). This is a course on discovery. Students will explore a variety of critical challenges surrounding the entrepreneur's ability to recognize and develop new ideas

**MGT 1021 Strategic Thinking: 1 hour.**

(Prerequisite: Admission to MVP). An introduction to company missions, core values and strategies. Emphasis is placed on the role of strategy in the formation of new business ventures

**MGT 2990 Special Topics in Management and Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MGT 3113 Principles of Management: 3 hours.**

(Prerequisites: junior standing). Three hours lecture. Management principles for large, small, entrepreneurial, and family businesses including planning, organizing, leading, and controlling

**MGT 3213 Organizational Communications: 3 hours.**

(Prerequisites: EN 1113 and junior standing). Three hours lecture. Application of communication principles through preparation of effective documents and presentations. Includes study and application of team communication, multicultural communication, technology usage, and ethical considerations

**MGT 3323 Entrepreneurship: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. An introduction to the processes involved in owning and managing a business. Includes the entrepreneurial activities normally associated with starting and operating a business

**MGT 3333 Field Studies in Entrepreneurship: 3 hours.**

(Prerequisite: MGT 3323 or consent of instructor). Three hours lecture. Students, working in groups (or individually) under the direction of their professor, will assess problems of an embryonic, entrepreneurial organization and recommend appropriate solutions, through the development of an entrepreneurial organization or consulting with an operating entrepreneurial organization

**MGT 3413 Production Management: 3 hours.**

(Prerequisite: MGT 3113 and BQA 2113). Three hours lecture. Purposes, methods, tools, and procedures of production/operations management: systems used in large and small firms

**MGT 3513 Introduction to Human Resource Management: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. Development of efficient programs for managing human resources in large, small, entrepreneurial, and family businesses. Emphasizes equal employment opportunity, performance evaluation, selection, placement, education, training, safety and health

**MGT 3713 Family Business Management: 3 hours.**

Three hours lecture. Study of business practices for family owned businesses - the functions, issues, operations, and dynamics of family businesses from a strategic management perspective

**MGT 3813 Organizational Behavior: 3 hours.**

(Prerequisites: MGT 3113). Three hours lecture. Study of behavioral theories used by managers to assist them in better understanding, anticipating, and influencing behavior in large, small, entrepreneurial, and family businesses

**MGT 3823 Socially Responsible Leadership: 3 hours.**

(Prerequisite: Junior-level academic standing). Three hours lecture. Study of leadership in large, small, entrepreneurial, and family businesses. Emphasizes the ethical challenges facing leaders and the impact of the behavior of leaders on followers, organizations, and organizational stakeholders

**MGT 4000 Directed Individual Study in Management and Information Systems: 1-6 hours.**

(Prerequisite: Junior standing). Hours and credits to be arranged

**MGT 4001 Leadership: Building a C-Suite: 1 hour.**

(Prerequisite: Admission to MVP). An introduction to teambuilding. This course examines methods of building a dream-team at the helm of new companies. The course includes personal assessment tools designed to help understand dominant behavioral traits

**MGT 4153 Management Seminar: 3 hours.**

(Prerequisite: Senior standing). Three hours lecture. Presents for analysis, discussion, and solution case-problems of actual situations met in day-to-day operation of large, small, entrepreneurial, and family businesses which require managerial action

**MGT 4533 Advanced Human Resource Management: 3 hours.**

Prerequisite: MGT 3513 or consent of instructor). Three hours lecture. Study of problems in the field of human resource management in large, small, entrepreneurial, and family businesses, emphasizing development of the ability to analyze problems and to apply management fundamentals to human resource management

**MGT 4543 Compensation Management: 3 hours.**

(Prerequisite: MGT 3513). Three hours lecture. Compensation fundamentals, practices, and problems in large, small, entrepreneurial, and family businesses, including wage level determinants, wage and salary structures, merit rating, methods of wage payments, fringe benefits, and controls

**MGT 4563 Staffing in Organizations: 3 hours.**

(Prerequisite: MGT 3113 and MGT 3513). Three hours lecture. Study of the staffing function in large, small, entrepreneurial, and family businesses, with emphasis on human resource planning, recruitment, and selection

**MGT 4613 Cross-Cultural Management: 3 hours.**

(Prerequisite: MGT 3113). Three hours lecture. Study of managing in a multi-cultural environment. Focuses on global strategies, management approaches, and interactions of large, small, entrepreneurial, and family businesses

**MGT 4713 Quality in Organizations: 3 hours.**

(Prerequisites: MGT 3113). Three hours lecture. An introduction to theories and tools associated with quality management in organizations. Considers the managerial, employee, organizational, and cultural changes required to enhance quality

**MGT 4863 International Strategic Management: 3 hours.**

(Prerequisite: Graduating senior in International Business academic program). Three hours lecture. Administrative process in large, small, entrepreneurial, and family businesses that compete internationally. Emphasis on integrating knowledge acquired in functional areas of business and current events in formulating international competitive policies

**MGT 4990 Special Topics in Management and Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MGT 6990 Special Topics in Management and Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MGT 7000 Directed Individual Study in Management and Information Systems: 1-6 hours.**

Hours and credits to be arranged

**MGT 8063 Survey of Management: 3 hours.**

(Prerequisite: Graduate standing). Three hours lecture. Survey of management principles and techniques including: objective, policies, functions, leadership, organization, and production control procedures and systems as applied to all fields of business

**MGT 8103 Strategic and Entrepreneurial Management: 3 hours.**

This course focuses on how organizations create sustained competitive advantages through environmental scanning, strategic thinking, strategic communication and a commitment to action

**MGT 8111 Human Resources Issues: 1 hour.**

(Prerequisite: MGT 8063 or equivalent). One hour lecture. Survey of nature and influences of human resource management in organizations. Case studies are used to apply and reinforce theory

**MGT 8113 Leadership Skills for Managerial Behavior: 3 hours.**

Three hours lecture. Survey of major behavioral skills used by managers to help them build human capital and influence behavior in an organizational setting

**MGT 8123 Strategic Business Consulting: 3 hours.**

(Prerequisite: BQA 8233, MKT 8153, EC 8103, ACC 8213, FIN 8113, MGT 8113). Three hours lecture. A study of strategic management covering environmental analysis, competition between firms, competitive advantage, and strategy implementation culminating in a consulting project with participating organization

**MGT 8613 Managing in the Global Business Environment: 3 hours.**

Three hours lecture. Analysis of the global environmental elements which impact and are impacted by organizations: global politics and economics, culture, international competition, natural resources, technology

**MGT 8813 Organizational Behavior: 3 hours.**

Three hours lecture. A study of the major behavioral theories and technologies as they relate to an organizational setting. Theory and research in the major organizational behavior areas will be emphasized

**MGT 8823 Organization Development: 3 hours.**

(Prerequisite: MGT 3113). Study of the ways organizations can better adapt to the challenges of a modern society. The focus is on innovation, change, and action-oriented research

**MGT 8990 Special Topics in Management and Information Systems: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)



**MGT 9000 Research in Management: 1-13 hours.**

Hours and credits to be arranged

**MGT 9143 Development of Management Theory: 3 hours.**

(Prerequisite: approval of Instructor). Three hours lecture. Doctoral Seminar. A survey analysis and synthesis of the classical idea which have influenced the development of management and current management theory

**MGT 9313 Seminar in Research Methods: 3 hours.**

(Prerequisite: Approval of instructor). The course will focus on the design, analysis, and writing of original research for publication in peer-reviewed, academic journals in the organizational sciences and related disciplines

**MGT 9533 Seminar in Human Resource Management Literature: 3 hours.**

(Prerequisite: Approval of Instructor). Discussions and presentations pertaining to HRM literature. Emphasis on understanding the empirical and theoretical research in this area and developing individual theoretical manuscripts for presentation

**MGT 9613 Organizational Theory and Practice: 3 hours.**

(Prerequisite: Approval of Instructor). Three hours lecture. Doctoral Seminar. Analysis and design of organization structure and dynamics of organization. Behavioral aspects of the executive factors affecting the administrative process within organizations

**MGT 9713 Seminar in Entrepreneurship: 3 hours.**

(Prerequisite: Approval of Instructor). Discussions and presentations pertaining to the entrepreneurship literature. Emphasis on understanding the empirical and theoretical research in this area and developing individual manuscripts for presentation

**MGT 9813 Seminar in Organizational Behavior: 3 hours.**

(Prerequisite: Approval of Instructor). Discussions and presentations pertaining to OB literature. Emphasis on understanding the empirical and theoretical research in this area, and developing individual theoretical manuscripts for presentation

**MGT 9913 Seminar in Strategy Formulation: 3 hours.**

(Prerequisite: Approval of Instructor). Doctoral seminar covering the strategic management literature pertaining to strategy formulation in new, small, family, and public firms

**MGT 9933 Seminar in Strategy Implementation: 3 hours.**

(Prerequisite: Approval of instructor). Doctoral seminar covering the strategic management literature pertaining to strategy implementation in new, small, family, and public firms

## Marketing Courses

**MKT 2001 Tactical and Strategic Customer Analysis: 1 hour.**

(Prerequisite: Admission to MVP). An introduction to the methodologies utilized in researching and building a strong understanding of customer development. Emphasis will be placed on the value proposition

**MKT 2211 PGM Level I Seminar: 1 hour.**

(Prerequisite: enrollment in the PGM program or consent of instructor). One hour lecture. This course introduces the PGM program and helps students work through Level I checkpoint material as designated by the PGA of America

**MKT 2213 PGA Golf Facility Management I: 3 hours.**

Three hours lecture. Introduction to golf facility management. Areas of focus include business planning, customer relations, tournament operations, golf car fleet management, and merchandise and inventory controls

**MKT 2221 Golf Professional Development I: 1 hour.**

(Prerequisite: MKT 2211 and enrollment in the PGA Golf Management program or permission of instructor). Two hours lab. Introduction to PGA PGM program course materials. Practical applications of golf tournament operations and customer relations material

**MKT 2223 Introduction to Golf Swing Instruction: 3 hours.**

(Prerequisite: MKT 2211 and enrollment in the PGA Golf Management program or permission of instructor). Three hours lecture. Introduction to PGA PGM program course materials. Theoretical concepts and practical application of golf swing instruction

**MKT 2231 Golf Professional Development II: 1 hour.**

(Prerequisite: Enrollment in PGA Golf Management program or permission of instructor). Two hours laboratory. Introduction to PGA PGM program course materials. Practical applications of golf car fleet management and business planning

**MKT 2233 Intermediate Golf Instruction: 3 hours.**

Three hours lecture. Introduction of intermediate teaching techniques, concepts, and application as well as importance of and design concepts of player development programs

**MKT 2241 Golf Professional Development III: 1 hour.**

(Prerequisite: Enrollment in the PGA Golf Management program or permission of instructor). Two hours lab. Introduction to PGA PGM Program course materials. Practical application of intermediate teaching and golf club alteration. Students will also be introduced to concepts and applications of turfgrass management

**MKT 2243 PGA Golf Facility Management II: 3 hours.**

Three hours lecture. A more in-depth analysis of MKT 2213 centered on business planning, golf operations, customer relations, merchandise and inventory management, and tournament operations. A managerial role in these areas focused on design and implementation as well as the financial impact of these areas on the facility

**MKT 2251 Golf Professional Development V: 1 hour.**

(Prerequisite: Enrollment in the PGA Golf Management program or permission of instructor). Two hour lab. Introduction to PGA PGM program course materials. Practical application of advanced teaching and golf club fitting and player development programs and teaching business

**MKT 2252 Advanced Golf Instruction: 2 hours.**

Two hours lecture. Introduction of advanced teaching techniques, concepts, and application as well as facility and owner benefits of the teaching business and player development programs

**MKT 2253 Advanced Golf Instruction: 3 hours.**

(Prerequisites: MKT 2233, PGA Golf Management Student, Level 3). Three hours lecture. Introduction of advanced teaching techniques, concepts, and application as well as facility and owner benefits of the teaching business and player development programs

**MKT 2311 Golf Professional Development IV: 1 hour.**

(Prerequisite: Enrollment in PGA Golf Management program or consent of instructor). Two hour lab. Introduction to PGA PGM program course materials. Practical application of golf operations and merchandise and inventory management

**MKT 2990 Special Topics in Marketing: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MKT 3013 Principles of Marketing: 3 hours.**

(Prerequisite: Junior standing) Three hours lecture. A general survey of the functions, processes, institutions and costs in distribution of goods and services from producers to users

**MKT 3213 Retailing: 3 hours.**

(Prerequisite: MKT 3013 and Junior standing). Three hours lecture. Survey of the nature, procedure and results of trade at the retail level

**MKT 3323 International Logistics: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. A general survey of the key elements of supply chain management including purchasing, operations, and logistics

**MKT 3513 Marketing Internship: 3 hours.**

(Prerequisites: Junior standing and MKT 3013). Students will work with an approved business as an intern

**MKT 3933 International Marketing: 3 hours.**

(Prerequisites: MKT 3013, and senior standing in business/ marketing). Three hours lecture. Study of the marketing function in the global marketplace, including the techniques and strategies required when marketing in various cultural, economic, legal and political environments

**MKT 4000 Directed Individual Study in Marketing: 1-6 hours.**

Hours and credits to be arranged

**MKT 4013 Procurement: 3 hours.**

(Prerequisites: For 4013, MKT 3323 and Junior standing; For 6013, MKT 3323 or consent of instructor) In-depth coverage of purchasing and supply management processes, strategies, and tools

**MKT 4033 International Transportation: 3 hours.**

(Prerequisites: MKT 3323 and Junior standing). Three hours lecture. Understanding the role of transportation in global logistics and the global economy

**MKT 4113 Personal Selling: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Psychology of personal selling; planning and presentation; the sales approach; the interview; closing the sale

**MKT 4123 Advertising: 3 hours.**

(Prerequisite: MKT 3013 or consent of instructor). Three hours lecture. A course dealing with the role of advertising in society, the relation of advertising to other business activity, and the use of advertising as communication

**MKT 4143 Sales Management: 3 hours.**

(Prerequisites: MKT 3013 and MGT 3113). Three hours lecture. Application of scientific management to the selling and distribution of consumer and industrial goods

**MKT 4213 Internet Marketing: 3 hours.**

(Prerequisite: MKT 3013 or MKT 8072) Three hours lecture. Introduction to practical marketing use of Internet technologies, including basic principles, impact on business and society, and strategic implications

**MKT 4223 Social Media Marketing: 3 hours.**

(Prerequisites: MKT 3013 Principles of Marketing). Survey of the nature and use of social media in marketing

**MKT 4233 Golf Operations Management: 3 hours.**

(Prerequisite: PGM Major, MKT 3213 or permission of instructor). Three hours lecture. Development of marketing strategies for the organization, operation, and maintenance of operations in the golf shop and golf course environment

**MKT 4234 Golf Operations Management: 4 hours.**

Four hours lecture. Development of marketing strategies for the organization, operation, and maintenance of operations in the golf shop and golf course environment. Advanced learning strategies for business planning, merchandise and inventory management, personnel management, and golf operations will combine concepts delivered throughout the PGA Golf Management curriculum

**MKT 4313 Physical Distribution Management: 3 hours.**

(Prerequisites: BQA 2113 and MKT 3013). Functions of physical distribution in business management; analysis of shippers, distribution problems in relation to carrier types, services and functions; study of rate of structure and rate changes

**MKT 4333 International Supply Chain Management: 3 hours.**

(Prerequisites: MKT 3323, Junior standing, and BQA 2113). Three hours lecture. Analysis, management, and improvement of global supply chain processes

**MKT 4413 Consumer Behavior: 3 hours.**

(Prerequisite: MKT 3013). A study of the nature and dynamics of consumer markets, and the significance of these markets to marketing executives

**MKT 4420 Travel Study I: 1-3 hours.**

(One to three hours seminar). Course introduces students to important differences between marketing to a domestic target market and crafting marketing plans for international target markets in two parts. First portion involves classroom readings and discussion, and the second portion is on-site travel study. Destinations change each semester

**MKT 4423 Strategic Brand Management: 3 hours.**

(Prerequisite: MKT 3013). Three hours lecture. This course explores the concepts of brands, brand equity, and strategic brand management, providing practical insights for building brands and enhancing profitability of existing brands

**MKT 4430 Travel Study II: 1-3 hours.**

(One to three hours seminar). Course introduces students to important differences between marketing to a domestic target market and crafting marketing plans for international target markets in two parts. First portion involves classroom readings and discussion, and second portion is an on-site travel study. Destinations change each semester

**MKT 4433 Golf Operations Management: 3 hours.**

(Prerequisites: MKT 2243, PGA Golf Management student, Level 3). Three hours lecture. Development of marketing strategies for the organization, operation, and maintenance of operations in the golf shop and golf course environment. Advanced learning strategies for business planning, merchandise and inventory management, personnel management, and golf operations

**MKT 4513 Resort-Convention Marketing: 3 hours.**

(Prerequisite: MKT 3013) Three hours lecture. A study of marketing problems unique to resorts and convention centers. Special emphasis is placed on quantitative techniques for pricing, services, event booking, and positioning. Course available only on MSU-Meridian campus

**MKT 4533 Marketing Research: 3 hours.**

(Prerequisites: MKT 3013 and BQA 3123 or equivalent [or co-enrollment in BQA 3123]). Three hours lecture. Study of modern marketing research techniques and their applications. Scope and purpose of marketing research: planning of surveys; collecting and analysis of data; preparation of reports

**MKT 4613 Services Marketing: 3 hours.**

(Prerequisite: MKT 3013.) Three hours lecture. A study of the unique problems associated with the marketing of services and of alternative strategies with which to improve service marketing effectiveness

**MKT 4813 Marketing Management: 3 hours.**

(Prerequisites: MKT 4413 Consumer Behavior, MKT 4533 Marketing Research and Marketing Graduating Senior; or Permission of Instructor). Marketing from managerial viewpoints: critical analysis of functions of marketing opportunity assessment, marketing planning and programming, marketing leadership and organization, evaluating and adjusting marketing effort

**MKT 4990 Special Topics in Marketing: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MKT 6013 Procurement: 3 hours.**

(Prerequisites: For 4013, MKT 3323 and Junior standing; For 6013, MKT 3323 or consent of instructor) In-depth coverage of purchasing and supply management processes, strategies, and tools

**MKT 6143 Sales Management: 3 hours.**

(Prerequisites: MKT 3013 and MGT 3113). Three hours lecture. Application of scientific management to the selling and distribution of consumer and industrial goods

**MKT 6213 Internet Marketing: 3 hours.**

(Prerequisite: MKT 3013 or MKT 8072) Three hours lecture. Introduction to practical marketing use of Internet technologies, including basic principles, impact on business and society, and strategic implications

**MKT 6233 Golf Operations Management: 3 hours.**

(Prerequisite: PGM Major, MKT 3213 or permission of instructor). Three hours lecture. Development of marketing strategies for the organization, operation, and maintenance of operations in the golf shop and golf course environment

**MKT 6313 Physical Distribution Management: 3 hours.**

(Prerequisites: BQA 2113 and MKT 3013). Functions of physical distribution in business management; analysis of shippers, distribution problems in relation to carrier types, services and functions; study of rate of structure and rate changes

**MKT 6420 Travel Study I: 1-3 hours.**

(One to three hours seminar). Course introduces students to important differences between marketing to a domestic target market and crafting marketing plans for international target markets in two parts. First portion involves classroom readings and discussion, and the second portion is on-site travel study. Destinations change each semester

**MKT 6423 Strategic Brand Management: 3 hours.**

(Prerequisite: MKT 3013). Three hours lecture. This course explores the concepts of brands, brand equity, and strategic brand management, providing practical insights for building brands and enhancing profitability of existing brands

**MKT 6430 Travel Study II: 1-3 hours.**

(One to three hours seminar). Course introduces students to important differences between marketing to a domestic target market and crafting marketing plans for international target markets in two parts. First portion involves classroom readings and discussion, and second portion is an on-site travel study. Destinations change each semester

**MKT 6990 Special Topics in Marketing, Quantitative Analysis and Business Law: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MKT 7000 Directed Individual Study in Marketing: 1-6 hours.**

Hours and credits to be arranged

**MKT 8153 Strategic Marketing Management: 3 hours.**

Three hours lecture. Market strategic analysis, research and planning necessary to effectively match marketing strategies with changing macro, micro and organizational environments

**MKT 8213 Supply Chain and Operations Management: 3 hours.**

Study of how operations and logistics, both within and between firms in a supply chain contribute to creating customer value propositions, and achieving competitive advantage

**MKT 8323 Problems in Marketing: 3 hours.**

(Prerequisite: MKT 8112 or equivalent). Seminar. Identification of current marketing problems and the specification, evaluation and modification of strategies for their resolution, with emphasis on the use of conceptual modeling

**MKT 8333 Seminar in Marketing-Promotion and Distribution: 3 hours.**

(Prerequisite: MKT 8313). Intensive analysis of promotion and distribution strategies as key functional marketing variables. Emphasis is on obtaining an advanced understanding of strategic and research alternatives

**MKT 8343 Seminar in Marketing-Price and Product: 3 hours.**

(Prerequisite: MKT 8313). Intensive analysis of pricing and product strategies as key functional marketing variables. Emphasis is on obtaining an advanced understanding of strategic and research alternatives

**MKT 8413 Seminar in Consumer Behavior: 3 hours.**

(Prerequisite: MKT 8313). An analysis of macro and micro consumer behavior. Particular emphasis is placed on the consumer decision process in the market place

**MKT 8533 Research Design and Execution: 3 hours.**

(Prerequisite: Consent of instructor). Interdisciplinary; designing and executing valid quantitative research projects, development valid, reliable data collection instruments, correctly analyzing, interpreting data. Wide-range applicability. Master-doctoral-level

**MKT 8543 Quantitative Marketing Seminar: 3 hours.**

(Prerequisites: MKT 8313 and BQA 8443 or consent of instructor). Development of marketing strategy and the solution of marketing problems using quantitative methods

**MKT 8990 Special Topics in Marketing: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MKT 9000 Research in Marketing: 1-13 hours.**

Hours and credits to be arranged

**MKT 9333 Advanced Marketing Theory: 3 hours.**

(Prerequisite: MKT 8313). Seminar. A critical examination of the evolution of marketing concepts, terminology, principles, and theory, through analysis of the literature in the field

## Military Science - Army ROTC Courses

### **MS 1112 Introduction to the Army: 2 hours.**

One hour lecture. Two hours laboratory. Increases self-confidence through team study and activities in basic drill, physical fitness, rappelling, first aid, and basic marksmanship. Students learn fundamental concepts of leadership

### **MS 1122 Foundations of Leadership: 2 hours.**

One hour lecture. Two hours laboratory. Applies principles of effective communications skills to improve individual performance and group interaction, and relates organizational ethical values to the effectiveness of leaders

### **MS 2113 Leadership and Ethics: 3 hours.**

Two hours lecture. Two hours laboratory. Applies leadership and problem-solving principles to complex case studies/simulations. Examines principles of subordinate motivation and organizational change. Develops effective communication skills

### **MS 2123 Army Doctrine and Decision Making: 3 hours.**

Two hours lecture. Two hours laboratory. Introduces basic tactics. Examines national and Army values. Applies principles of ethical decision-making. Examines the legal and historical foundations, duties and functions of officers. (Spring)

### **MS 2256 Introductory Leadership Courses: 6 hours.**

(The equivalent of MS 1112, MS 1122, MS 2122; or MS 1113 and MS 2223). Summer leadership training course designed to introduce students to all facets of the military with a focus on understanding traditional military leadership values. (Pass/Fail). (Summer)

### **MS 2523 Military Leadership 1: 3 hours.**

Three hours lecture. A study of leadership skills and concepts. This course is designed for students who are not pursuing a military commission. (Same as AS 2523)

### **MS 2990 Special Topics in Military Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

### **MS 3114 Training Management and Warfighting Functions: 4 hours.**

(Prerequisites: MS 1112, MS 1122, MS 2112, and MS 2122 or consent of instructor). Fall semester. Three hours lecture. Two hours laboratory. Detailed instruction on squad offensive and defensive tactics, to include specialized operations. Additional instruction in combat leadership, and operations orders

### **MS 3124 Applied Leadership in Small Unit Operations: 4 hours.**

(Prerequisite: MS 1112, MS 1122, MS 2112, MS 2122, MS 3113 or consent of instructor). Spring Semester. Three hours lecture. Two hours laboratory. Advanced instruction on platoon tactical operations and small unit patrolling. Discussion on the operation and employment of weapons in the platoon

### **MS 3376 Advanced Leadership Course: 6 hours.**

(Prerequisite: MS 3113 and MS 3123). Summer leadership training course designed to train and to evaluate cadet's leadership ability and officer potential. (Pass/Fail). (Summer)

### **MS 4000 Directed Individual Study in Military Science: 1-6 hours.**

Hours and credits to be arranged maximum of three hours

### **MS 4114 The Army Officer: 4 hours.**

(Prerequisite: Military Science Senior Status or consent of instructor). Three hours lecture. Three hours laboratory. Plan, conduct and evaluate activities of the ROTC organization. Develop confidence in skills to lead people and manage resources. Apply Army policies and programs. (Fall)

### **MS 4124 Company Grade Leadership: 4 hours.**

(Prerequisite: Military Science Senior Status or consent of instructor). Three hours lecture. Three hours laboratory. Theory and practice of the laws of war, leadership, and resolving ethical problems. (Spring)

### **MS 4990 Special Topics in Military Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

### **MS 7000 Directed Individual Study: 1-6 hours.**

Hours and credits to be arranged

## Music Courses

### **MU 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

### **MU 1003 Fundamentals of Music Theory: 3 hours.**

Three hours lecture. Development of skills for music reading, writing, listening and analyzing. Topics will include pitch, rhythm, meter, scales and basic harmony

### **MU 1010 Recital Hour: 1 hour.**

Minimum one (1) hour weekly. Performance and critique experiences in applied music. Required for music (BA) and music education (BME) majors. May be repeated for credit

### **MU 1103 African American Music: 3 hours.**

Three hours lecture. A study of African musical and cultural traditions with focus on the impact of these traditions on the development and advancement of African American Music. (Same as AAS 1103)

### **MU 1111 Piano Class: 1 hour.**

Two hours laboratory. Beginning piano for non-music majors

### **MU 1113 History and Appreciation of Music: 3 hours.**

Three hours lecture. Historical development of music and the composers of the different eras; individual investigation of related special topics; individual and directed listening to music examples

### **MU 1123 History and Appreciation of American Music: 3 hours.**

Three hours lecture. Historical development of music and composers of the United States; individual investigation of related American music special topics; individual and directed listening to musical examples

### **MU 1133 The History of Rock and Roll: 3 hours.**

Three-hour lecture. History of the development of Rock and Roll from the early 1950's to the present, including early Rock and Roll, the British invasion, and 21st century current trends; the course examines the symbiotic relationship between music and society

### **MU 1141 Song Literature: 1 hour.**

(Section is restricted to the following majors: Music and Music Education). One hour seminar. Emphasis is placed on the history and compositional characteristics of Western art song in terms of melody, harmony, rhythm, accompaniment, form, and poetry through score study, research presentations, and listening assignments

**MU 1143 The History of Jazz: 3 hours.**

Three hours lecture. History of Jazz musical genres. Follows the timeline of Jazz from its multi-cultural origins to its emergence as a uniquely American musical form. Describes the development of different periods of Jazz history, representative personalities and the role of Jazz in society and culture

**MU 1151 Vocal Pedagogy: 1 hour.**

(Section is restricted to the following majors: Music and Music Education).

One hour seminar. Course gives a comprehensive overview of the anatomy/physiology of the human voice, the acoustic properties that govern resonance, and vocal health. It also contains a practicum as students teach voice lessons gaining practical experience

**MU 1153 Music of Africa: 3 hours.**

Three hours lecture. An introduction to the diverse musical traditions of Africa. The course includes the study of the relationship between music and history by addressing issues of geography, colonialism, globalization, gender, politics and religion

**MU 1163 Introduction to Music in Film: 3 hours.**

Three hours lecture. A survey of music in motion picture media, the roles it has played from the silent to contemporary eras, and the cultures and people that produced it

**MU 1173 Music of the Beatles: 3 hours.**

(Prerequisite: EN 1103 or EN 1163). Three credit hours. A survey of the music of the Beatles focused on its structure, lyrics, social influence, and cultural significance, with emphasis on writing skill development

**MU 1213 Music Theory I: 3 hours.**

(Prerequisite: Music or Music Education major or permission of the instructor). Three hours lecture. Fundamental concepts of notation of key signatures, intervals, scales, chords, and clefs. Principles of Common-Practice Period Functional Harmony. Co-requisite: MU 1321 or permission of instructor

**MU 1241 Diction I: 1 hour.**

(Section is restricted to the following majors: Music and Music Education).

One hour seminar. Course acquaints voice student with the International Phonetic Alphabet (IPA) and application to English and German. Correct singing pronunciation of these languages as applied to art song will be the focus of the course

**MU 1242 Diction I: 2 hours.**

(Prerequisites: Music majors (BA, BME, BMP) only, or permission of instructor). Two hours lecture. Introduces students to the sounds of English, Italian, and Latin using the International Phonetic Alphabet (IPA). Correct singing pronunciation of these languages in classical vocal works will be the focus of the course

**MU 1251 Diction II: 1 hour.**

(Section is restricted to the following majors: Music and Music Education).

One hour seminar. Course acquaints voice student with the International Phonetic Alphabet (IPA) and application to Italian and French. Correct singing pronunciation of these languages as applied to art song will be the focus of the course

**MU 1252 Diction II: 2 hours.**

(Prerequisites: Music majors (BA, BME, BMP) only, or permission of instructor). Two hours lecture. Introduces students to the sounds of German and French using the International Phonetic Alphabet (IPA). Correct singing pronunciation of these languages in classical vocal works will be the focus of the course

**MU 1321 Ear Training I: 1 hour.**

(Prerequisite: Music or Music Education major or permission of the instructor). Two hours laboratory. Aural identification, singing and dictation of major and minor scales, diatonic melodies, isolated harmonies, simple intervals and rhythms. Co-requisite: MU 1213 or permission of instructor

**MU 1413 Music Theory II: 3 hours.**

(Prerequisite: C or better in MU 1213, Music or Music Education Major or permission of the instructor). Three hours lecture. Further elements of harmony, including seventh-chords, non-chord tones, chromatic vocabulary. Small forms. Co-requisite: MU 1521 or permission of instructor

**MU 1521 Ear Training II: 1 hour.**

(Prerequisite: C or better in MU 1321, Music or Music Education major or permission of the instructor). Two hours laboratory. Aural identification, singing and dictation of diatonic melodies, triads, simple intervals and rhythms. Co-requisite: MU 1413 or permission of instructor

**MU 1553 Computer Skills for Musicians: 3 hours.**

(Prerequisites: Music majors (BA, BME, BMP) only). Three hours lecture. Survey course focused on basic computer literacy for musicians, including an introduction to software for notation, creation, editing, and publishing of music, and development of skills needed for the creation of a professional web presence

**MU 2011 Third Year Woodwind Ensembles: 1 hour.**

(Audition Required). One to five rehearsals per week. The study and performance of significant woodwind literature. May be repeated for credit

**MU 2012 World Music: 2 hours.**

Two hours lecture. A survey of the non-Western musics and music cultures of the world. The course will serve as an introduction to the discipline of ethnomusicology, the study of music in the context of culture

**MU 2023 Music of Latin America: 3 hours.**

Three hours lecture. An introduction to the diverse musical traditions of Latin America. The course includes the study of the relationship between music and history by addressing issues of geography, colonialism, globalization, gender, politics and religion

**MU 2111 Piano Class: 1 hour.**

Two hours laboratory. Beginning piano for instrumental and vocal music majors

**MU 2121 Piano Class: 1 hour.**

Two hours laboratory. Beginning piano for instrumental and vocal music majors

**MU 2152 Vocal Pedagogy: 2 hours.**

(Prerequisites: Music majors (BA, BME, BMP) only, or permission of instructor). Two hours lecture. Comprehensive overview of the anatomy and physiology of the human voice, vocal health, and pedagogical ethics. Contains a practicum as students teach voice lessons and receive feedback

**MU 2173 Women in Music: 3 hours.**

(Prerequisites EN 1103 or EN 1163). Three hours lecture. Survey of music from the middle ages to present focusing on music commissioned, written, or performed by women and the evolution of the rights of women as pertains to the music industry with an emphasis on writing skill development

**MU 2183 Survey of Country Music: 3 hours.**

(Prerequisite: EN 1103 or EN 1163). Three hours lecture. A survey of country music beginning with the 20th century to current music. Course will also explore country music's impact on society and culture in the United States

**MU 2281 Guitar Chamber Music: 1 hour.**

(Prerequisites: Passed audition, or permission of instructor). Two hours studio. The study and performance of chamber and concert music for the guitar

**MU 2411 Guitar Ensemble: 1 hour.**

(Audition required) One to five rehearsals per week. The study and performance of guitar ensemble literature. May be repeated for credit

**MU 2511 Marching Band: 1 hour.**

(Audition Required). One to five rehearsals per week. The study and performance of significant marching band literature. May be repeated for credit. (Fall semester only)

**MU 2521 Steel Drum Ensemble: 1 hour.**

One hour lecture. Exploration of performance techniques, repertoire, and cultural history of Trinidadian steel drums. No audition required. May be repeated for credit

**MU 2531 Concert Band: 1 hour.**

(Audition required). One to five rehearsals per week. The study and performance of significant concert band literature. May be repeated for credit. (Spring semester only)

**MU 2551 Percussion Ensemble: 1 hour.**

(Audition required). One to five rehearsals per week. The study and performance of significant percussion literature. May be repeated for credit

**MU 2561 Symphonic Band: 1 hour.**

(Audition required). One to five rehearsals per week. The study and performance of significant symphonic band literature. May be repeated for credit. (Spring semester only)

**MU 2571 Wind Ensemble: 1 hour.**

(Audition required). One to five rehearsals per week. Study, rehearsal and performance of select literature from the wind band repertory. May be repeated for credit

**MU 2611 Concert Choir: 1 hour.**

(Audition required). One to five rehearsals per week. The study and performance of significant choral literature. May be repeated for credit

**MU 2613 Music Theory III: 3 hours.**

(Prerequisite: C or better in MU 1413). Three hours lecture. Chromatic vocabulary, including augmented sixth chords, Neapolitans and modulation, Late Romantic and early 20th Century innovations such as extended tertian chords and substitution chords. Co-requisite: MU 2721 or consent of instructor

**MU 2631 Starkville Community Choir: 1 hour.**

(Audition required). One to five rehearsals per week. The study and performance of significant choral literature. May be repeated for credit

**MU 2681 Opera Workshop: 1 hour.**

One hour lecture. Course acquaints the voice student with the basics of stagecraft, movement, and acting skills. Course provides the student with the opportunity to study, develop, and improve their dramatic skills outside of the voice studio. May be repeated for credit

**MU 2721 Ear Training III: 1 hour.**

(Prerequisite: C or better in MU 1521) Two hours laboratory. Aural identification, singing and dictation of diatonic melodies with chromatic inflection, seventh chords and rhythms. Co-requisite: MU 2613 or consent of instructor

**MU 2731 Cantaré: 1 hour.**

(Prerequisite: Audition Required or Permission of Instructor). Two hours studio. The study, rehearsal and performance of a variety of SATB choral music of many styles, contexts and cultures. May be repeated for credit

**MU 2741 OPUS: 1 hour.**

(Prerequisite: Audition Required or Permission of Instructor). Two hours studio. The study and performance of a variety of Tenor/Bass choral music of many styles, contexts and cultures. May be repeated for credit more than once

**MU 2751 Schola Cantorum: 1 hour.**

(Prerequisite: Audition Required or Permission of Instructor). Two hours studio. The study and performance of a variety of SSAA (treble) choral music of many styles, contexts and cultures. May be repeated for credit more than once

**MU 2813 Music Theory IV: 3 hours.**

(Prerequisite: C or higher in MU 2613 and MU 2721, or equivalents; Co-requisite MU 2921 unless already passed with C or better.) Three hours lecture. Advanced harmony and musical structure; mastery developed through readings, exercises, examinations, and creative projects

**MU 2851 Brass Ensembles: 1 hour.**

(Audition required). One to five rehearsals per week. The study and performance of significant brass literature. May be repeated for credit

**MU 2881 Trombone Troupe: 1 hour.**

One hour studio. The study and performance of chamber and concert music for the trombone ensemble. (Repeatable ten times)

**MU 2911 Jazz Ensemble: 1 hour.**

(Audition required). One to five rehearsals per week. The study and performance of significant jazz ensemble literature. May be repeated for credit

**MU 2921 Ear Training IV: 1 hour.**

(Prerequisite: C or better in MU 2721; co-requisite: MU 2831 or consent of instructor). Two hours laboratory. Aural identification, singing and dictation of modes, artificial scales, non-triadic chords, modulating melodies, compound intervals

**MU 2951 Philharmonia: 1 hour.**

(Prerequisite: audition required.) Two rehearsals per week. Study, rehearsal and performance of orchestral repertory with a focus on literature for chamber orchestra. May be repeated for credit

**MU 2981 Symphony Orchestra: 1 hour.**

(Prerequisite: audition or permission of instructor). Two hours studio. Study, rehearsal and performance of select repertoire of orchestral music. This ensemble endeavors to develop playing and listening skills, both individually and as an ensemble

**MU 2990 Special Topics in Music: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MU 3013 Survey of Western Music History I: 3 hours.**

Three hours lecture. A survey of western music history from Antiquity through the Baroque Period (up to ca. 1750 A.D./C.E.). This course serves as the first in a 2-course music history sequence required for music majors

**MU 3023 Survey of Western Music History II: 3 hours.**

(Prerequisite: MU 3013 or permission of instructor). Three hours lecture. A survey of western music history from the Classical Period through the present (from ca. 1750 A.D./C.E.). This is the second in a 2-course music history sequence

**MU 3103 Native American Music: 3 hours.**

Three hours lecture. An introduction to the diverse musical traditions of Native America. The course includes study of role and meaning of "tradition" in Native American music, selected tribal musical styles, and historical context which influenced tribal music and dance

**MU 3111 Piano Class: 1 hour.**

(Prerequisite: grade of C or better in MU 2121 or equivalent or permission of instructor). Two hours laboratory. Intermediate piano for instrumental and vocal music majors; continuation of MU 2121

**MU 3112 Functional Skills of Piano I: 2 hours.**

(Prerequisite: Prior credit or concurrent enrollment in MU 1213-1413). Two hours laboratory. Functional keyboard skills for music majors who read and play intermediate to advanced-level piano repertoire

**MU 3121 Piano Class: 1 hour.**

Two hours laboratory. Continuation of MU 3111

**MU 3122 Functional Skills of Piano II: 2 hours.**

(Prerequisite: Prior credit or concurrent enrollment in MU 1213-1413). Two hours laboratory. Functional keyboard skills for music majors who read and play intermediate to advanced-level piano repertoire

**MU 3123 Creative Arts for Elementary and Middle Levels: 3 hours.**

(Prerequisite: Admission to Teacher Education) Three hours lecture. An exploration of musical and artistic elements utilizing a variety of multicultural music, dance, drama and aesthetic visual. (Same as EDE 3443)

**MU 3133 Brass Literature: 3 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, or permission of instructor). Three hours lecture. Study of solo, chamber, wind band, and orchestral brass literature from the Baroque to the 21st-century. Emphasis on student's primary instrument with an overview of literature for all brass

**MU 3201 Collaborative Piano Ensemble: 1 hour.**

(Prerequisite: late intermediate to early advanced piano skills. Audition required). One to five rehearsals per week. The study and performance of vocal/piano and instrumental piano repertoire. May be repeated for credit

**MU 3233 Guitar Literature: 3 hours.**

(Prerequisite: BMP, BME, or BA Music Major, passed UDPE, or permission of instructor). Three hours lecture. Detailed study of guitar performance literature from the solo, chamber music, and orchestral repertoire

**MU 3333 Orchestration: 3 hours.**

(Prerequisite: C or higher in MU 2813 and MU 2921, or equivalents, plus fully-passed Music Theory Upper Division Proficiency Examination.) Three hours lecture. Study of instruments and orchestration techniques; mastery through readings, exercises, examinations, presentations, and creative projects

**MU 3412 Conducting: 2 hours.**

Two hours lecture. The elements of conducting, baton technique, and interpretation

**MU 3433 Piano Literature: 3 hours.**

Three hours lecture. Repertoire, curriculum building, in a chronological and historical organization for teachers. Includes learning repertoire for teaching beginning, intermediate, and advanced piano. Recommended for all students in the keyboard concentration. Requires music reading and some knowledge of history

**MU 3442 Advanced Conducting: 2 hours.**

(Prerequisites: MU 3412 and MU 3111 [or equivalent credit]). One hour lecture. Two hours laboratory. Continuation of MU 3412 with emphasis on interpretation of significant instrumental and choral literature

**MU 3533 Percussion Literature: 3 hours.**

(Prerequisite: BMP, BME, or BA Music Major, passed UDPE, or permission of instructor). Three hours lecture. Detailed study of percussion performance literature from the solo, chamber music, and orchestral repertoire

**MU 3633 String Literature: 3 hours.**

(Prerequisites: Music majors (BA, BME, BMP) only, or permission of instructor). Three hours lecture. Detailed study of string performance literature from the solo, chamber music, and orchestral repertoire

**MU 3681 Opera Production: 1 hour.**

(Audition required, co-requisite MUA 1050, 2050, or 3050 concurrently with Opera Production). One hour studio. Students will practice acting, singing, stagecraft, and movement, as well as learning to collaborate with their peers. Musical and staging rehearsals will culminate in performances of opera production. May be repeated for credit

**MU 3761 State Singers: 1 hour.**

(Prerequisite: Audition Required or Permission of Instructor). Two hours studio. The study and performance of a variety of SATB choral music of many styles, contexts and cultures, including masterworks. May be repeated for credit more than once

**MU 3833 Woodwind Literature: 3 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, or permission by instructor). Three hours lecture. The study of solo, chamber, orchestral woodwind literature and method books from the Baroque to the 21st century. Emphasis is on students' primary instrument

**MU 3933 Survey of Choral Literature: 3 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, MU 3412). Three hours lecture. A survey of choral music from the Medieval Period to modern compositions

**MU 4000 Directed Individual Study in Music: 1-6 hours.**

Hours and credits to be arranged

**MU 4133 Brass Pedagogy: 3 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, or permission of instructor). Three hours lecture. Study of brass instruments with emphasis on pedagogical and performance skills. Topics include fundamentals of brass playing, studio organization, working in a professional environment, and the history of brass instruments

**MU 4313 Form and Analysis: 3 hours.**

(Prerequisite: C or higher in MU 2813 and MU 2921, or equivalents, plus fully-passed Music Theory Upper Division Proficiency Examination.) Three hours lecture. A survey of forms in music literature, with emphasis on harmonic structure and analytical techniques

**MU 4322 Band Arranging: 2 hours.**

(Prerequisite: Passing scores on both written and aural portions of the Music Theory Upper Division exam.) Two hours lecture. Study of idiomatic writing for instrumental ensembles, including marching, concert, and jazz bands

**MU 4433 Brass Pedagogy: 3 hours.**

(Prerequisites: Music majors (BA, BME, Required of all students in the keyboard concentration. BMP) only, or permission of instructor). Three hours lecture. Methods, materials, curriculum building, and philosophical bases for teaching beginning piano

**MU 4533 Percussion Pedagogy: 3 hours.**

(Prerequisites: BMP, BME, or BA Music Major, passed UDPE, or permission of instructor). Three hours lecture. Detailed study of percussion teaching techniques and selected pedagogical solo and ensemble repertoire

**MU 4633 String Pedagogy: 3 hours.**

(Prerequisites: Music majors (BA, BME, BMP) only, or permission of instructor). Three hours lecture. Detailed study of string teaching techniques and selected pedagogical solo and ensemble repertoire

**MU 4833 Woodwind Pedagogy: 3 hours.**

(Pre-requisite: Music majors (BA, BME, BMP) only, or permission of instructor). Three hours lecture. Study of woodwind instruments with emphasis on pedagogical and performance skills. Topics include fundamentals of woodwind playing, studio organization, working in a professional environment, and the history of woodwind instruments

**MU 4933 Survey of Symphonic Literature: 3 hours.**

(Prerequisites: Music majors (BA, BME, BMP) only, MU 3023, or permission of instructor) Three hours lecture. Survey of literature of the symphony genre, in the Western Classical Music tradition, from earliest discernible 17th-century appearances through the present day

**MU 4951 Senior Performance Recital: 1 hour.**

(Prerequisites: Music Performance majors (BMP) only and Passed UDPE. Corequisite: 4000 level MUA). Two hours studio. Full recital in a university recital setting. The student prepares the recital pieces in their applied lessons, through rehearsal with an accompanist and/or other contributing musicians

**MU 4990 Special Topics in Music: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MU 6990 Special Topics in Music: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MU 7000 Directed Individual Study in Music: 1-6 hours.**

Hours and credits to be arranged

**MU 8013 Seminar in Music History Research: 3 hours.**

(Prerequisite: Admission to MME Degree Program.) Three hours graduate seminar. Develops knowledge and skills necessary to conduct advanced research in subjects relating to music history

**MU 8023 Seminar in Music Theory: 3 hours.**

(Prerequisite: Admission to MME Degree Program). Three hours seminar. Directed study and discussion of topics in music theory, emphasizing individual analysis, writing and presentation

**MU 8402 Advanced Instrumental Arranging: 2 hours.**

(Prerequisites: Admission to MME degree program; or permission of instructor). Two hours lecture. Advanced scoring practice in arranging music for concert, marching, jazz bands, and small instrumental ensembles

**MU 8412 World Drumming: 2 hours.**

(Prerequisite: Admission to MME Degree Program). Two hours lecture. An introduction to drum techniques, traditional rhythms, performance practices, ensemble organization, and musical concepts of selected world drumming traditions

**MU 8422 Keyboard Skills for Music Educators: 2 hours.**

(Prerequisite: Admission to MME Degree Program). Two hours lecture. Group piano course designed to help music educators improve keyboard skills for playing parts and accompaniments, singing and playing, playing from lead sheets, improvisation, and sight playing

**MU 8482 Wind Band Literature: 2 hours.**

(Prerequisite: admission to the MME degree program). Two hours lecture. The study of the literature and history of the concert band (Renaissance to present era)

**MU 8990 Special Topics in Music: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MU 9000 Research in Music: 1-13 hours.**

Hours and credits to be arranged

## Music, Applied Courses

**MUA 1010 Applied Piano-Piano Majors and Minors: 1,2 hour.**

(Pre-requisite: placement audition; intermediate to advanced level). Variable credit 1 or 2 hours. Three hours practice per hour of credit. May be repeated for credit. Individual piano instruction for music and music education majors with a keyboard concentration

**MUA 1020 Applied Piano/Music Majors in Instrumental, Vocal and Guitar Concentrations: 1-2 hours.**

(Pre-requisite: MU 3121 or consent of instructor). Variable credit 1 or 2 credit hours. One hour practice per hour of credit. May be repeated for credit. Individual piano instruction for music and music education majors, instrumental, vocal and guitar concentrations

**MUA 1031 Applied Piano: Non-Music Majors: 1 hour.**

One credit hour for half hour weekly individual lessons. One hour practice per hour of credit. May be repeated for credit. Individual instruction for beginning to advanced students to develop skills for personal enrichment

**MUA 1050 Voice: 1,2 hour.****MUA 1061 Applied Voice: Non-Music Majors: 1 hour.**

One hour directed individual study. Weekly 25-minute vocal lesson, two hours of weekly practice required. Individual instruction for beginning to advanced students to develop skills for personal enrichment



**MUA 1110 Flute: 1,2 hour.**

**MUA 1150 Clarinet: 1,2 hour.**

**MUA 1210 Saxophone: 1,2 hour.**

**MUA 1250 Oboe: 1,2 hour.**

**MUA 1310 Bassoon: 1,2 hour.**

**MUA 1350 Trumpet: 1,2 hour.**

**MUA 1410 Horn: 1,2 hour.**

**MUA 1450 Trombone: 1,2 hour.**

**MUA 1510 Euphonium: 1,2 hour.**

**MUA 1550 Tuba: 1,2 hour.**

**MUA 1610 Percussion: 1,2 hour.**

**MUA 1650 Applied Violin: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the violin

**MUA 1660 Applied Viola: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the viola

**MUA 1670 Applied Cello: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the cello

**MUA 1680 Applied Double Bass: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the double bass

**MUA 1710 Guitar: 1,2 hour.**

Variable credit 1 or 2 hours credit: Three hours practice per hour of credit. May be repeated for credit. All students of applied music will be given proficiency examinations which will be held at the end of each semester. All Music Majors are required to perform in student recital hour on their major instrument at least once each semester. (Does not apply in the first semester of the freshman year or during the student teaching semester)

**MUA 1750 Applied Organ: 1,2 hour.**

(Pre-requisite: placement audition; intermediate to advanced level of keyboard skill; MUA 1010, 1020 or 1031 or permission of instructor). Variable credit 1 or 2 hours. 1 credit hour for non-majors, two credit hours) for majors. 2-3 hours practice per hour of credit. May be repeated for credit

**MUA 1810 Applied Composition: 1,2 hour.**

(Pre-requisite: C or better in MU 1213 and permission of instructor). Variable one or two credit hours studio. Individual instruction in music composition techniques, forms, and creativity

**MUA 2010 Applied Piano: 1,2 hour.**

(Prerequisite: placement audition for transfer students or students who have taken MUA 1010; intermediate to advanced level). Variable credit, 1 or 2 credit hours, Three hours practice per week per hour of credit. May be repeated for credit. Individual piano instruction for music and music education majors with a keyboard concentration

**MUA 2050 Voice: 1,2 hour.**

**MUA 2110 Flute: 1,2 hour.**

**MUA 2150 Clarinet: 1,2 hour.**

**MUA 2210 Saxophone: 1,2 hour.**

**MUA 2250 Oboe: 1,2 hour.**

**MUA 2310 Bassoon: 1,2 hour.**

**MUA 2350 Trumpet: 1,2 hour.**

**MUA 2410 Horn: 1,2 hour.**

**MUA 2450 Trombone: 1,2 hour.**

**MUA 2510 Euphonium: 1,2 hour.**

**MUA 2550 Tuba: 1,2 hour.**

**MUA 2610 Percussion: 1,2 hour.**

**MUA 2650 Applied Violin: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the violin

**MUA 2660 Applied Viola: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the viola

**MUA 2670 Applied Cello: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the cello

**MUA 2680 Applied Double Bass: 1,2 hour.**

(Prerequisites: Completed audition, BMP, BME, or BA Music Major, or permission of instructor). Variable one or two credit hours studio. Technical instruction in repertoire and performance of the double bass

**MUA 2710 Guitar: 1,2 hour.**

Variable credit 1 or 2 hours credit: Three hours practice per week per hour of credit. May be repeated for credit. All students of applied music will be given juried examinations which will be held at the end of each semester. All Music Majors are required to perform in Student Recital hour on their major instrument at least once each semester. (Does not apply in the first semester of the freshman year or during the student teaching semester)

**MUA 2750 Applied Organ: 1,2 hour.**

(Pre-requisite: placement audition; intermediate to advanced level of keyboard skill; MUA 1010, 1020, 1750 or permission of instructor). Variable credit 1 or 2 hours. 2-3 hours practice per hour of credit. May be repeated for credit. Individual organ instruction for music, music education majors with a keyboard concentration

**MUA 2810 Applied Composition: 1,2 hour.**

(Prerequisite: C or better in MUA 1810). Variable one or two credit hours studio. Individual instruction in music composition techniques, forms, and creativity

**MUA 2990 Special Topics in Applied Music: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MUA 3010 Applied Piano: 1,2 hour.**

(Prerequisite: have taken MUA 2010 and passed the UDPE; advanced level). Variable credit, 1 or 2 credit hours, Three hours practice per week per hour of credit. May be repeated for credit. Individual piano instruction for music and music education majors with a keyboard concentration

**MUA 3012 Applied Piano: 2 hours.**

(Prerequisites: Passed UDPE, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Individual piano instruction for music and music education majors with a keyboard concentration

**MUA 3050 Voice: 1,2 hour.****MUA 3052 Applied Voice: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. The fundamentals of a healthy vocal technique including posture, breathing, resonance, coordination of vocal registers, diction, and overall vocal health as well as essential elements of musicianship including artistry, interpretation, and performance skills

**MUA 3110 Flute: 1,2 hour.****MUA 3112 Applied Flute: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, Passed UDPE). Four hours studio. Weekly 60 minutes individual lessons. Lessons consist of pedagogical instruction of advanced flute technique, literature, practice, and performance methods

**MUA 3150 Clarinet: 1,2 hour.****MUA 3152 Applied Clarinet: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of clarinet advanced technique, literature, and practice methods

**MUA 3210 Saxophone: 1,2 hour.****MUA 3212 Applied Saxophone: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of saxophone advanced technique, literature, and practice methods

**MUA 3250 Oboe: 1,2 hour.****MUA 3252 Applied Oboe: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of oboe fundamental and advanced technique, literature and practice methods

**MUA 3310 Bassoon: 1,2 hour.****MUA 3312 Applied Bassoon: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of bassoon fundamental and advanced technique, literature and practice methods

**MUA 3350 Trumpet: 1,2 hour.****MUA 3352 Applied Trumpet: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Private instruction on trumpet and attendance at a one-hour weekly studio class

**MUA 3410 Horn: 1,2 hour.****MUA 3412 Applied Horn: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Private instruction on horn to develop skills on one's primary instrument. Attendance at weekly studio class required

**MUA 3450 Trombone: 1,2 hour.****MUA 3452 Applied Trombone: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Private instruction on trombone and attendance at a one-hour weekly studio class

**MUA 3510 Euphonium: 1,2 hour.****MUA 3512 Applied Euphonium: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Private instruction on euphonium and attendance at a one-hour weekly studio class

**MUA 3550 Tuba: 1,2 hour.****MUA 3552 Applied Tuba: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Private instruction on tuba and attendance at a one-hour weekly studio class

**MUA 3610 Percussion: 1,2 hour.****MUA 3612 Applied Percussion: 2 hours.**

(Prerequisites: Music majors (BA, BME, BMP), Passed UDPE). Four hours studio. Technical instruction in repertoire and performance of percussion instruments for music education and music majors

**MUA 3652 Applied Violin: 2 hours.**

(Prerequisites: Passed UDPE, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the violin

**MUA 3662 Applied Viola: 2 hours.**

(Prerequisites: Passed UDPE, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the viola

**MUA 3672 Applied Cello: 2 hours.**

(Prerequisites: Passed UDPE, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the cello

**MUA 3682 Applied Double Bass: 2 hours.**

(Prerequisites: Passed UDPE, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the double bass

**MUA 3710 Guitar: 1,2 hour.**

Variable credit 1 or 2 hours credit: Three hours practice per week per hour of credit. May be repeated for credit. All students of applied music will be given juried examinations which will be held at the end of each semester. All Music Majors are required to perform in Student Recital hour on their major instrument at least once each semester. (Does not apply in the first semester of the freshman year or during the student teaching semester)

**MUA 3712 Applied Guitar: 2 hours.**

(Prerequisite: placement audition; intermediate to advanced level of guitar skill; MUA 2710 or permission of instructor; have passed the UDPE). Four hours studio. Technical instruction in repertoire and performance of the guitar

**MUA 3750 Applied Organ: 1,2 hour.**

(Pre-requisite: placement audition; intermediate to advanced level of keyboard skill; MUA 2750 or permission of instructor; have passed the UDPE). Variable credit 1 or 2 hours. 2-3 hours practice per hour of credit. May be repeated for credit

**MUA 3752 Applied Organ: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed UDPE). Four hours studio. Technical instruction in repertoire and performance of the organ

**MUA 3810 Applied Composition: 1,2 hour.**

(Prerequisite: C or better in MUA 2810, plus a fully passed MSU Music Theory Upper Division Proficiency Examination). Variable one or two credit hours studio. Individual instruction in music composition techniques, forms, and creativity

**MUA 4012 Applied Piano: 2 hours.**

(Prerequisites: Passed Junior Recital, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Individual piano instruction for music and music education majors with a keyboard concentration

**MUA 4052 Applied Voice: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. The fundamentals of a healthy vocal technique including posture, breathing, resonance, coordination of vocal registers, diction, and overall vocal health as well as essential elements of musicianship including artistry, interpretation, and performance skills

**MUA 4112 Applied Flute: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, Passed Junior Recital). Four hours studio. Weekly 60 minutes individual lessons. Lessons consist of pedagogical instruction of advanced flute technique, literature, practice, and performance methods

**MUA 4152 Applied Clarinet: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of clarinet advanced technique, literature, and practice methods

**MUA 4212 Applied Saxophone: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of saxophone advanced technique, literature, and practice methods

**MUA 4252 Applied Oboe: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of oboe fundamental and advanced technique, literature and practice methods

**MUA 4312 Applied Bassoon: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Weekly 60 minutes individual lesson. Lessons consist of pedagogical instruction of bassoon fundamental and advanced technique, literature and practice methods

**MUA 4352 Applied Trumpet: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Private instruction on trumpet and attendance at a one hour weekly studio class

**MUA 4412 Applied Horn: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Private instruction on horn to develop skills on one's primary instrument. Attendance at weekly studio class required. Semester lessons will prepare the student for the Senior Recital

**MUA 4452 Applied Trombone: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Private instruction on trombone and attendance at a one hour weekly studio class

**MUA 4512 Applied Euphonium: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Private instruction on euphonium and attendance at a one-hour weekly studio class

**MUA 4552 Applied Tuba: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Private instruction on tuba and attendance at a one hour weekly studio class

**MUA 4612 Applied Percussion: 2 hours.**

(Prerequisites: Music majors (BA, BME, BMP), Passed Junior Recital). Four hours studio. Technical instruction in repertoire and performance of percussion instruments for music education and music majors

**MUA 4652 Applied Violin: 2 hours.**

(Prerequisites: Passed Junior Recital, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the violin

**MUA 4662 Applied Viola: 2 hours.**

(Prerequisites: Passed Junior Recital, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the viola

**MUA 4672 Applied Cello: 2 hours.**

(Prerequisites: Passed Junior Recital, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the cello

**MUA 4682 Applied Double Bass: 2 hours.**

(Prerequisites: Passed Junior Recital, BMP, BME, or BA Music Major, or permission of instructor). Four hours studio. Technical instruction in repertoire and performance of the double bass

**MUA 4712 Applied Guitar: 2 hours.**

(Prerequisite: placement audition; intermediate to advanced level of guitar skill; MUA 3710 or permission of instructor; have passed the UDPE). Four hours studio. Technical instruction in repertoire and performance of the guitar

**MUA 4752 Applied Organ: 2 hours.**

(Prerequisite: Music majors (BA, BME, BMP) only, passed Junior Recital). Four hours studio. Technical instruction in repertoire and performance of the organ

**MUA 4810 Applied Composition: 1,2 hour.**

(Prerequisite: C or better in MUA 3810). Variable one or two credit hours studio. Two credit hours with professor permission. Individual instruction in music composition techniques, forms, and creativity

**MUA 8440 Individual Studio Instruction: 1-2 hours.**

(Prerequisite: Admission to MME Degree Program). Directed individual study of one to two credit hours. Designed to provide students with advanced, professional-level instruction on a primary or secondary instrument/voice area. Pedagogical techniques and practices frequently used in instructing younger musicians may also be covered. Repeatable five times

**MUA 8450 Applied Composition: 1-2 hours.**

(Prerequisite: Admission to MME Degree Program). Directed individual study of one to two credit hours. Instruction in compositional techniques through the completion of creative projects commensurate with the student's interest and ability as well as acceptable to and appropriate for graduate music study. Repeatable three times

**MUA 8460 Applied Conducting: 1-2 hours.**

(Prerequisite: Admission to MME Degree Program.) One to two hours studio. Individual study of selected scores and conducting techniques. Instruction will be by private studio study with independent practice required. Repeatable three times

## Music Education Courses

**MUE 1141 Voice Methods: 1 hour.**

One hour lecture. Class study of voice production with emphasis on bel canto vocal technique, classical vocal literature, diction, and performance considerations. Class consists of lecture, discussion, listening, and application of concepts studied in both practice and performance

**MUE 1151 Technology for Music Education: 1 hour.**

One credit hour. An overview of current technologies to enhance music instruction and performance, student assessment, professional productivity, and communication for the music educator

**MUE 2153 Foundations of Music Education: 3 hours.**

Three hours lecture. This course is designed to introduce historical and philosophical foundations of music and music pedagogy. Diverse trends are compared with emphasis on materials and personal development in music for the emerging music educator

**MUE 2163 Elementary Music Methods: 3 hours.**

Three hours lecture. Includes a field based component. Prepares future music educators by exploring various elementary music methods and materials. Students will practice instructional techniques for teaching music through singing, playing instruments, movement, and guided listening experiences

**MUE 2990 Special Topics in Music Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MUE 3212 Brass Methods: 2 hours.**

Two hours lecture. Includes a field-based component. The study of brass instruments with emphasis on embouchure, techniques, and teaching problems. Limited to music majors

**MUE 3222 Woodwind Methods: 2 hours.**

Two hours lecture. Includes a field-based component. The study of woodwind instruments with emphasis on pedagogical and performance skills. The goal of this course is to provide the basic competencies necessary for teaching in the public schools

**MUE 3231 String Methods: 1 hour.**

One hour lecture. Includes a field-based component. Study of approaches to teaching stringed instruments. Topics included are learning to play violin, viola, and cello at the introductory level, including logistics of the instruments and common teaching issues

**MUE 3233 Guitar Pedagogy: 3 hours.**

Three hours lecture. Includes a field-based component. Study of approaches necessary for effective guitar teaching. Topics include history of guitar education, comparison of methods from the nineteenth century to present day, effective studio management

**MUE 3242 Percussion Methods: 2 hours.**

Two hours lecture. Includes a field-based component. Provides music education students with resources to teach percussion instruments in a classroom setting. Emphasis is placed on pedagogy, equipment, teaching problems, training materials, and repertoire for a variety of percussion instruments

**MUE 3262 Instrumental Methods: 2 hours.**

Two hours lecture. This includes a field-based component. Overview of wind and percussion instruments for the non-instrumental music education major. Presents basic teaching techniques and strategies needed in the public schools

**MUE 3333 Introduction to Piano Pedagogy: 3 hours.**

Two hours lecture. Two hours laboratory. Methods, materials, curriculum building, and philosophical bases for teaching beginning piano. Required of all students in the keyboard concentration

**MUE 4000 Directed Individual Study in Music Education: 1-6 hours.**

Hours and credits to be arranged

**MUE 4152 Secondary Music Methods: 2 hours.**

Two hours lecture. Includes a field-based component. (Prerequisite: Music majors admitted to Teacher Education and completion of all Upper Division exams). An investigation of the art and science of teaching and assessing musical performance in the secondary music classroom

**MUE 4873 Managing the Music Education Classroom: 3 hours.**

(Prerequisites: Admission to Teacher Education and senior standing). Three hours lecture. A seminar dealing with legal, professional, administrative, and curriculum issues as they relate to music education in the schools

**MUE 4886 Teaching Internship in Music Education: 6 hours.**

(Prerequisite: Admission to Teacher Education, minimum grade point average of 2.5 overall in major, and completion of all professional education courses with a grade of C or better). Supervised observation and directed teaching in respective field of endorsement

**MUE 4896 Teaching Internship in Music Education: 6 hours.**

(Prerequisites: Admission to Teacher Education, minimum grade point average of 2.5 overall in major, and completion of all professional education courses with a grade of C or better). Supervised observation and directed teaching in respective field of endorsement

**MUE 4990 Special Topics in Music Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MUE 6990 Special Topics in Music Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MUE 7000 Directed Individual Study in Music Education: 1-6 hours.**

Hours and credits to be arranged

**MUE 8033 Current Topics in Music Education: 3 hours.**

(Prerequisite: Admission to the MME degree program). Three hours lecture. An investigation of current topics impacting music education classrooms

**MUE 8102 Advanced Vocal Pedagogy: 2 hours.**

(Pre-requisite: Admission to MME Degree Program). Two hours lecture. Body alignment, respiration, phonation, resonance, articulation, vocal health, and the developmental stages of the voice. Concepts and topics addressed can be applied to both one-on-one teaching (voice lessons, vocal coachings) and group situations (class voice, choral ensembles)

**MUE 8112 Seminar in Choral Literature: 2 hours.**

(Prerequisite: Admission to MME Degree Program.) Two hours lecture. An intensive study of a specific area of choral literature. The content of this course will vary from semester to semester. Emphasis is placed upon in-depth study of selecting and interpreting choral literature

**MUE 8122 Techniques of Choral Conducting: 2 hours.**

(Prerequisite: Admission to MME Degree Program.) Two hours lecture. An examination of appropriate choral techniques for the secondary choral music program

**MUE 8132 Choral Program Development and Curricular Structure: 2 hours.**

(Prerequisite: Admission to MME Degree Program.) Two hours lecture. Design and implementing a program and process for success in the choral music program

**MUE 8202 The Child Voice: 2 hours.**

(Pre-requisite: Admission to MME Degree Program.) Two hours lecture. Exploration of the unique pedagogical and literature requirements of the young singer (children and adolescents) in both solo and choral settings

**MUE 8212 Elementary Music Pedagogy: 2 hours.**

(Prerequisite: Admission to the MME degree program) Two hours lecture. Research and experiential-based study of the pedagogies, curricula, media and literature designed for the elementary child

**MUE 8222 Media, Materials and Resources for the Elementary Music Specialist: 2 hours.**

(Prerequisite: Admission to the MME degree program.) Two hours lecture. A survey of media, materials, resources, equipment, repertoire, facility designs, and technology for the elementary music specialist. Learning to budget, prioritize, and effectively apply findings for teacher effectiveness and student achievement will also be included

**MUE 8232 Instructional Design for the Elementary Music Program: 2 hours.**

(Prerequisite: Admission to the MME degree program) Two hours lecture. Research and theoretical- based study of instructional design models for the elementary music curriculum. Standards, assessment, repertoire, methodology and technology will provide a framework for designing and evaluating elementary music curricula and learning outcomes

**MUE 8302 Advanced Woodwind Pedagogy: 2 hours.**

(Pre-requisite: Admission to MME Degree Program). Two hours lecture. Teaching methodology and materials for woodwind instruments in the middle and high school band setting, including performance benchmarks and appropriate repertoire for solo, chamber winds and concert ensembles

**MUE 8312 Seminar in Brass and Percussion Pedagogy: 2 hours.**

(Prerequisite: Admission to the MME degree program). Two hours seminar. Directed study and discussion of topics of brass and percussion pedagogy and performance

**MUE 8322 Wind Band Conducting and Rehearsal Techniques: 2 hours.**

(Prerequisite: Admission to MME Degree Program.) Two hours lecture. An investigation of selected scores, advanced conducting and rehearsal techniques for the wind band

**MUE 8332 Instructional Design for the Instrumental Music Program: 2 hours.**

(Prerequisite: Admission to MME Degree Program). Two hours lecture. Developing and implementing appropriate conceptual frameworks, pedagogical approaches, materials and assessment for the secondary school instrumental program

**MUE 8363 Research in Music Education: 3 hours.**

(Pre-requisite: Admission to MME Degree Program). Three hours lecture. A survey of the purpose and major types and methods used in music education research, principal sources of music research information, formation of research questions, preparing a research proposal, designing and conducting a music education research project

**MUE 8432 Guitar in the Classroom: 2 hours.**

(Prerequisite: Admission to MME degree program.) Two hours lecture. The process of creating and implementing a guitar program in a public school, or the inclusion of guitar in a pre-existing music program

**MUE 8472 Jazz Techniques for the Music Educator: 2 hours.**

(Prerequisite: Admission to MME Degree Program.) Two hours lecture. Materials, methods, and techniques for teaching instrumental jazz to K-12 students, including an overview of jazz history and styles and a pedagogical approach to teaching beginning improvisation

**MUE 8990 Special Topics in Music Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**MUE 9012 Final Project in Music Education: 2 hours.**

(Prerequisite: Admission to MME Degree Program.) Two hours seminar. Directed study, emphasizing intensive research, analysis, and development of a final research product for an approved topic central to the field of music education

## National Student Exchange Courses

**NSE 4200 National Student Exchange: 3-19 hours.**

## Physician Assistant Studies Courses

**PAS 6012 The Art of Medicine for the Physician Assistant: 2 hours.**

Two hours lecture. Introduces students to clinical ethics, health disparities, and cultural competence as they influence the practice of medicine. The course emphasizes the human factors that affect the delivery of culturally appropriate, patient-centered health care for patients across the lifespan

**PAS 6013 Introduction to the Physician Assistant Profession: 3 hours.**

Three hours lecture. Instructional course designed to introduce the entry-level physician assistant student to the unique origins, development, practice laws, and workforce trends of the profession. This course allows the student to develop a thorough understanding of the role of the physician assistant

**PAS 6016 Human Anatomy and Physiology for the Physician Assistant: 6 hours.**

Four hours lecture/four hours lab. Instruction in clinical gross anatomy and physiology for the physician assistant student. The course provides essential knowledge of the major anatomical regions, structures of the body and the physiologic functions related to health and disease

**PAS 6022 Clinical Genetics for the Physician Assistant: 2 hours.**

Two hours lecture. Lecture-based course designed to provide the entry-level physician assistant student with a basic understanding of medical genetics. The course will review basic molecular genetics, molecular terminology, and inheritance patterns. The student will receive instruction in various diagnostic techniques associated with medical genetics

**PAS 6023 Clinical Diagnostic Methods for the Physician Assistant: 3 hours.**

Three hours lecture. Lecture course with three components: radiologic study ordering and interpretation, ECG interpretation, and laboratory study ordering, performance, and interpretation. This course provides skills in ordering/interpreting lab values from chemistry, hematology, immunology, microbiology, parasitology, virology, genetics, and mycology testing for use in clinical practice

**PAS 6026 Patient Assessment for the Physician Assistant: 6 hours.**

Four hours lecture/four hours lab. Instructs students in the methods of performing a history and physical examination. Students develop the knowledge and skills essential for performing a comprehensive medical history and physical examination. The course emphasizes patient interviewing, acquiring a medical database, and performing a comprehensive physical examination

**PAS 6102 Clinical Skills for the Physician Assistant: 2 hours.**

Two hours lecture. Students are introduced to common skills used in the clinical practice of medicine. This course is designed to prepare the student for supervised clinical practice by introducing procedures commonly performed in the clinical setting

**PAS 6103 Clinical Decision Making for the Physician Assistant: 3 hours.**

Three hours lecture. Designed to build upon the skills developed Patient Assessment. The course will utilize problem-based learning techniques, allowing the participant to apply the developing skills of critical thinking. The course will provide instruction in the development of a thorough, patient appropriate, differential diagnosis

**PAS 6104 Pathophysiology for the Physician Assistant: 4 hours.**

Four hours lecture. Introduces the student to human disease processes, their origins, mechanisms of action and effects on the human body with emphasis on the clinical manifestations of the disease process. Students will integrate knowledge from Patient Assessment and the basic sciences

**PAS 6107 Clinical Medicine I for the Physician Assistant: 7 hours.**

Seven hours lecture. Lecture course designed to build upon the skills developed in Patient Assessment, Clinical Diagnostic Methods, and the basic sciences. This course covers the principles of evaluation, diagnosis and management of general medical conditions in a systems based-approach

**PAS 6112 Research Methods I for the Physician Assistant: 2 hours.**

Two hours lecture. Introduction to basic research techniques needed for clinical practice. Students will develop proficiency in searching, interpreting, and applying evidence-based research in the clinical setting. Students will be instructed in appropriate tenets of intellectual honesty in the academic and professional setting

**PAS 6113 Health Promotion and Disease Prevention for the Physician Assistant: 3 hours.**

Three hours lecture. Lecture-based, active learning course where the student is given the opportunity to value prevention as a major aspect of healthcare and to develop skills that integrate health promotion/disease prevention into the role of a physician assistant

**PAS 6202 Research Methods II for the Physician Assistant: 2 hours.**

Two hours lecture. Designed to continue the physician assistant student's proficiency in research. This course will refine skills in literature analysis and the formatting of conclusions for the evidence-based practice of evaluation and management of disease processes

**PAS 6203 Clinical Practice Issues for the Physician Assistant: 3 hours.**

Three hours lecture. The course instructs students in advanced clinical practice issues affecting the physician assistant profession. Topics include billing and coding, the Medicare/ Medicaid system, credentialing, clinical professionalism, prescriptive rights, interdisciplinary health care practice and state/national licensure and certification

**PAS 6204 Principles of Pharmacology for the Physician Assistant: 4 hours.**

Four lecture hours. Basic introduction to the principles of pharmacology and to drug classes of particular relevance to the physician assistant. The course provides the student with a fundamental knowledge of basic pharmacodynamics, pharmacokinetic and pharmacogenomics principles, basic properties, mechanisms, uses, adverse effects and interactions of relevant drugs

**PAS 6208 Clinical Medicine II for the Physician Assistant: 8 hours.**

Eight lecture hours. Continuation of Clinical Medicine I, designed to prepare the student for supervised clinical practice

**PAS 6213 Behavioral Medicine for the Physician Assistant: 3 hours.**

Three hours lecture. Provides students with the ability to explore the psychological parameters of human behavior and identify the relationship of psychological distress to physical illness. Students study the processes underlying human growth and development across the lifespan and how they apply to healthcare

**PAS 6223 Clinical Specialties for the Physician Assistant: 3 hours.**

Three hours lecture. Introduces the physician assistant student to the clinical specialties of surgery, pediatrics, and women's health. Students are instructed in the foundations of these specialties to prepare for clinical practice. Students learn basic knowledge and clinical skills unique to these practices

**PAS 8301 Seminar I for the Physician Assistant: 1 hour.**

One hour credit. (Fifteen contact hours). This discussion-based course meets one day each month (5 hrs.), when students return from clinical rotations for one semester. Students present clinical cases, reflect on clinical experiences, and prepare for the next clinical experience

**PAS 8302 Clinical Transitions for the Physician Assistant: 2 hours.**

Two hours lecture. Physician assistant students gain knowledge and skills that facilitate the transition from the academic to clinical environment and promote high quality clinical education experiences. Practical learning that simulates the diversity of health care disciplines and services encountered during clinical training

**PAS 8303 Pediatric Rotation for the Physician Assistant: 3 hours.**

Three hours clinical instruction. Designed to give students exposure to the spectrum of pediatric practice, including care of infants, children and adolescents in routine well-child care, inpatient and outpatient care and care of acute and chronic illnesses

**PAS 8308 Family Medicine Rotation for the Physician Assistant: 8 hours.**

Eight hours clinical instruction. Designed to give students exposure to the spectrum of family medicine outpatient medical practice. Students will learn the principles of routine (well) care, management of acute illnesses, and management of chronic/multiple diagnoses for patients across the lifespan

**PAS 8312 Summative Experience for the Physician Assistant: 2 hours.**

Two hours lecture. Course curriculum required by accrediting body. The program must conduct and document a summative evaluation of each student within the final four months of the program to verify that each student is prepared to enter clinical practice

**PAS 8313 Women's Health Rotation for the Physician Assistant: 3 hours.**

Three hours clinical instruction. Designed to give the student practical experience in the diagnosis, evaluation, and management of problems and issues associated with women's health care

**PAS 8321 Seminar II for the Physician Assistant: 1 hour.**

One hour lecture. (Fifteen Contact Hours). This discussion-based course meets one day (5 hours) each month per semester when students return from clinical rotations. Students present clinical cases, reflect on clinical experiences, and prepare for the next clinical experience

**PAS 8322 Capstone Project for the Physician Assistant: 2 hours.**

Two hours lecture. Course provides opportunity for completion of a Capstone project with tools and strategies addressed in Research Methods I and II

**PAS 8323 General Surgery Rotation for the Physician Assistant: 3 hours.**

Three hours clinical instruction. Designed to give students experience in the care of patients undergoing elective or acute surgical procedures. The student will perform preoperative history and physicals; assist, when able, in the operating room; be involved in immediate postoperative care and stabilization; and assist with postoperative care

**PAS 8332 Seminar III for the Physician Assistant: 2 hours.**

Two hours lecture. (Thirty-two contact hours). This discussion-based course meets 4 days (8 hours) after students have completed all clinical rotations (last semester). Students will review for the certification exam, receive additional clinical instruction/skills review as prepare for licensure

**PAS 8333 Internal Medicine Rotation for the Physician Assistant: 3 hours.**

Three credit hours of clinical instruction. (160 contact hours). In the Internal Medicine Practice setting the student will be given the opportunity to understand and manage patient problems in an internal medicine setting

**PAS 8343 Behavioral Medicine Rotation for the Physician Assistant: 3 hours.**

Three hours clinical instruction. Designed to give practical experience in the diagnosis and management of patients needing behavioral therapy in the clinical setting. Students will develop their ability to recognize psychiatric diagnoses in both the outpatient and inpatient settings

**PAS 8353 Emergency Medicine for the Physician Assistant: 3 hours.**

Three hours clinical instruction. Designed to introduce the student to health care in Emergency Medicine. The student is given the opportunity to understand and manage patient problems across the lifespan in an emergency care setting

**PAS 8363 Elective Clinical Rotation for the Physician Assistant: 3 hours.**

Three credit hours. 160 contact hours clinical instruction. The elective is designed to give the student additional clinical exposure in a medical/surgical area of their choosing. The elective may be completed in any specialty/subspecialty chosen by the student with the approval of the Clinical Coordinator

**PAS 8403 Preceptorship Rotation for the Physician Assistant: 3 hours.**

Three hours clinical instruction. The preceptorship will give the student additional clinical exposure in a medical/surgical area of their choosing. This opportunity is used by preceptors to assess the student for possible employment. May be completed in any specialty. Must be approved by clinical coordinator

**Prof Continuing Studies Courses****PCS 4103 Content Creation in Virtual Reality: 3 hours.**

(Prerequisite: EDS 4533/6533: Teaching Science with Virtual Reality). Three hours lecture. Students gain insight into Virtual Reality Content Creation platforms and develop the skills to produce VR animations and simulations within their own area of interest and or career

**PCS 4113 Development and Delivery of Virtual Reality Experience: 3 hours.**

(Prerequisite: PCS 4103/6103 Content Creation in Virtual Reality). Three hours lecture. Students identify a target audience of their own interest and or career, develop and deliver a Virtual Reality experience to the target audience and assess the impact the experience had on participants

**PCS 6103 Content Creation in Virtual Reality: 3 hours.**

(Prerequisite: EDS 4533/6533: Teaching Science with Virtual Reality). Three hours lecture. Students gain insight into Virtual Reality Content Creation platforms and develop the skills to produce VR animations and simulations within their own area of interest and or career

**PCS 6113 Development and Delivery of Virtual Reality Experience: 3 hours.**

(Prerequisite: PCS 4103/6103 Content Creation in Virtual Reality). Three hours lecture. Students identify a target audience of their own interest and or career, develop and deliver a Virtual Reality experience to the target audience and assess the impact the experience had on participants

**Physical Education Courses****PE 1000 Play, Fitness & Physical Activity: 1-3 hours.**

One to three hours lecture. The examination and practice of play, fitness and physical activity as an important element of human culture and as means to health and well-being

**PE 1001 Racquetball: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game

**PE 1003 Soccer for Life: 3 hours.**

Six hours laboratory. The examination and practice of soccer as a communal and cross-generational lifetime activity including playing, coaching, and refereeing

**PE 1011 Badminton: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game

**PE 1021 Volleyball: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, and team tactics necessary to successfully participate in an organized game

**PE 1031 Tennis: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game

**PE 1041 Aerobics: 1 hour.**

Two hours laboratory. Assessment, development and maintenance of physical fitness through aerobic exercises to music

**PE 1051 Beginning Karate: 1 hour.**

Two hours laboratory. The essential principles both physical and psychological will be stressed. Emphasis is placed on organization of karate techniques and training methods

**PE 1061 Fitness Walking/Jogging: 1 hour.**

Two hours laboratory. An exercise and activity class emphasizing walking and/or jogging to develop and maintain fitness, weight control and flexibility

**PE 1071 Soccer: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game

**PE 1081 Beginning Golf: 1 hour.**

Two hours laboratory. Instruction and laboratory experience in the development of individual skills for participation in golf

**PE 1091 Contemporary Dance: 1 hour.**

Two hours laboratory. A non-majors course designed to develop skills in contemporary dance routines

**PE 1101 Karate for Intermediates: 1 hour.**

(Prerequisite: PE 1051 or prior Karate experience having attained the rank of Yellow Belt). Two hours laboratory. Current events of the American Karate world. Advanced free-fighting and self-defense techniques. Interpretation of forms

**PE 1151 Strength Training: 1 hour.**

Two hours laboratory. Principles and practice of strength training with particular emphasis on specificity of design and management of load, repetitions, rate of exercise and recovery time

**PE 1161 Modern Dance: 1 hour.**

(Prerequisite: Consent of Department Head). Two hours laboratory. Laboratory experience including a wide range of fundamental exercises and techniques, movement patterns, and dance choreography

**PE 1171 Strength and Conditioning: 1 hour.**

Two hours laboratory. This course is designed to provide a comprehensive overview of strength and conditioning techniques and principles for the design of a personal fitness program

**PE 1191 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**PE 1201 Adapted Physical Activity: 1 hour.**

(Prerequisite: Permission of the instructor). Two hours laboratory. Designed one-to-one or small group instruction in various fitness programs, lifetime sport activities and a weight room program

**PE 1211 Basketball: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game of basketball

**PE 1243 Methods of Teaching Games and Sports: 3 hours.**

Three hours lecture. Theory of and participation in non-traditional games and sports. Classroom management and methods of teaching games and sports, skill analysis, discussion of developmental appropriateness, basic rules and teaching strategies

**PE 1253 Methods of Teaching Lifetime Activities: 3 hours.**

Two hours lecture. Two hours laboratory. Methods and theories of teaching physical education. Introduction of concepts, activities, technologies and teaching methods for strength training and aerobic conditioning

**PE 1261 Flag Football: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game of flag football

**PE 1263 Methods of Teaching Rhythms: 3 hours.**

Two hours lecture and two hours lab/studio instruction, demonstration, skill development, and teaching techniques in the areas of folk, square, creative, and contemporary dance

**PE 1281 Self-Defense: 1 hour.**

Two hours laboratory. Emphasis is on basic self-defense skills, escape and avoidance strategies, offensive and defensive postures, defensive techniques and simulated attacks

**PE 1291 Ultimate Frisbee: 1 hour.**

Two hours laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game of Ultimate Frisbee

**PE 1301 Swimming: 1 hour.**

One hour laboratory. Emphasis is on the technique, knowledge, skill development, necessary to successfully swim for safety, enjoyment and exercise

**PE 1323 History and Appreciation of Dance: 3 hours.**

Three hours lecture. The primary objective is to learn the history of dance and develop a greater sensibility, appreciation, and understanding of dance as an art form of personal expression and communication

**PE 1331 Pickleball: 1 hour.**

One hour laboratory. Emphasis is on rules, knowledge, skill development, and team tactics necessary to successfully participate in an organized game of Pickleball

**PE 1371 Advanced Strength and Conditioning: 1 hour.**

Two hours laboratory. This course provides advanced training principles and activities for strength and conditioning programs, including a combination of aerobic fitness and strength/power activities

**PE 2990 Special Topics in Physical Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PE 3033 Basketball and Football Officials: 3 hours.**

Three hours lecture. A course designed to qualify officials for major sports officiating in Mississippi. Rules, rules interpretation, and mechanics of officiating for the major sports are covered

**PE 3111 Advanced Military Physical Fitness: 1 hour.**

One hour laboratory. Develops the physical fitness required of an officer in the Army through emphasis of individual fitness programs and examination of the role of exercise/fitness. (May be taken up to four times for credit)

**PE 3123 Principles and Methods of Elementary School Health and Physical Education: 3 hours.**

Three hours lecture. Principles and methods of teaching health and physical education to elementary school children



**PE 3133 Adapted Physical Education: 3 hours.**

Three hours lecture. A study of the psychomotor domain with emphasis on identifying handicapping problems and developing instructional strategies for remediating these problems

**PE 3153 Methods of Elementary Physical Education: 3 hours.**

Three hours lecture. Designed to provide students with knowledge and practical experience that will enhance their effectiveness in teaching physical education to pre-school through fifth grade students

**PE 3163 Sport Psychology: 3 hours.**

Three hours lecture. This course will provide students with an overview of the theories and research related to sport and exercise behavior. Topics to be covered include the history of sport psychology, behavioral principles, anxiety, motivation, leadership, group dynamics, gender, and personality

**PE 3223 Motor Development and Movement: 3 hours.**

(Prerequisite: BIO 3004). Three hours lecture. A study of human motor development and movement. Introducing the terminology, principles to motor development and the concept of developmentally appropriate practice as it relates to physical education, exercise science, human development, special education, elementary education and other health-related fields

**PE 3313 Sport Physiology: 3 hours.**

(Prerequisite: A grade of C or better in EP 3304). Three hours lecture. Physiological concepts of sports performance including methods, bioenergetics, ergogenics, and nutrition for athletes are examined

**PE 3433 General Safety Methods: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Analysis of accident causes and methods of prevention. Home, school, industry, farm, water, pedestrian problems considered

**PE 3533 Coaching Sports: 3 hours.**

Three hours lecture. Coaching fundamentals and team play; team organization, offensive and defensive sets, and rules of play in football, basketball and baseball

**PE 4000 Directed Individual Study in Physical Education: 1-6 hours.**

Hours and credits to be arranged

**PE 4163 Principles and Methods of Secondary School Health and Physical Education: 3 hours.**

(Prerequisite: Senior or graduate standing). Three hours lecture. This course is designed to emphasize contemporary teaching methods in all areas of health and physical education in the secondary school

**PE 4173 Tests and Measurements in Health and Physical Education: 3 hours.**

Three hours lecture. Test construction, test administration, and statistical procedures for evaluating test results in health and physical education

**PE 4283 Sport Biomechanics: 3 hours.**

(Prerequisite: BIO 1004 or BIO 3004). Three hour lecture. Systematic qualitative and quantitative analyses of selected athletic performances and other human movements utilizing observation and other measurement techniques to detect and correct faults that limit performance during sport activity

**PE 4413 Basic Drive and Traffic Safety Education I: 3 hours.**

(Prerequisite: Valid driver's license, two years driving experience). Three hours lecture. Critical analysis of traffic accidents, attitude factors, essential knowledge of automobile operations and traffic laws and regulations for developing driving skills

**PE 4423 Drive and Traffic Education Methods II: 3 hours.**

(Prerequisite: PE 4413). Two hours lecture. Two hours laboratory. Professional preparation of college students who plan to teach driver education in secondary schools; methods of teaching and administering program; scheduling, financing, and public relations

**PE 4533 Developing Coaching Expertise: 3 hours.**

Three hours lecture. This course will provide undergraduate and graduate students with an in depth analysis of the growth and development of coaches from novice to expert

**PE 4853 Motor Learning and Skill Analysis: 3 hours.**

(Prerequisite: PE 3223). Three hours lecture. Designed to provide students with an understanding of how movement is produced and controlled and the principles that underlie the learning of motor skills

**PE 4873 Professional Classroom Management Seminar in Physical Education and Athletics: 3 hours.**

(Prerequisites: Admission to Teacher Education and senior standing).

Three hours lecture. A seminar dealing with legal, professional, administrative, and curriculum issues as they relate to physical education and athletics in the schools

**PE 4883 School Health Education: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Preparation for prospective teachers in planning, implementing, and evaluating all aspects of comprehensive school health education

**PE 4886 Teaching Internship in Physical Education: 6 hours.**

(Prerequisite: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a C or better). Supervised observation and directed teaching in respective field of endorsement

**PE 4896 Teaching Internship in Physical Education: 6 hours.**

(Prerequisite: Admission to Teacher Education, minimum grade point average of 2.5 overall and in major, and completion of all professional education courses with a C or better). Supervised observation and directed teaching in respective field of endorsement

**PE 4990 Special Topics in Physical Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PE 6163 Principles and Methods of Secondary School Health and Physical Education: 3 hours.**

(Prerequisite: Senior or graduate standing). Three hours lecture. This course is designed to emphasize contemporary teaching methods in all areas of health and physical education in the secondary school

**PE 6533 Developing Coaching Expertise: 3 hours.**

Three hours lecture. This course will provide undergraduate and graduate students with an in depth analysis of the growth and development of coaches from novice to expert

**PE 6883 School Health Education: 3 hours.**

(Prerequisite: Admission to Teacher Education). Three hours lecture. Preparation for prospective teachers in planning, implementing, and evaluating all aspects of comprehensive school health education

**PE 6990 Special Topics in Physical Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PE 7000 Directed Individual Study in Physical Education: 1-6 hours.**

Hours and credits to be arranged

**PE 8113 Curriculum Construction in Physical Education: 3 hours.**

Three hours lecture. PE 8113 is a course designed to cover Basic considerations and issues of standards-based physical education curricula in the K-12 schools. Emphasis on program development and design; instructional process; program implementation; and evaluation widely used curricula in physical education

**PE 8163 Seminar in Physical Education: 3 hours.**

Three hours lecture. The course gives a complete review of current literature in Physical Education

**PE 8203 Psychological Aspects of Sport: 3 hours.**

Three hours lecture. An in-depth analysis of the principles, methods and outcomes of sport psychology

**PE 8990 Special Topics in Physical Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Physics Courses

**PH 1001 Introduction to Physics: 1 hour.**

(Prerequisite: Consent of instructor). One hour lecture. Only open to Freshmen and transfer physics majors or prospective majors. Introduction to the profession. Historical perspectives. Use of microcomputers in physics

**PH 1011 Physical Science Laboratory I: 1 hour.**

Two hours laboratory. Experiments in mechanics, sound, light, electricity and magnetism. Recommended lab to accompany PH 1013

**PH 1013 Physical Science Survey I: 3 hours.**

(Prerequisite: C' or better in MA 0103, or MA 1313, or MA 1323, or ACT math subscore of at least 19). Three hours lecture. Topics include mechanics, sound, light, electricity, and magnetism. Recommended laboratory PH 1011

**PH 1021 Physical Science Laboratory 2: 1 hour.**

Two hours laboratory. Experiments in chemistry, heat, astronomy, and energy. Recommended lab to accompany PH 1023. Could also accompany PH 1063

**PH 1023 Physical Science Survey 2: 3 hours.**

Three hours lecture. Topics include chemistry, heat, astronomy, and energy. PH 1013 is not a prerequisite. Recommended laboratory PH 1021

**PH 1031 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**PH 1063 Descriptive Astronomy: 3 hours.**

Three hours lecture. Night observation. The solar system; description and evolution of stars and the universe; methods of obtaining astronomical information; applications of astronomical knowledge

**PH 1113 General Physics I: 3 hours.**

(Prerequisite: MA 1323 or an ACT Math subscore of at least 26). Two hours lecture, one hour drill, two hours laboratory). Non-calculus-based study of the fundamental laws of mechanics and fluids

**PH 1123 General Physics II: 3 hours.**

(Prerequisite: PH 1113 or PH 2213). Two hours lecture, one hour drill, two hours laboratory. Noncalculus-based study of thermal physics, waves, sound, and light

**PH 1133 General Physics III: 3 hours.**

(Prerequisite: PH 1113 or PH 2213). Two hours lecture, one hour drill, two hours laboratory. Noncalculus-based study of electricity and magnetism and selected topics in modern physics

**PH 1990 Special Topics in Physics: 9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PH 2213 Physics I: 3 hours.**

(Prerequisite: Grade of C or better in MA 1713). Three hours lecture. Calculus-based course emphasizing Newtonian mechanics and conservation laws. Honors section available

**PH 2223 Physics II: 3 hours.**

(Prerequisites: PH 2213 and MA 1723). Two hours lecture, one hour recitation, two hours laboratory. Calculus-based introduction to gravitation, electricity and magnetism. Laboratory emphasizes concepts of force and motion, conservation laws, and simple electrical circuits. Honors section available

**PH 2233 Physics III: 3 hours.**

(Prerequisite: PH 2223). Two hours lecture, one hour recitation, two hours laboratory. Calculus-based course in simple harmonic motion, waves, optics and an introduction to modern physics. Laboratory emphasizes optics and electronics

**PH 2990 Special Topics in Physics and Astronomy: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PH 3063 Astrophysics: 3 hours.**

(Co-requisite: PH 3613 or consent of instructor). Three hours lecture. Quantitative treatment of astronomical topics. Stellar evolution, black holes, neutron stars, gamma-ray bursts, Newtonian and relativistic cosmologies, Big Bang

**PH 3613 Modern Physics: 3 hours.**

(Prerequisites: PH 2233 or PH 1133; MA 2733, or registration in MA 2733). Three hours lecture. Special relativity, quantum physics, atomic, nuclear, and solid state physics

**PH 4000 Directed Individual Study in Physics: 1-6 hours.**

Hours and credits to be arranged

**PH 4113 Electronic Circuits for Scientists: 3 hours.**

(Prerequisites: PH 1133 or PH 2223 and MA 2733). Two hours lecture and three hours laboratory. DC and AC circuits. Resistors, capacitors, inductors, diodes and transistors in basic analog circuits. Topics include filters, tuned circuits, power supplies, amplifiers and oscillators

**PH 4143 Intermediate Laboratory: 3 hours.**

(Prerequisite: Junior standing). Six hours laboratory. Data analysis. Experiments in classical and modern physics. Scientific report writing

**PH 4152 Modern Physics Laboratory: 2 hours.**

(Prerequisite: PH 4143/6143) Six hours Laboratory. Scientific report writing. Experiments in modern physics, optics, and classical physics

**PH 4213 Intermediate Mechanics I: 3 hours.**

(Prerequisites: PH 1133 or PH 2233 and MA 2733). Three hours lecture. Plane statics and dynamics of particles and systems of particles with emphasis on both derivation and application of principles involved

**PH 4223 Intermediate Mechanics II: 3 hours.**

(Prerequisite: PH 4213/6213). Three hours lecture. Statics and dynamics of particles in three dimensional space using vector notation; Lagrange's equations; introduction to the special theory of relativity

**PH 4323 Electromagnetic Fields I: 3 hours.**

(Prerequisites: PH 1133 or PH 2233 and MA 2743). Three hours lecture. Electrostatics, dielectrics, electric current, magnetostatics, electromagnetic induction, magnetic properties of matter

**PH 4333 Electromagnetic Fields II: 3 hours.**

(Prerequisite: PH 4323/6323). Three hours lecture. Maxwell's equations, propagation of electromagnetic waves in free space and in matter, reflection and refraction, radiation

**PH 4413 Thermal Physics: 3 hours.**

(Prerequisites: PH 3613 and MA 2743). Three hours lecture. Thermodynamics, kinetic theory, classical and quantum statistical mechanics. Applications to low temperature physics, solid-state physics and plasma physics

**PH 4433 Computational Physics: 3 hours.**

(Prerequisite: MA 3253, Co-requisite: PH 3613). Three hours lecture. An Introduction to modern methods of computational physics including topics such as solution of differential equations, numerical matrix methods, and Monte Carlo simulation

**PH 4513 Intermediate Optics: 3 hours.**

(Prerequisites: PH 1123 or PH 2233 and MA 2733). Three hours lecture. Geometrical optics and physical optics

**PH 4613 Nuclear and Particle Physics: 3 hours.**

(Prerequisite: PH 3613). Three hours lecture. Special theory of relativity; nuclear structure; radioactivity; nuclear reactions; nuclear forces; fission; fusion; high energy particle and astrophysics. Experimental apparatuses and techniques

**PH 4713 Introduction to Quantum Mechanics: 3 hours.**

(Prerequisites: PH 3613 and MA 3253). Three hours lecture. Principles of quantum mechanics, Heisenberg uncertainty principle, angular momentum; the Schrodinger wave equation in one and three dimensions; the one-electron atom

**PH 4723 Applications of Quantum Mechanics: 3 hours.**

(Prerequisite: PH 4713/6713). Three hours lecture. Introduction to perturbation theory and quantum statistics. Topics selected from multi-electron atoms, diatomic molecules, solid state and nuclear physics

**PH 4813 Introduction to Solid State Physics: 3 hours.**

(Prerequisite: PH 3613). Three hours lecture. Crystal structure, crystal diffraction and the reciprocal lattice, crystal binding, free electron gas, energy bands, and semiconductors

**PH 4990 Special Topics in Physics and Astronomy: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PH 6013 Selected Topics in Physics for Teachers: 3 hours.**

Two hours classwork, three hours laboratory. For teachers. Basic concepts of physics. Will include discussion and clarification of material from currently adopted public school textbooks

**PH 6113 Electronic Circuits for Scientists: 3 hours.**

(Prerequisites: PH 1133 or PH 2223 and MA 2733). Two hours lecture and three hours laboratory. DC and AC circuits. Resistors, capacitors, inductors, diodes and transistors in basic analog circuits. Topics include filters, tuned circuits, power supplies, amplifiers and oscillators

**PH 6143 Intermediate Laboratory: 3 hours.**

(Prerequisite: Junior standing). Six hours laboratory. Data analysis. Experiments in classical and modern physics. Scientific report writing

**PH 6213 Intermediate Mechanics I: 3 hours.**

(Prerequisites: PH 1133 or PH 2233 and MA 2733). Three hours lecture. Plane statics and dynamics of particles and systems of particles with emphasis on both derivation and application of principles involved

**PH 6223 Intermediate Mechanics II: 3 hours.**

(Prerequisite: PH 4213/6213). Three hours lecture. Statics and dynamics of particles in three dimensional space using vector notation; Lagrange's equations; introduction to the special theory of relativity

**PH 6323 Electromagnetic Fields I: 3 hours.**

(Prerequisites: PH 1133 or PH 2233 and MA 2743). Three hours lecture. Electrostatics, dielectrics, electric current, magnetostatics, electromagnetic induction, magnetic properties of matter

**PH 6333 Electromagnetic Fields II: 3 hours.**

(Prerequisite: PH 4323/6323). Three hours lecture. Maxwell's equations, propagation of electromagnetic waves in free space and in matter, reflection and refraction, radiation

**PH 6413 Thermal Physics: 3 hours.**

(Prerequisites: PH 3613 and MA 2743). Three hours lecture. Thermodynamics, kinetic theory, classical and quantum statistical mechanics. Applications to low temperature physics, solid-state physics and plasma physics

**PH 6433 Computational Physics: 3 hours.**

(Prerequisite: MA 3253, Co-requisite: PH 3613). Three hours lecture. An Introduction to modern methods of computational physics including topics such as solution of differential equations, numerical matrix methods, and Monte Carlo simulation

**PH 6513 Intermediate Optics: 3 hours.**

(Prerequisites: PH 1123 or PH 2233 and MA 2733). Three hours lecture. Geometrical optics and physical optics

**PH 6613 Nuclear and Particle Physics: 3 hours.**

(Prerequisite: PH 3613). Three hours lecture. Special theory of relativity; nuclear structure; radioactivity; nuclear reactions; nuclear forces; fission; fusion; high energy particle and astrophysics. Experimental apparatuses and techniques

**PH 6713 Introduction to Quantum Mechanics: 3 hours.**

(Prerequisites: PH 3613 and MA 3253). Three hours lecture. Principles of quantum mechanics, Heisenberg uncertainty principle, angular momentum; the Schrodinger wave equation in one and three dimensions; the one-electron atom

**PH 6723 Applications of Quantum Mechanics: 3 hours.**

(Prerequisite: PH 4713/6713). Three hours lecture. Introduction to perturbation theory and quantum statistics. Topics selected from multi-electron atoms, diatomic molecules, solid state and nuclear physics

**PH 6813 Introduction to Solid State Physics: 3 hours.**

(Prerequisite: PH 3613). Three hours lecture. Crystal structure, crystal diffraction and the reciprocal lattice, crystal binding, free electron gas, energy bands, and semiconductors

**PH 6990 Special Topics in Physics and Astronomy: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PH 7000 Directed Individual Study in Physics and Astronomy: 1-6 hours.**

Hours and credits to be arranged

**PH 8111 Seminars and Colloquia: 1 hour.**

(Prerequisite: Graduate standing). One hour lecture. Course is focused on presentations of original research studies related to various research areas in the department. It is given by experts in their fields and required to be completed in each semester that the graduate student is in residence at MSU

**PH 8213 Mechanics: 3 hours.**

(Prerequisite: A good undergraduate training in physics and mathematics consent of instructor). Coordinate systems and transformations, tensors, and matrices. Particle dynamics, variational principles, Lagrange's and Hamilton's equations, rigid body motion, special relativity in mechanics

**PH 8233 Methods of Theoretical Physics I: 3 hours.**

(Prerequisite: Consent of instructor). Topics will vary, but may include linear vector spaces, tensor analysis, group theory, function space and orthogonal polynomials

**PH 8243 Methods of Theoretical Physics II: 3 hours.**

(Prerequisite: PH 8233). Topics will vary but may include analytic functions, Fourier analysis, Green's functions, integral transforms, partial differential equations and integral equations

**PH 8313 Electromagnetic Theory: 3 hours.**

(Prerequisite: PH 4333 or equivalent). Maxwell's theory of electromagnetism. Boundary value problems in electrostatics, static multipole moments, theory of dielectrics, magnetostatics, plane electromagnetic waves, simple radiating systems. (Same as ECE 8313)

**PH 8323 Electromagnetic Theory II: 3 hours.**

Three hours lecture. Maxwell's theory of electromagnetism: Electromagnetic waves, time-dependent multipole, expansions, radiation, waveguides, scattering diffraction, and special relativity. (Same as ECE 8323)

**PH 8513 Statistical Mechanics: 3 hours.**

(Prerequisites: PH 4713 and PH 4413). Classical and quantum statistical mechanics and statistical interpretation of thermodynamic quantities

**PH 8613 Nuclear Physics I: 3 hours.**

(Prerequisite: PH 4723). Nuclear two-body problem and nuclear forces. Interpretation of experimental data through a study of nuclear models. Nuclear reactions and spectroscopy

**PH 8743 Quantum Mechanics I: 3 hours.**

(Prerequisites: PH 4723 and MA 3313). Schrodinger theory, spherically symmetric systems, matrix mechanics, angular momentum and spin, time-independent perturbation theory

**PH 8753 Quantum Mechanics II: 3 hours.**

(Prerequisite: PH 8743). Time dependent perturbation theory, identical particles, theory of scattering, quantum-statistical mechanics, introduction of relativistic quantum mechanics, quantum electrodynamics

**PH 8803 Molecular Structure: 3 hours.**

(Prerequisites: PH 8743). Theory of rotational, vibrational and electronic spectra of molecules. Molecular structure and determination of molecular constants

**PH 8883 Many Body Theory: 3 hours.**

(Prerequisite: PH 8753) Three hours lecture. Boson and Fermion Green functions at zero and finite temperature, electron conductivity, interacting electron gas, magnetism, electron-phonon interaction and superconductivity

**PH 8990 Special Topics in Physics and Astronomy: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PH 9000 Research in Physics: 1-13 hours.**

Hours and credits to be arranged

## Philosophy Courses

**PHI 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**PHI 1103 Introduction to Philosophy: 3 hours.**

Three hours lecture. An introduction to the major ideals and methods of philosophy. At least one philosophic classic is read, usually one suitable for orientation purposes. Honors section available

**PHI 1113 Introduction to Logic: 3 hours.**

Three hours lecture. A development of practical ability in the major forms of valid argumentation concluding with a consideration of the universal and existential operators

**PHI 1123 Introduction to Ethics: 3 hours.**

Three hours lecture. A study of the specific considerations, such as facts, feelings, principles, values and conflicts, which influence the making of concrete moral decisions

**PHI 2990 Special Topics in Philosophy and Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PHI 3013 Business Ethics: 3 hours.**

Three hours lecture. A philosophical exploration of how to recognize, analyze, and implement ethical decisions within the multivalued contexts of the various fields of business

**PHI 3023 History of Western Philosophy I: 3 hours.**

Three hours lecture. A survey of major figures and movements from early Greek philosophy to the late Middle Ages

**PHI 3033 History of Western Philosophy II: 3 hours.**

Three hours lecture. A survey of major figures from the Renaissance through contemporary philosophy

**PHI 3043 Philosophy of History: 3 hours.**

Three hours lecture. A survey of the central figures and problems in the philosophy of history, with attention to both the ontology and epistemology of the past

**PHI 3113 Philosophy of Law: 3 hours.**

Three hours lecture. A philosophical analysis of the concepts of law, liberty, justice, responsibility, and punishment from the rival ethical perspectives of deterrence and retribution

**PHI 3123 Philosophy of Religion: 3 hours.**

(Prerequisite: Three hours of philosophy). Three hours lecture. A critical inquiry into the rational justification of central theistic beliefs, with emphasis on the traditional philosophical arguments for and against the existence of God. (Same as REL 3123)

**PHI 3133 Seminar in Philosophy: 3 hours.**

Three hours lecture. (Prerequisites: Completion of fifteen hours of PHI courses, including PHI 1113). The study of selected philosophy essays and practice in philosophical composition

**PHI 3143 Nineteenth Century Philosophy: 3 hours.**

(Prerequisites: Three hours of philosophy or Junior standing or consent of instructor). Three hours lecture. A study of the major philosophical movements and figures of the nineteenth century

**PHI 3153 Aesthetics: 3 hours.**

Three hours lecture. Theories of art and the nature of beauty, designed to enhance the student's sensitivity and cultural awareness

**PHI 3163 Moral Philosophy: 3 hours.**

Three hours lecture. An examination of the central issues in morality, including problems with justification, normative prescriptions, and objectivity

**PHI 3173 Social and Political Philosophy: 3 hours.**

Three hour lecture. An examination of the central issues in social and political philosophy, including justification of the state, and obligations to obey the law

**PHI 3183 African American Philosophy: 3 hours.**

Three hours lecture. The philosophical analysis of the relation between the African American lived experience of oppression and the desired experience of freedom

**PHI 3313 Environmental Ethics: 3 hours.**

Three hours lecture. A philosophical examination of the relationship between humanity and the natural world

**PHI 3323 Medical Ethics: 3 hours.**

Three hours lecture. A philosophical study of situations requiring ethical decision making in the area of medicine. (Sophomore standing or above, or consent of instructor)

**PHI 3413 Epistemology: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. A historical and topical examination of rival traditions and theories of inquiry. Special attention will be paid to the concepts of knowledge, warrant, and truth

**PHI 4000 Directed Individual Study in Philosophy and Religion: 1-6 hours.**

(Prerequisite: PHI 1103, PHI 1113, or PHI 1123). Hours and credits to be arranged

**PHI 4013 Contemporary Philosophy and Architecture: 3 hours.**

Prerequisite: Junior standing or consent of instructor. Three hours lecture. An examination of modernism and postmodernism in philosophy and architecture (Same as ARC 4333/6333)

**PHI 4123 Contemporary Continental Philosophy: 3 hours.**

(Prerequisite: 3 hours PHI or junior standing). Three hours lecture. A survey of the most important trends in 20th and 21st century continental philosophy and their influence on culture, politics, art, architecture, and literature

**PHI 4143 Philosophy of Science: 3 hours.**

Three hours lecture. An analytical examination of the essential ingredients of science concluding with the effect of scientific values on contemporary culture

**PHI 4163 Research Ethics: 3 hours.**

Three hours lecture. This course examines ethical issues that are generated by the tensional balancing of personal consideration against public good in the practice of scientific research

**PHI 4173 Philosophy of Biology: 3 hours.**

An examination of the central philosophical issues in the life sciences, particularly biological laws, classifications, selection, and reductionism

**PHI 4223 Philosophy of Cognitive Science: 3 hours.**

Three hours lecture. Exploration of the philosophical issues arising in cognitive science

**PHI 4990 Special Topics in Philosophy and Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PHI 6013 Contemporary Philosophy and Architecture: 3 hours.**

Prerequisite: Junior standing or consent of instructor. Three hours lecture. An examination of modernism and postmodernism in philosophy and architecture (Same as ARC 4333/6333)

**PHI 6123 Contemporary Continental Philosophy: 3 hours.**

(Prerequisite: 3 hours PHI or junior standing). Three hours lecture. A survey of the most important trends in 20th and 21st century continental philosophy and their influence on culture, politics, art, architecture, and literature

**PHI 6143 Philosophy of Science: 3 hours.**

Three hours lecture. An analytical examination of the essential ingredients of science concluding with the effect of scientific values on contemporary culture

**PHI 6163 Research Ethics: 3 hours.**

Three hours lecture. This course examines ethical issues that are generated by the tensional balancing of personal consideration against public good in the practice of scientific research

**PHI 6173 Philosophy of Biology: 3 hours.**

An examination of the central philosophical issues in the life sciences, particularly biological laws, classifications, selection, and reductionism

**PHI 6223 Philosophy of Cognitive Science: 3 hours.**

Three hours lecture. Exploration of the philosophical issues arising in cognitive science

**PHI 6990 Special Topics in Philosophy and Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PHI 7000 Directed Individual Study in Philosophy and Religion: 1-6 hours.**

Hours and credits to be arranged

**PHI 8101 Case Studies in Scientific Research Ethics: 1 hour.**

One hour seminar. Practical application of research ethics using case scenarios to direct discussions on data ownership, plagiarism, authorship, conflict of interest, and other regulatory compliance related issues. (Same as CVM 8101)

**PHI 8990 Special Topics in Philosophy and Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Physiology Courses

### **PHY 6112 Equine Reproduction: 2 hours.**

One hour lecture. Two hour laboratory. A study of equine reproductive activities and the principles for managing the mare, stallion and foal. (Same as ADS 4112/6112)

### **PHY 6114 Cellular Physiology: 4 hours.**

(Same as BIO 4114/6114)

### **PHY 6335 Anatomy & Physiology of Insects: 5 hours.**

(Prerequisite: EPP 4154/6154). (Same as EPP 6335.)

### **PHY 6514 Animal Physiology: 4 hours.**

(Same as BIO 4514/6514)

### **PHY 6611 Practice in Physiology of Reproduction: 1 hour.**

(Prerequisite or Co-requisite: ADS 4613/6613/PHY 6613). Three hours laboratory. Artificial insemination and rectal palpation of reproductive organs of cattle; semen collection, evaluation, processing and handling. (Same as ADS 4611/6611)

### **PHY 6613 Physiology of Reproduction: 3 hours.**

(Prerequisite: BIO 1134 or BIO 1144 and ADS/VS 3014 or equivalent). Three hours lecture. Anatomy and physiology; reproductive cycles; production, evaluation and preservation of gametes; gestation; endocrine regulation; managed reproduction. (Same as ADS 4613/6613)

### **PHY 6623 Physiology of Lactation: 3 hours.**

(Prerequisite: BIO 1134 or BIO 1144 and ADS/VS 3014 or equivalent). Two hours lecture. Two hours laboratory. Anatomy, physiology, and pathology of the mammary gland; nervous and hormonal control of lactation, theories of milk secretion, modern methods of milking, factors affecting lactation. (Same as ADS 4623/6623)

### **PHY 6844 Avian Anatomy and Physiology: 4 hours.**

Three hours lecture. Two hours laboratory. Anatomy and physiology of the fowl with emphasis on morphology, structure, and function of the avian body. (Same as PO 6844)

### **PHY 6990 Special Topics in Animal Physiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

### **PHY 7000 Directed Individual Study in Animal Physiology: 1-6 hours.**

Hours and credits to be arranged

### **PHY 8133 Endocrine Secretions: 3 hours.**

Three hours lecture. Study of factors by which cells communicate: the traditional endocrine system, autocrine, paracrine and neurocrine secretion. Physiological and genetic control of synthesis and secretion

### **PHY 8243 Advanced Physiology of Reproduction: 3 hours.**

(Prerequisite: ADS 4613/6613). (Same as ADS 8243)

### **PHY 8333 Advanced Toxicology: 3 hours.**

(Prerequisite: EPP 4543/6543 or elementary biochemistry). (Same as EPP 8333)

### **PHY 8811 Animal Physiology Seminar: 1 hour.**

Four one-hour seminars

### **PHY 8841 Animal Physiology Seminar: 1 hour.**

Four one-hour seminars

### **PHY 8990 Special Topics in Animal Physiology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

### **PHY 9000 Research in Physiology: 1-13 hours.**

Hours and credits to be arranged

## Poultry Science Courses

### **PO 1013 Animal Agriculture & Society: Food for Thought: 3 hours.**

Three hours lecture. Exploration of connections between animal agriculture and society including animal production systems, food and fiber production, consumer perceptions and addressing concerns regarding the growing world population. (Same as ADS 1013)

### **PO 2990 Special Topics in Poultry Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

### **PO 3011 Seminar: 1 hour.**

One hour lecture. Preparation and presentation of specially assigned current problems in poultry science

### **PO 3021 Seminar: 1 hour.**

One hour seminar. Preparation and presentation of specially assigned current problems in poultry science

### **PO 3103 Genetics I: 3 hours.**

Two hours lecture. Two hours laboratory. (Prerequisites: MA 1313 or higher, BIO 1134 or higher or BIO 2113 or higher). Principles of heredity, genetic material, and gene expressions. (Same as BIO 3103, GNS 3103)

### **PO 3313 Commercial Poultry Production: 3 hours.**

Three hours lecture. An introduction to practical management problems encountered in the production of commercial eggs, broiler production, and breeding flocks

### **PO 3353 Poultry Production Internship: 3 hours.**

(Prerequisite: Consent of instructor). Structured, progressive experiential learning with the live production division of a poultry integrator

### **PO 3363 Poultry Processing Internship: 3 hours.**

(Prerequisite: Consent of instructor). Structured, progressive experiential learning with the processing of a poultry integrator

### **PO 3423 Poultry Evaluation I: 3 hours.**

Two Hour Lecture. Two Hour Laboratory. Grading/evaluation of live poultry and market products using different methods and grading scales based on USDA standards and the American Standard of Perfection

### **PO 3433 Poultry Evaluation II: 3 hours.**

Two Hour Lecture. Two Hour Laboratory. (Prerequisites: PO 3423 or consent of instructor). Grading/evaluation of live poultry including turkeys and market products using different methods and grading scales based on USDA standards and cull factors

### **PO 4000 Directed Individual Study in Poultry Science: 1-6 hours.**

Hours and credits to be arranged

### **PO 4031 Seminar: 1 hour.**

One hour seminar. Preparation and presentation of specially assigned current problems in poultry science

### **PO 4033 Diseases of Poultry: 3 hours.**

Two hours lecture. Two hours laboratory. Survey of cause, effects, diagnosis, prevention, and control of common poultry diseases

**PO 4041 Seminar: 1 hour.**

One hour seminar. Preparation and presentation of specially assigned current problems in poultry science

**PO 4313 Management of Commercial Layers: 3 hours.**

Three hours lecture. Management of laying flocks as related to production of edible eggs; including housing, cage design, equipment, feeding techniques, lighting, molting and other factors involved with efficient production

**PO 4324 Avian Reproduction: 4 hours.**

Three hours lecture. Two hours laboratory. Principles of avian reproductive physiology and applications in poultry management to maximize reproductive performance. Reproductive characteristics of several bird species are included

**PO 4334 Broiler Production: 4 hours.**

Three hours lecture. Two hours laboratory. Practical management problems encountered in the production of broilers including breeding, housing, brooding, diseases, and feeding; field trips to intensified broiler areas

**PO 4413 Poultry Nutrition: 3 hours.**

Three hours lecture. Study of the digestion, absorption, and metabolism of nutrients in avian species. Special emphasis is given to practical nutritional needs of commercial poultry flocks

**PO 4423 Feed Manufacturing: 3 hours.**

Two hours lecture. Two hours laboratory. Mill design and equipment; procurement, storage and quality control for ingredients and complete feeds; formulation of practical type poultry rations

**PO 4512 Poultry Products Safety and Sanitation: 2 hours.**

(Prerequisite: Junior standing or greater.) Two hours lecture. Poultry product safety hazards, food safety systems (HACCP), principles and practices of food sanitation related to poultry products and poultry safety regulations (same as FNH 4512/6512)

**PO 4514 Poultry Processing: 4 hours.**

Three hours lecture. Two hours laboratory. Study of commercial poultry processing including poultry inspection, regulations, processed poultry products, egg processing, and food safety. (Same as FNH 4514/6514)

**PO 4844 Avian Anatomy and Physiology: 4 hours.**

Three hours lecture. Two hours laboratory. Anatomy and physiology of the fowl with emphasis on morphology, structure, and function of the avian body. (Same as PHY 6844)

**PO 4990 Special Topics in Poultry Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PO 6313 Management of Commercial Layers: 3 hours.**

Three hours lecture. Management of laying flocks as related to production of edible eggs; including housing, cage design, equipment, feeding techniques, lighting, molting and other factors involved with efficient production

**PO 6324 Avian Reproduction: 4 hours.**

Three hours lecture. Two hours laboratory. Principles of avian reproductive physiology and applications in poultry management to maximize reproductive performance. Reproductive characteristics of several bird species are included

**PO 6334 Broiler Production: 4 hours.**

Three hours lecture. Two hours laboratory. Practical management problems encountered in the production of broilers including breeding, housing, brooding, diseases, and feeding; field trips to intensified broiler areas

**PO 6413 Poultry Nutrition: 3 hours.**

Three hours lecture. Study of the digestion, absorption, and metabolism of nutrients in avian species. Special emphasis is given to practical nutritional needs of commercial poultry flocks

**PO 6423 Feed Manufacturing: 3 hours.**

Two hours lecture. Two hours laboratory. Mill design and equipment; procurement, storage and quality control for ingredients and complete feeds; formulation of practical type poultry rations

**PO 6512 Poultry Products Safety and Sanitation: 2 hours.**

(Prerequisite: Junior standing or greater.) Two hours lecture. Poultry product safety hazards, food safety systems (HACCP), principles and practices of food sanitation related to poultry products and poultry safety regulations (same as FNH 4512/6512)

**PO 6514 Poultry Processing: 4 hours.**

Three hours lecture. Two hours laboratory. Study of commercial poultry processing including poultry inspection, regulations, processed poultry products, egg processing, and food safety. (Same as FNH 4514/6514)

**PO 6523 Advanced Poultry Processing: 3 hours.**

(Prerequisite: PO 4513/6513). Three hours lecture. Study of preparation of poultry for consumption including all pertinent technology, product flow, equipment and applicable regulations

**PO 6833 Avian Anatomy: 3 hours.**

Two hours lecture. Two hours laboratory. Anatomy of the fowl with emphasis on morphology and organization of the avian body structures

**PO 6844 Avian Anatomy and Physiology: 4 hours.**

Three hours lecture. Two hours laboratory. Anatomy and physiology of the fowl with emphasis on morphology, structure, and function of the avian body. (Same as PHY 6844)

**PO 6990 Special Topics in Poultry Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PO 7000 Directed Individual Study in Poultry Science: 1-6 hours.**

Hours and credits to be arranged

**PO 8011 Graduate Seminar in Poultry Science: 1 hour.**

One-credit course for Master's graduate students. Focus will include, but will not be limited to, exploration of current and historical literature; in-depth analysis of selected research topics/journal articles; discussion of relevant analytical techniques in research; preparation and presentation of original research. May be taken 4 times for credit

**PO 8043 Poultry Nutrition (Vitamins and Minerals): 3 hours.**

(Prerequisites: Graduate level students of Poultry Science). Three hours lecture. The class will provide an overview of vitamin and mineral types, metabolism, and poultry ration usage. The lessons will involve basic concepts of these micro-nutrients predominantly based on research paper discussion

**PO 8111 Advanced Graduate Seminar in Poultry Science: 1 hour.**

One-credit course for Poultry Science doctoral students. Focus will include, but will not be limited to, exploration of current/historical literature; in-depth analysis of research topics/journal articles; discussion of relevant analytical techniques in research; preparation and presentation of original research. May be taken 6 times for credit

**PO 8123 Methods in Nutrition Research: 3 hours.**

Two hours lecture. Three hours laboratory. Application of analytical methods used in research techniques; practice in writing research proposals, conducting a research project, and preparing research finds suitable for scientific publication

**PO 8443 Avian Nutrition: 3 hours.**

Three hours lecture. Study of the nutrient functions, dietary relationships deficiency symptoms, distribution in feedstuffs and quantitative requirements of nutrients

**PO 8990 Special Topics in Poultry Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PO 9000 Research in Poultry: 1-13 hours.**

Hours and credits to be arranged

## Public Policy Administration Courses

**PPA 7000 Directed Individual Study in Political Science and Public Administration: 1-6 hours.**

Hours and credits to be arranged

**PPA 8103 Seminar in Public Administration: 3 hours.**

(Prerequisite: consent of instructor). Detailed examination of the major elements of the field of public administration, with particular emphasis on emerging trends in the field

**PPA 8123 State Government Administration: 3 hours.**

Seminar in the practice and principles of state government administration, including judicial and legislative administration

**PPA 8133 City and County Management: 3 hours.**

Seminar focus on small town and county management in quasi-bureaucratic settings. Detailed consideration of problem solving capabilities as they relate to different forms of local government structure

**PPA 8143 Civil Rights and Affirmative Action: 3 hours.**

(Prerequisite: consent of the instructor). A seminar which examines the various civil rights laws and acts and court decisions related to affirmative action in the workplace and public policy

**PPA 8153 Seminar in Privatization: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. Examination of the theoretical and practical issues of public-private partnerships

**PPA 8183 Local Government Finance: 3 hours.**

Three hours lecture. Local government finance principles including revenue policy and administration, budgeting, and financial management at the subnational level

**PPA 8193 Seminar in Intergovernmental Relations: 3 hours.**

(Prerequisite: 9 hours of graduate work). Three hours lecture. Examines the current day functioning of the American federal system. Focuses upon national-state, national-local, interstate, state-local and interlocal relationships as well as fiscal federalism

**PPA 8400 Public Administration Internship: 1-6 hours.**

(Prerequisite: Consent of instructor). Hours and credits to be arranged. Individual work experience under faculty guidance in a governmental or public agency. Scholarly paper on approved topic required. Student evaluations are assigned on satisfactory/unsatisfactory basis

**PPA 8653 Health Policy and the Health Policy Process: 3 hours.**

Comprehensive review of health policy and the policy process in the U.S., illustrating how public policies affect the health care sector

**PPA 8703 Government Organization and Administrative Theory: 3 hours.**

Detailed survey of organization theories and managerial techniques as they relate to the public sector

**PPA 8713 Public Personnel Management: 3 hours.**

Course considers major developments in the issues and management practices affecting personnel such as affirmative action, unions, and civil service reforms

**PPA 8723 Public Budgeting and Financial Management: 3 hours.**

Analysis of current financial and budgetary techniques as they apply to the public sector. Capital budgeting, debt administration, and financial management

**PPA 8733 Public Program Evaluation: 3 hours.**

Techniques and analytical methods of assessing governmental program success. Special emphasis will be given to program designs, data collection and quantitative applications

**PPA 8743 Administrative Law: 3 hours.**

(Prerequisite: PS 4703/6703). Three hours lecture. An environmental study of the legal nature and effect of policies and attitudes of government toward business, especially the power and limitations of regulatory agencies

**PPA 8753 Strategic Change and Management: 3 hours.**

Three hours lecture. Practical and prescriptive studies of managerial governmental processes, emphasizing the tools of governance

**PPA 8763 Local Government Planning: 3 hours.**

Three hours lecture. Introduction to the public management practice of planning with an emphasis on local government processes, politics and techniques for planning

**PPA 8803 Research Methods for Public Affairs: 3 hours.**

Stress on research designs and methods, survey research and other techniques and measuring data. Focus on applied approaches for mathematically analyzing governmental data. (Same as PS 8803)

**PPA 8833 Systems in Public Administration: 3 hours.**

(Prerequisite: BIS 1013, CS 1013, TKT 4273/6273, or equivalent). Three hours lecture. Role of automated, computer-based systems in government; their impact on the workplace, government institutions, and the governmental systems; selected topical applications

**PPA 8843 Introduction to Public Procurement: 3 hours.**

Three hours lecture. This course provides a bridge between the theory and practice associated with public sector procurement in this ever-evolving field

**PPA 8853 Contract Formation in Public Procurement: 3 hours.**

Three hours lecture. This course provides insight into how public sector contracts should be planned and formed

**PPA 8863 Contract Administration in Public Procurement: 3 hours.**

Three hours lecture. This course addresses the actions that must be taken following the award of a contract



**PPA 8873 Legal, Ethical, and Socially Responsible Aspects of Public Procurement: 3 hours.**

Three hours lecture. This course surveys the law and ethics that apply to public sector procurement in the United States

**PPA 8893 Women in Public Administration: 3 hours.**

Three hours lecture. This course designed for students who are interested to learn and understand the changing role of women as administrators, leaders and managers

**PPA 8903 Public Policy: 3 hours.**

Nature, determinants, and effects of public goods and services; policy formulation and implementation; seminar emphasizes contemporary issues such as strategic planning, leadership, and managerial control. (Same as PS 8903)

**PPA 8983 Integrative Capstone: 3 hours.**

(Prerequisites: Consent of Instructor). Three hours lecture. A groups-based consulting project on an issue currently facing a governmental or nonprofit organization. (should be taken in terminal semester of degree program )

**PPA 8990 Special Topics in Political Science and Public Administration: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PPA 9000 Research in Public Policy and Administration: 1-13 hours.**

Hours and credits to be arranged

**PPA 9103 American Political Institutions: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. Seminar addressing theoretical and empirical issues pertaining to the dynamics of American political institutions. (Same as PS 9103)

**PPA 9203 Constitutional and Political Framework of Public Administration.: 3 hours.**

Three hours lecture. Examination of public administration from a constitutional perspective; social, political, historical, and institutional impact of governments in democratic societies

**PPA 9303 Foundations of Public Administration: 3 hours.**

Three hours lecture. Examination of the theory of public administration with emphasis on over-arching metaphors of public administration that often guide both theory and practice

**PPA 9403 Comparative Public Administration: 3 hours.**

Examination of the different ways public administration is practiced around the world

**PPA 9413 Normative Analysis of American Public Policy: 3 hours.**

Three hours lecture. Seminar exploring issues in American politics and public policy from a normative perspective. (Same as PS 9413)

**PPA 9503 Qualitative Research for Public Affairs: 3 hours.**

Three hours lecture. Examination of qualitative research, and the application of qualitative social research in public administration and public policy

**PPA 9603 Scope of American Public Administration: 3 hours.**

(Prerequisite: Consent of the Instructor). Seminar dealing with historical background and development of American Public Administration as a discipline, and a review and analysis of current topics in the field

**PPA 9613 Rural Government Administration I: Theoretical and Environmental Aspects: 3 hours.**

(Prerequisite: Consent of the Instructor). A seminar dealing with the principles of democratic theory as they affect the role of government and citizens' participation in government in rural settings

**PPA 9623 Rural Government Administration II: Implementation Aspects: 3 hours.**

(Prerequisite: Consent of the Instructor). A seminar dealing with program implementation by rural and small town governments, including adoption and diffusion of management innovation by public administrators as change agents

**PPA 9703 Organization Behavior in the Public Sector: 3 hours.**

(Prerequisite: Consent of the Instructor). Seminar dealing with major topics, issues, concerns of individual and group behavior in public organizations

**PPA 9713 Administration of Human Resources in a Public Sector Environment: 3 hours.**

(Prerequisite: Consent of the Instructor). A seminar dealing with current basic research concerning management in the public sector environment

**PPA 9723 Public Budgeting Processes and Their Policy Implications: 3 hours.**

(Prerequisite: Consent of Instructor). A seminar dealing with norms and behaviors of budget process participants, their impact on budget policy and implications of budget actions for democratic government

**PPA 9803 Multivariate Analysis and Design for Public Affairs: 3 hours.**

(Prerequisite: Consent of the Instructor). A seminar dealing with public policy formulation, implementation and evaluation which stresses the theoretical aspects of policy processes

**PPA 9813 Advanced Quantitative Analysis for Public Affairs: 3 hours.**

(Prerequisite: PPA 9803 or consent of instructor). Three hours lecture. Examination and application of advanced statistical techniques for quantitative research in public affairs

**PPA 9893 American Political Behavior: 3 hours.**

(Prerequisite: PPA 9803 and consent of instructor). Three hours lecture. Seminar in American political behavior including public opinion, socialization, participation, and voting behavior. (Same as PS 9893)

**PPA 9903 Public Policy Formulation and Implementation: 3 hours.**

(Prerequisite: Consent of the Instructor). A seminar dealing with public policy formulation implementation and evaluation which stresses the theoretical aspects of policy processes

**PPA 9993 Research Design and Philosophy of Science: 3 hours.**

Three hours lectures. A hands on examination of applied and theoretical approaches to research design in public policy research

## Political Science Courses

**PS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**PS 1113 American Government: 3 hours.**

Three hours lecture. The evolution of American governmental institutions and the organization and operation of the U.S. government today

**PS 1182 Introduction to Law I: 2 hours.**

Two hours lecture. A broad overview of the American legal system as encountered in one year of law school: legal history, deductive thinking, and critical analysis

**PS 1192 Introduction to Law II: 2 hours.**

Two hours lecture. This course examines the modern practice of law in a variety of practice areas via lectures by attorneys who regularly practice in those areas

**PS 1311 Mississippi Model Security Council Research I: 1 hour.**

Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council

**PS 1313 Introduction to International Relations: 3 hours.**

Three hours lecture. This course examines through case studies the basic concepts of international politics such as nation, state, power, influence, bipolarity, deterrence, non-alignment, alliances and diplomacy

**PS 1321 Mississippi Model Security Council Internship I: 1 hour.**

Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, county advisor, council president, or United Nations Secretary General

**PS 1331 Mississippi Model Security Council Research II: 1 hour.**

(Prerequisite: PS 1311 or PS 1321.) Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council

**PS 1341 Mississippi Model Security Council Internship II: 1 hour.**

(Prerequisite: PS 1321.) Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, county adviser, council president, or United Nations Secretary General

**PS 1351 Mississippi Model Security Council Research III: 1 hour.**

(Prerequisite: PS 1331 or PS 1341.) Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council

**PS 1361 Mississippi Model Security Council Internship III: 1 hour.**

(Prerequisite: PS 1341) Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, county adviser, council president, or United Nations Secretary General

**PS 1371 Mississippi Model Security Council Research IV: 1 hour.**

(Prerequisite: PS 1351 or PS 1361.) Hours arranged. Development of "delegate preparation materials" and Model Security Council booklet for use in Mississippi Model Security Council

**PS 1381 Mississippi Model Security Council Internship IV: 1 hour.**

(Prerequisite: PS 1361). Hours arranged. Internship experience as participant in Mississippi Model Security Council as delegate, county adviser, council president, or United Nations Secretary General

**PS 1513 Comparative Government: 3 hours.**

Three hours lecture. Survey of various governmental systems

**PS 2403 Introduction to Political Theory: 3 hours.**

Three hours lecture. An examination of selected thinkers, text, ideas, and periods in the history of political thought

**PS 2703 Introduction to Public Policy: 3 hours.**

(Prerequisite: PS 1113 or consent of instructor). Three hours lecture. An examination of the formulation and implementation of public policy and the roles of government institutions and actors in policy making

**PS 2713 Introduction to Engineering and Public Policy: 3 hours.**

(Prerequisite: EN 1113 or EN 1173, or equivalent). Three hours lecture. A multidisciplinary analysis of public policy issues involving engineering and technology and use of policy science to explore complex policy issues. (Same as GE 2713)

**PS 2990 Special Topics in Political Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PS 3013 Political Leadership: 3 hours.**

Analysis of political leadership, emphasizing characteristics of successful leadership and opportunities available to students for leadership in the political arena

**PS 3033 Gender and Politics: 3 hours.**

Three hours lecture. Examines gender differences in law, the courts, voting, political involvement, approaches to political power, and violence. (Same as GS 3033)

**PS 3043 Modern Civil Rights Law: 3 hours.**

Prerequisite: Sophomore standing or higher. Three hours lecture. An analysis of American law as a tool for social change in education, employment, public accommodations, and voting rights. (Same as AAS 3043)

**PS 3063 Constitutional Powers: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. A study of the constitutional system; constitutional modification, federal courts and judicial review, separation of powers, federalism, congressional and presidential powers, and contract clause

**PS 3073 Civil Liberties: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. Political and civil rights; individual rights, national security and individual freedom; war and the Constitution; equal protection, criminal procedure; administrative process

**PS 3183 Law and Politics: 3 hours.**

(Prerequisite: Sophomore standing or consent of instructor). Three hours lecture. Study of the politics of selected features of the legal system and the political usages of law as a tool for social control

**PS 3193 Intergovernmental Relations: 3 hours.**

(Prerequisite: PS 1113). Three hours lecture. Historical, prescriptive, and empirical studies of federalism with emphasis upon recent developments in federal-state-local relationships

**PS 4000 Directed Individual Study in Political Science: 1-6 hours.**

(Prerequisite: Junior standing). Hours and credits to be arranged

**PS 4093 Senior Honors Thesis in Political Science: 3 hours.**

(Prerequisites: PS 4083, and consent of department head). Thesis writing on the topic researched in PS 4083

**PS 4113 State Government: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Comparative study of the structures, functions, and policies of the various American states

**PS 4163 The Chief Executive: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Historical and comparative study of chief executives, including governors and mayors, with special emphasis on the Presidency

**PS 4173 Legislative Process: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Organization, work, and procedure of legislative bodies and other law-making authorities

**PS 4183 Judicial Process: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Process and structure of the American legal system and the role of the judiciary

**PS 4193 Mississippi Judicial System: 3 hours.**

(Prerequisite: PS 1113). Three hours lecture. A study of the interrelationship of the actors within Mississippi's judicial system. Emphasis is placed on judicial decision-making, selection process, and resource allocation

**PS 4203 Political Parties and Electoral Problems: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. The development and operation of American political parties, with special attention to electoral problems

**PS 4213 Campaign Politics: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Survey of the theory of political campaigns, the resources and techniques they employ, and their effects on voters

**PS 4223 The Dynamics of American Democracy: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Analysis of factors affecting the translation of public opinion into public policy within a national institutional context

**PS 4233 Interest Groups: 3 hours.**

(Prerequisite: PS 1113 or consent of instructor). Three hours lecture. The study of the politics and practices of interest groups within the American political process

**PS 4243 State Election Policy and Politics: 3 hours.**

(Prerequisite: Junior or graduate standing, or consent of instructor). Three hours lecture. A survey of the fundamental challenges of election reform, from regulating access to voter registration and turnout, drawing electoral districts, improving voting technology, to successfully counting votes

**PS 4253 Southern Politics: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Survey of the politics of the Confederate and border states, examination of party development, leadership, and impact of the South in national politics

**PS 4263 Mississippi Government and Politics: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. A study of the organization, powers, processes and politics of state government in Mississippi

**PS 4273 African American Politics: 3 hours.**

(Prerequisite: PS 1113). Three hours lecture. The nature, processes, structures, and functions of African American politics in the domestic arena and international arena. (Same as AAS 4273)

**PS 4283 Public Opinion: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. The nature of public opinion; the influence of the press; pressure groups and propaganda techniques; the means of political communication

**PS 4293 Political Behavior: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Examination of the foundations and types of individual political activity; emphasis on psychological, social and cultural factors influencing personal political behavior

**PS 4303 U.S. Foreign Policy: 3 hours.**

(Prerequisite: PS 1313 or consent of instructor). Three hours lecture. An examination of the decision-making processes, institutions and structures that influence the formulation and execution of past and current U.S. foreign policy

**PS 4313 Principles of International Law: 3 hours.**

(Prerequisites: PS 1313 and junior standing). Three hours lecture. The nature, sources and scope of international law as found in custom, international convention, the teachings of authoritative writers, and judicial decisions

**PS 4323 International Organization: 3 hours.**

(Prerequisites: PS 1313 and junior standing). Three hours lecture. A study of the development of international organization and a concentration on the structure, processes and functions of the United Nations and its specialized agencies

**PS 4333 Theories of International Relations: 3 hours.**

(Prerequisites: PS 1313 and junior standing). Three hours lecture. This course critically examines traditional and contemporary, normative and behavioral, qualitative and quantitative theories of international relations

**PS 4343 International Conflict and Security: 3 hours.**

(Prerequisite: PS 1313 and junior standing). Three hours lecture. Study of the patterns, causes, and consequences of armed conflict between nations

**PS 4353 International Political Economy: 3 hours.**

Prerequisite: PS 1313 or consent of instructor). Three hours lecture. This course will systematically address the relationship between politics and economics in an international context

**PS 4363 International Peacekeeping: 3 hours.**

(Prerequisite: PS 1313 or PS 1513). An examination of peacekeeping operations with an emphasis on identifying reason for success or failure and on the role of international actors in rebuilding war-torn societies

**PS 4373 International Terrorism: 3 hours.**

(Prerequisite: Junior standing or greater, PS 1513, or Instructor Consent). Three hours lecture. This course will examine theories of international terrorism, the political significance of terrorism, types of tactics, and the political consequences of terrorism in the contemporary world

**PS 4383 National Security Policy: 3 hours.**

(Prerequisites: PS 1313 and junior standing). Three hours lecture. An examination of those policies and issues affecting American national security with attention to the institutions, organizations and processes which shape them

**PS 4393 The Global Context: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. Examination of selected issues of current importance to international relations

**PS 4403 Ancient & Medieval Political Theory: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Political philosophy from Plato and Aristotle through the Middle Ages

**PS 4423 20th Century Political thought: 3 hours.**

(Prerequisites: PS 2403 or consent of instructor). Three hours lecture. An examination of selected thinkers, text, and ideas in the history of political thought from the late 19th Century to the present

**PS 4433 American Political Theory: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Major schools of political thought in America from the colonial to the contemporary period

**PS 4453 Western Political Theory: Plato to Marx: 3 hours.**

(Prerequisites: PS 1113 or PS 2403). Three hours lecture. Chronological survey of central thinkers, texts, ideas, and movements in Western political thought from Plato to Marx

**PS 4464 Political Analysis: 4 hours.**

(Prerequisite: 6 hours in political science). Three hours lecture. Two hours laboratory. Philosophical and historical foundations of political analysis; constructing and executing research designs; measuring political phenomena; elementary methods of data analysis; games, models, and simulations

**PS 4523 Democracy and Inequality: 3 hours.**

(Prerequisite: PS 1513 or Instructor Consent). Three hours lecture. This course is a survey of approaches to the comparative study of inequality and democracy in the United States and abroad, focusing on race, class, sexuality and gender

**PS 4543 African Politics: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. contemporary sub-Saharan Black Africa; prospects for political development or decay. Role of parties, bureaucracy and military and their relation to elite formation and political integration. (Same as AAS 4543)

**PS 4553 Western European Politics: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. Governments of countries of Western Europe with emphasis upon England, France, Germany, Italy, and Spain

**PS 4593 Latin American Politics: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. Background, organization, and structure of the governments of the various Latin American countries

**PS 4613 Civil Wars and Intra-State Conflicts: 3 hours.**

(Prerequisite: Junior standing or greater, PS 1513, and/or Instructor Consent). Three hours lecture. This course examines the causes of intra-state conflicts in the modern world as well as possible solutions

**PS 4623 Politics of the Third World: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. Political processes of developing nations. Prospects for development and decline considered. Relationship between political, economic and cultural dimension during the process of social change

**PS 4633 Democracy and Democratization: 3 hours.**

(Prerequisite: PS 1513). Three hours lecture. This course examines aspects of the evolution of democracy from its historical and conceptual origins to the present, explores democracy's classical definition and its understanding within modern political science, and considers efforts to measure democracy

**PS 4643 Ethnic Conflict: 3 hours.**

(Prerequisite: Junior standing, PS 1513, or Instructor Consent). This course will examine theories of ethno-genesis, the political significance of identity, and the ways that ethnicity impacts conflict processes

**PS 4653 Nationalism: 3 hours.**

(Prerequisite: Junior standing, PS 1513, or instructor consent). The course examines the theories underlying contemporary notions of nationalism and the ways that nationalist ideologies manifest in comparative politics

**PS 4703 Principles of Public Administration: 3 hours.**

(Prerequisite: PS 1113). Three hours lecture. Bureaucratic politics and power; administrative responsibility in a plural democracy; public administrative organization; public personnel administration; and public budgeting

**PS 4743 Environmental Policy: 3 hours.**

(Prerequisite: PS 1113, PS 2703, or consent of instructor). Three hours lecture. History, development, and practice of environmental policy in the United States

**PS 4990 Special Topics in Political Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PS 6163 The Chief Executive: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Historical and comparative study of chief executives, including governors and mayors, with special emphasis on the Presidency

**PS 6173 Legislative Process: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Organization, work, and procedure of legislative bodies and other law-making authorities

**PS 6183 Judicial Process: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Process and structure of the American legal system and the role of the judiciary

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(Prerequisite: PS 1113). Three hours lecture. A study of the interrelationship of the actors within Mississippi's judicial system. Emphasis is placed on judicial decision-making, selection process, and resource allocation

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(Prerequisites: PS 1113 and junior standing). Three hours lecture. The development and operation of American political parties, with special attention to electoral problems

**PS 6213 Campaign Politics: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Survey of the theory of political campaigns, the resources and techniques they employ, and their effects on voters

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(Prerequisites: PS 1113 and junior standing). Three hours lecture. Analysis of factors affecting the translation of public opinion into public policy within a national institutional context

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(Prerequisite: PS 1113). Three hours lecture. The nature, processes, structures, and functions of African American politics in the domestic arena and international arena. (Same as AAS 4273)

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(Prerequisites: PS 1113 and junior standing). Three hours lecture. The nature of public opinion; the influence of the press; pressure groups and propaganda techniques; the means of political communication

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(Prerequisites: PS 1113 and junior standing). Three hours lecture. Examination of the foundations and types of individual political activity; emphasis on psychological, social and cultural factors influencing personal political behavior

**PS 6303 US Foreign Policy: 3 hours.**

(Prerequisite: PS 1313 or consent of instructor). Three hours lecture. An examination of the decision-making processes, institutions and structures that influence the formulation and execution of past and current U.S. foreign policy

**PS 6313 Principles of International Law: 3 hours.**

(Prerequisites: PS 1313 and junior standing). Three hours lecture. The nature, sources and scope of international law as found in custom, international convention, the teachings of authoritative writers, and judicial decisions

**PS 6323 International Organization: 3 hours.**

(Prerequisites: PS 1313 and junior standing). Three hours lecture. A study of the development of international organization and a concentration on the structure, processes and functions of the United Nations and its specialized agencies

**PS 6333 Theories of International Relations: 3 hours.**

(Prerequisites: PS 1313 and junior standing). Three hours lecture. This course critically examines traditional and contemporary, normative and behavioral, qualitative and quantitative theories of international relations

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(Prerequisite: PS 1313 and junior standing). Three hours lecture. Study of the patterns, causes, and consequences of armed conflict between nations

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Prerequisite: PS 1313 or consent of instructor). Three hours lecture. This course will systematically address the relationship between politics and economics in an international context

**PS 6363 International Peacekeeping: 3 hours.**

(Prerequisite: PS 1313 or PS 1513). An examination of peacekeeping operations with an emphasis on identifying reason for success or failure and on the role of international actors in rebuilding war-torn societies

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(Prerequisite: Junior standing or greater, PS 1513, or Instructor Consent). Three hours lecture. This course will examine theories of international terrorism, the political significance of terrorism, types of tactics, and the political consequences of terrorism in the contemporary world

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(Prerequisites: PS 1313 and junior standing). Three hours lecture. An examination of those policies and issues affecting American national security with attention to the institutions, organizations and processes which shape them

**PS 6393 The Global Context: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. Examination of selected issues of current importance to international relations

**PS 6403 Ancient Medieval Political Theory.: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Political philosophy from Plato and Aristotle through the Middle Ages

**PS 6423 20th Century Political thought: 3 hours.**

(Prerequisites: PS 2403 or consent of instructor). Three hours lecture. An examination of selected thinkers, text, and ideas in the history of political thought from the late 19th Century to the present

**PS 6433 American Political Theory: 3 hours.**

(Prerequisites: PS 1113 and junior standing). Three hours lecture. Major schools of political thought in America from the colonial to the contemporary period

**PS 6453 Western Political Theory: Plato to Marx: 3 hours.**

(Prerequisites: PS 1113 or PS 2403). Three hours lecture. Chronological survey of central thinkers, texts, ideas, and movements in Western political thought from Plato to Marx

**PS 6523 Democracy and Inequality: 3 hours.**

(Prerequisite: PS 1513 or Instructor Consent). Three hours lecture. This course is a survey of approaches to the comparative study of inequality and democracy in the United States and abroad, focusing on race, class, sexuality and gender

**PS 6543 African Politics: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. contemporary sub-Saharan Black Africa; prospects for political development or decay. Role of parties, bureaucracy and military and their relation to elite formation and political integration. (Same as AAS 4543)

**PS 6553 Western European Politics: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. Governments of countries of Western Europe with emphasis upon England, France, Germany, Italy, and Spain

**PS 6593 Latin American Politics: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. Background, organization, and structure of the governments of the various Latin American countries

**PS 6613 Civil Wars and Intra-State Conflicts: 3 hours.**

(Prerequisite: Junior standing or greater, PS 1513, and/or Instructor Consent). Three hours lecture. This course examines the causes of intra-state conflicts in the modern world as well as possible solutions

**PS 6623 Politics of the 3rd World: 3 hours.**

(Prerequisites: PS 1513 and junior standing). Three hours lecture. Political processes of developing nations. Prospects for development and decline considered. Relationship between political, economic and cultural dimension during the process of social change

**PS 6633 Democracy and Democratization: 3 hours.**

(Prerequisite: PS 1513). Three hours lecture. This course examines aspects of the evolution of democracy from its historical and conceptual origins to the present, explores democracy's classical definition and its understanding within modern political science, and considers efforts to measure democracy

**PS 6643 Ethnic Conflict: 3 hours.**

(Prerequisite: Junior standing, PS 1513, or Instructor Consent). This course will examine theories of ethno-genesis, the political significance of identity, and the ways that ethnicity impacts conflict processes

**PS 6653 Nationalism: 3 hours.**

(Prerequisite: Junior standing, PS 1513, or instructor consent). The course examines the theories underlying contemporary notions of nationalism and the ways that nationalist ideologies manifest in comparative politics

**PS 6703 Principles of Public Administration: 3 hours.**

(Prerequisite: PS 1113). Three hours lecture. Bureaucratic politics and power; administrative responsibility in a plural democracy; public administrative organization; public personnel administration; and public budgeting

**PS 6743 Environmental Policy: 3 hours.**

(Prerequisite: PS 1113, PS 2703, or consent of instructor). Three hours lecture. History, development, and practice of environmental policy in the United States

**PS 6990 Special Topics in Political Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PS 7000 Directed Individual Study in Political Science: 1-6 hours.**

Hours and credits to be arranged

**PS 8523 Reading in Local Government and Politics: 3 hours.**

(Prerequisite: Consent of instructor). Reading assigned material in state government and politics and making reports thereon under the supervision of a member of the graduate faculty

**PS 8533 Readings in National Government and Politics: 3 hours.**

(Prerequisite: Consent of instructor). Reading assigned material in an appropriate subfield of national government and making reports thereon under the supervision of a member of the graduate faculty

**PS 8543 Readings in Comparative Government and Politics: 3 hours.**

(Prerequisite: Consent of instructor). Reading assigned material in an appropriate subfield of comparative government and making reports thereon under the supervision of a member of the graduate faculty

**PS 8553 Readings in International Relations: 3 hours.**

(Prerequisite: Consent of instructor). Reading assigned material in an appropriate subfield of international relations and making reports thereon under the supervision of a member of the graduate faculty

**PS 8803 Research Methods in Public Affairs: 3 hours.**

Stress on research designs and methods, survey research and other techniques and measuring data. focus on applied approaches for mathematically analyzing governmental data. (Same as PPA 8803)

**PS 8903 Public Policy: 3 hours.**

Nature, determinants, and effects of public goods and services; policy formulation and implementation; seminar emphasizes contemporary issues such as strategic planning, leadership, and managerial control. (Same as PPA 8903)

**PS 8990 Special Topics in Political Science: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PS 9000 Research in Political Science: 1-13 hours.**

Hours and credits to be arranged

**PS 9103 American Political Institutions: 3 hours.**

(Prerequisite: consent of instructor). Three hours lecture. Seminar addressing theoretical and empirical issues pertaining to the dynamics of American political institutions

**PS 9893 American Political Behavior: 3 hours.**

(Prerequisite: PPA 9803 and consent of instructor). Three hours lecture. Seminar in American political behavior including public opinion, socialization, participation, and voting behavior. (same as PPA 9893)

## Plant and Soil Sciences Courses

**PSS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**PSS 1113 The Gardening Experience: 3 hours.**

Two hours lecture. Two hours laboratory. Basic home garden design and practice toward growing your own food as well as creating simple outdoor plant aesthetics, planting and maintenance

**PSS 1313 Plant Science: 3 hours.**

Two hours lectures. Two hours laboratory. Scientific principles as the basis for practice in producing, handling, processing, marketing, and utilizing agronomic and horticultural plants

**PSS 2111 Turf Management Lab: 1 hour.**

Two hours laboratory. (Pre or co-requisites PSS 2113). This lab gives the student hands on experience with grass and weed identification and turfgrass management operations. Turfgrass calculations and equipment calibration will be mastered

**PSS 2113 Introduction to Turfgrass Science: 3 hours.**

Three hours lecture. Introduction to basic principles associated with the art and science of turfgrass management including propagation, establishment, renovation, and basic pest management

**PSS 2343 Floral Design: 3 hours.**

Two hours lecture. Two hours studio. The history and appreciation of floral art through exploration of design principles, plant materials, and compositional floral forms

**PSS 2423 Plant Materials I: 3 hours.**

Two hours lecture. Two hours laboratory. Characteristics, identification, and landscape uses of ornamental trees, shrubs, vines, flowers, and grasses adapted to Southern conditions

**PSS 2543 Precision Agriculture I: 3 hours.**

(Prerequisite: Sophomore standing and MA 1313). Two hours lecture. Two hours lab. This introductory course highlights site-specific crop management techniques. Topics include: Best Management Practices, economic and physical farm production models, and measurement of variability (same as ABE 2543)

**PSS 2990 Special Topics in Plant and Soil Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PSS 3043 Fruit Science: 3 hours.**

Three hours lecture. Principles and practices involved in the production of deciduous trees and small fruits

**PSS 3133 Introduction to Weed Science: 3 hours.**

(Prerequisites: BIO 2113; CH 1213 or CH 1053). Three hours lecture. Managing weeds; basic weed biology; methods of controlling weeds, introductory herbicide technology, weed control systems, and the fate of herbicides in the environment

**PSS 3301 Soils Laboratory: 1 hour.**

(Prerequisite: Prior credit for/or current enrollment in PSS 3303, Co-requisite for Plant and Soil Sciences majors: PSS 3303). Two hours laboratory. General treatment of selected phases of the subject matter

**PSS 3303 Soils: 3 hours.**

(Prerequisite: One semester (preferably two) of inorganic chemistry, CH 1043, Co-requisite for Plant and Soil Sciences majors: PSS 3301.) Three hours lecture. General treatment of all phases of the subject including lime and fertilizers

**PSS 3313 Interior Planting Design and Maintenance: 3 hours.**

Two hours lecture, two hours laboratory. Identification of plant materials for interior planting and principles of design, installation and maintenance, preparation of cost estimates and maintenance contracts for interior plantings

**PSS 3323 Horticultural Impacts on Society: 3 hours.**

Three hours lecture. An in-depth inquiry into the various areas of sociohorticulture and the impact people-plant interactions have on us and our society environmentally, socially, physically, and economically

**PSS 3343 Wedding Floral Design: 3 hours.**

(Prerequisite: PSS 2343). One hour lecture. Four hours laboratory. Application of design principles to wedding floral design

**PSS 3411 Turf Seminar I: 1 hour.**

One hour lecture. Class discussions with invited turf industry representatives. Topics will include Turf industry overview, turf career opportunities, writing a resume, and job interviews. May be repeated for credit more than once

**PSS 3413 Floristry Internship: 3 hours.**

(Pre-requisites: PSS 2343 and consent of Retail Floristry Management faculty). Individual work experience in a floral industry enterprise with an approved employer under faculty supervision

**PSS 3421 Turf Seminar II: 1 hour.**

One hour lecture. Review of turfgrass literature and presentations of scientific articles. May be repeated for credit more than once

**PSS 3423 Agronomy Internship: 3 hours.**

(Prerequisites: Junior standing and consent of Agronomy Faculty). Individual work experience in an agronomic or environmental organization with an approved employer under faculty supervision. This course may be repeated under approved conditions

**PSS 3433 Horticulture Internship: 3 hours.**

(Prerequisite: Consent of the Horticulture faculty). Individual work experience in a horticulture or allied industry organization with an approved employer under faculty supervision. This course may be repeated under approved conditions

**PSS 3443 Permanent Botanical Floral Design: 3 hours.**

(Prerequisite: PSS 2343). One hour lecture. Four hours laboratory. Application of design theory and principles to non-perishable, dried, and preserved floral products

**PSS 3473 Plant Materials II: 3 hours.**

(Prerequisite: PSS 2423). Two hours lecture. Two hours laboratory. Continuation of PSS 2423

**PSS 3511 Seminar: 1 hour.**

(Prerequisite: Nine credits in horticulture). One hour lecture. Review of horticultural literature, and presentation and discussion of scientific articles

**PSS 3633 Sustainable and Organic Horticulture: 3 hours.**

Three hours lecture. Online course. A study of the base knowledge of the principles and practices of sustainable, organic, and alternative horticulture management systems

**PSS 3923 Plant Propagation: 3 hours.**

(Prerequisite: BIO 2113). Two hours lecture. Two hours laboratory. Basic principles in the propagation of horticultural plants

**PSS 4000 Directed Individual Study in Plant and Soil Sciences: 1-6 hours.**

Hours and credits to be arranged

**PSS 4013 Principles of Floral Design II: 3 hours.**

(Prerequisite: PSS 2343). Two hours lecture. Two hours laboratory. An in-depth inquiry into advanced floral design theory, advanced floral design techniques, and requirements for becoming a certified floral designer through the American Institute of Floral Design

**PSS 4023 Floral Management: 3 hours.**

Three hours lecture. Online course. To identify and understand the basic principles necessary to operate wholesale and retail floral businesses

**PSS 4043 International Horticulture: 3 hours.**

(Prerequisite: PSS 1313). Three hours lecture. Online course. Worldwide overview of horticultural export, marketing, and international trade issues and individual country analyses of specific fruit, vegetable and ornamental crops

**PSS 4073 Sympathy Floral Design: 3 hours.**

(Prerequisite PSS 2343). Two hours lecture. Two hours laboratory. Application of design theory and principles used in sympathy work

**PSS 4083 Floral Design for Special Events: 3 hours.**

(Prerequisite: PSS 2343). Two hours lecture. Two hours laboratory. Planning and preparing of floral design compositions for use in special events

**PSS 4093 Post-harvest Care of Cut Floral Crops: 3 hours.**

Two hours lecture. Two hours laboratory. Identification, postharvest care and handling, sourcing and distribution of cut floriculture plant materials

**PSS 4103 Forage and Pasture Crops: 3 hours.**

(Prerequisite: Junior standing or permission of instructor). Two hours lecture . Two hours laboratory. Origin, uses, and ecology of forage plants, establishment, nutritive value, use, yield and maintenance of forage plants as related to morphology, physiology and pasture management

**PSS 4113 Agricultural Crop Physiology: 3 hours.**

Three hours lecture. Online course. Physiology of agricultural plants, including water relations, respiration, photosynthesis and growth and development

**PSS 4123 Grain Crops: 3 hours.**

(Prerequisite: Junior standing). Two hours lecture . Two hours laboratory. Corn, small grain, practice in commercial grading given in laboratory

**PSS 4133 Fiber and Oilseed Crops: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Production and utilization of fiber and oilseed crops. Emphasis on cotton and soybean production in Mississippi

**PSS 4143 Advanced Fruit Science: 3 hours.**

(Prerequisite: PSS 3043 or equivalent). Three hours lecture. Three hours laboratory. A study of the latest advances in pomology and interpretation of current research findings and their application to modern fruit growing

**PSS 4153 Sustainable Agroecology: 3 hours.**

(Prerequisites: PSS 1313 and PSS 3303). Online. Three hours lecture. The study of interactions between crops and abiotic and biotic environments. Emphasis is placed on quantitatively examining theory and principles for production, stability and sustainability of agricultural ecosystems

**PSS 4223 Seed Production: 3 hours.**

(Prerequisite: Junior standing). Two hours lecture . Two hours laboratory. Principles and practices, special emphasis on production of varietally pure seeds; agronomic factors in harvesting, drying, storage, treating and marketing seed

**PSS 4313 Soil Fertility and Fertilizers: 3 hours.**

(Prerequisite: PSS 3303 and junior standing). Three hours lecture. Fundamentals and concepts of soil fertility/nutrient management; fertilizer sources and crop response to nutrients; fertilizer production; and soil fertility evaluation and maintenance through organic and inorganic fertilization

**PSS 4314 Microbiology and Ecology of Soil: 4 hours.**

(Prerequisite: PSS 3303). The study of diverse soil microbial communities and how they influence the structure and function of ecosystems (natural and managed) and the global biosphere (same as BIO 4324/6324)

**PSS 4323 Soil Classification: 3 hours.**

(Prerequisite: PSS 3303). Three hours lecture. Origin, development, and classification of soils including identification and field mapping

**PSS 4333 Soil Conservation and Land Use: 3 hours.**

(Prerequisite: PSS 3303). Two hours lecture . Three hours laboratory. Soil identification, topographic relationships and soil-water resources; their characteristics, quality, suitability, and management; conservation practices; using soil maps to determine land use

**PSS 4341 Controlled Environment Agriculture Laboratory: 1 hour.**

(Co-requisite: PSS 4343 for horticulture majors). Two hours laboratory. Online course. An experiential study of the principles and practices of controlled environments operation and management

**PSS 4343 Controlled Environment Agriculture: 3 hours.**

(Prerequisites: BIO 2113 and PSS 3303; Co-requisite for horticulture majors: PSS 4341). Three hours lecture. Online Course. A detailed review and explanation of principles and practices of controlled environments operation and management

**PSS 4353 Arboriculture and Landscape Maintenance: 3 hours.**

Two hours lecture. Two hours laboratory. Care of ornamental trees and shrubs, including pruning, bracing, surgery, transplanting, and fertilization

**PSS 4363 Sustainable Nursery Production: 3 hours.**

Prerequisites: PSS 2423 and PSS 3303). Three hours lecture. Online course. Nursery crop production including site selection and planning, plant nutrition, water relations and irrigation, shipping, and managing people and resources

**PSS 4373 Geospatial Agronomic Management: 3 hours.**

(Prerequisites PSS 3303, PSS 3133). Three hours lecture. This class will utilize the basic tools of geographical information systems and geographical positioning systems technologies to analyze agronomic case studies

**PSS 4383 Agriculture Remote Sensing I: 3 hours.**

(Prerequisites: MA 1313 and any GIS course or consent of instructor). Two hours lecture. Two hours lab. Online course. The study of whole-farm systems using data captured by camera, spectroscopic satellites, and telemetric sensors. Emphasis is placed on integrating multiple ag-related geospatial concepts into field-level production inquiries

**PSS 4393 Agriculture Remote Sensing II: 3 hours.**

(Prerequisite: PSS 4383/6383 or GR 4313/6313). Two hours lecture and two hours laboratory. The advanced study of whole-farm systems using data captured by camera, spectroscopic satellites, and telemetric sensors. Emphasis is placed on integrating multiple ag-related geospatial concepts into field-level production inquiries

**PSS 4411 Remote Sensing Seminar: 1 hour.**

One hour lecture. (Prerequisite: Junior Standing). Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote (Same as ECE 4411/6411, FO 4411/6411,GR 4411/6411)

**PSS 4413 Turfgrass Management: 3 hours.**

(Prerequisite: PSS 2113). Three hours lecture. An advanced comprehensive study of turfgrasses and the varied management strategies employed for golf and sports turf, home lawns, commercial turf, and sod production

**PSS 4423 Golf Course Operations: 3 hours.**

(Prerequisite: PSS 4413/6413). Two hours lecture . Two hours laboratory. Scheduling maintenance practices, golf course construction and renovation with emphasis on operation and care of specialized turf equipment

**PSS 4443 Athletic Field Management: 3 hours.**

(Prerequisite: PSS 2113 or consent of instructor). Three hours lecture. A comprehensive study of athletic fields, including construction, maintenance, renovation and management. Emphasis will be placed on interactions between soil properties and sports turf performance

**PSS 4453 Vegetable Production: 3 hours.**

(Prerequisite: PSS 3303 and PSS 3301 or PSS 4113/6113 or BIO 4214/6214). Two hours lecture. Two hours laboratory. Principles and practices of commercial vegetable production

**PSS 4463 Community Food Systems: 3 hours.**

Two hours lecture. Two hours laboratory. Exploration of aspects in community food systems including planning and design, sustainable growing practices, and human nutrition and health. (Same as LA 4463/6463 and FNH 4463/6463)

**PSS 4473 Hydroponic and Soilless Crop Production: 3 hours.**

(Prerequisite: PSS 4343/6343). Three hours lecture. The fundamentals of growing crops using hydroponics and soilless culture, particularly in controlled environments such as greenhouses and vertical farms

**PSS 4483 Introduction to Remote Sensing Technologies: 3 hours.**

(Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR, Lidar, digital image processing, natural resource applications (Same as ECE 4423/6423 and ABE 4483/6483)

**PSS 4493 Plant Genetics: 3 hours.**

(Prerequisites: PSS 1313, BIO 1134 or BIO 2113). Three hours lecture. An introductory application of genetics and genetic principles as they apply to plant reproduction and crop production. Understanding of mitosis and meiosis, diploid and polyploid genetics, and the generation of transgenic crops



**PSS 4503 Plant Breeding: 3 hours.**

(Prerequisite: PO 3103). Three hours lecture. Application of genetic principles to the improvement of economic crop plants; history, methods and procedures of plant breeding

**PSS 4543 Precision Agriculture II: 3 hours.**

(Prerequisite: PSS/ABE 2543 and Junior Standing). Two hours lecture. Two hours lab. Site-specific management techniques are examined. Continuous decision-making processes of farm production are integrated using a whole-system, geospatial approach (same as ABE 4543/6543)

**PSS 4553 Plant Growth and Development: 3 hours.**

Three hours lecture. Online course. Structure of plant developmental processes and how environmental factors interact to affect and control plant growth and development

**PSS 4603 Soil Chemistry: 3 hours.**

(Prerequisite: PSS 3303). Three hours lecture. Soil is a mixture of inorganic and organic solids, air, and water. Soil may contain micro and macro organisms and root. All of these things interact and influence each other

**PSS 4613 Floriculture Crop Programming: 3 hours.**

(Prerequisite: PSS 4343/6343). Two hours lecture. Three hours laboratory. A detailed study of the techniques involved in the production of the major commercial flower crops

**PSS 4633 Weed Biology and Ecology: 3 hours.**

(Prerequisites: BIO 2113, PSS 3133, Junior standing or consent of instructor). Two hours lecture. Two hours laboratory. Weed identification and population responses to agricultural production systems

**PSS 4733 Ag. Flight Technologies I: 3 hours.**

(Prerequisites: Junior Level or higher). Two hours online lecture, two hours online laboratory. The course instructs students in Small Unmanned Aerial Systems (sUAS) manual flight skills and the FAA Remote Pilot certification exam materials, and is a prerequisite course for advanced autonomous flight training (PSS 4743/6743)

**PSS 4743 Ag. Flight Technologies II: 3 hours.**

(Prerequisites: PSS 4733/6733 Ag. Flight Tech. I AND Instructor Approval). Three hours lecture. Enrolled students attend a week-long advanced autonomous flight workshop at Mississippi State University, Starkville campus. At week's end, students take the FAA Part 107 Remote Pilot Certification. (Course may be taken two times)

**PSS 4800 Undergraduate Research in Plants & Soil Sciences: 13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities

**PSS 4813 Herbicide Technology: 3 hours.**

(Prerequisites: PSS 3133 and junior standing). Two hours lecture. Three hours laboratory. Classification and use of herbicides. A detailed look at herbicide application-field use and factors influencing herbicide activity. Credit may not be given for this course and PSS 4823/6823

**PSS 4823 Turfgrass Weed Management: 3 hours.**

(Prerequisite: PSS 3133 and Junior standing). Two hours lecture. Three hours laboratory. Classification and use of herbicides with emphasis on herbicides and emphasis on herbicides used in turfgrasses. Credit may not be given for this course and PSS 4813/6813

**PSS 4990 Special Topics in Plant and Soil Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PSS 6013 Principles of Floral Design II: 3 hours.****PSS 6023 Floral Management: 3 hours.**

Three hours lecture. Online course. To identify and understand the basic principles necessary to operate wholesale and retail floral businesses

**PSS 6033 Case Studies in Floral Management: 3 hours.**

Three hours lecture. Online course. (Prerequisites: PSS 2343 or PSS 6013 and graduate standing). Identification of current problems in floral management and the development of strategies for their resolution

**PSS 6043 International Horticulture: 3 hours.**

(Prerequisite: PSS 1313). Three hours lecture. Online course. Worldwide overview of horticultural export, marketing, and international trade issues and individual country analyses of specific fruit, vegetable and ornamental crops

**PSS 6073 Sympathy Floral Design: 3 hours.**

(Prerequisite PSS 2343). Two hours lecture. Two hours laboratory. Application of design theory and principles used in sympathy work

**PSS 6083 Floral Design for Special Events: 3 hours.**

(Prerequisite: PSS 2343). Two hours lecture. Two hours laboratory. Planning and preparing of floral design compositions for use in special events

**PSS 6093 Post-harvest Care of Cut Floral Crops: 3 hours.**

Two hours lecture. Two hours laboratory. Identification, postharvest care and handling, sourcing and distribution of cut floriculture plant materials

**PSS 6103 Forage and Pasture Crops: 3 hours.**

(Prerequisite: Junior standing or permission of instructor). Two hours lecture. Two hours laboratory. Origin, uses, and ecology of forage plants, establishment, nutritive value, use, yield and maintenance of forage plants as related to morphology, physiology and pasture management

**PSS 6113 Agricultural Crop Physiology: 3 hours.**

Three hours lecture. Online course. Physiology of agricultural plants, including water relations, respiration, photosynthesis and growth and development

**PSS 6123 Grain Crops: 3 hours.**

(Prerequisite: Junior standing). Two hours lecture. Two hours laboratory. Corn, small grain, practice in commercial grading given in laboratory

**PSS 6133 Fiber and Oilseed Crops: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. Production and utilization of fiber and oilseed crops. Emphasis on cotton and soybean production in Mississippi

**PSS 6143 Advanced Fruit Science: 3 hours.**

(Prerequisite: PSS 3043 or equivalent). Three hours lecture. Three hours laboratory. A study of the latest advances in pomology and interpretation of current research findings and their application to modern fruit growing

**PSS 6153 Sustainable Agroecology: 3 hours.**

(Prerequisites: PSS 1313 and PSS 3303). Online. Three hours lecture. The study of interactions between crops and abiotic and biotic environments. Emphasis is placed on quantitatively examining theory and principles for production, stability and sustainability of agricultural ecosystems

**PSS 6223 Seed Production: 3 hours.**

(Prerequisite: Junior standing). Two hours lecture . Two hours laboratory. Principles and practices, special emphasis on production of varietally pure seeds; agronomic factors in harvesting, drying, storage, treating and marketing seed

**PSS 6313 Soil Fertility and Fertilizers: 3 hours.**

(Prerequisite: PSS 3303 and junior standing). Three hours lecture. Fundamentals and concepts of soil fertility/nutrient management; fertilizer sources and crop response to nutrients; fertilizer production; and soil fertility evaluation and maintenance through organic and inorganic fertilization

**PSS 6314 Microbiology and Ecology of Soil: 4 hours.**

(Prerequisite: PSS 3303). The study of diverse soil microbial communities and how they influence the structure and function of ecosystems (natural and managed) and the global biosphere (same as BIO 4324/6324)

**PSS 6323 Soil Classification: 3 hours.**

(Prerequisite: PSS 3303). Three hours lecture. Origin, development, and classification of soils including identification and field mapping

**PSS 6333 Soil Conservation and Land Use: 3 hours.**

(Prerequisite: PSS 3303). Two hours lecture . Three hours laboratory. Soil identification, topographic relationships and soil-water resources; their characteristics, quality, suitability, and management; conservation practices; using soil maps to determine land use

**PSS 6341 Controlled Environment Agriculture Laboratory: 1 hour.**

(Co-requisite: PSS 4343 for horticulture majors). Two hours laboratory. Online course. An experiential study of the principles and practices of controlled environments operation and management

**PSS 6343 Controlled Environment Agriculture: 3 hours.**

(Prerequisites: BIO 2113 and PSS 3303; Co-requisite for horticulture majors: PSS 4341). Three hours lecture. Online Course. A detailed review and explanation of principles and practices of controlled environments operation and management

**PSS 6353 Arboriculture and Landscape Maintenance: 3 hours.**

Two hours lecture. Two hours laboratory. Care of ornamental trees and shrubs, including pruning, bracing, surgery, transplanting, and fertilization

**PSS 6363 Sustainable Nursery Production: 3 hours.**

Prerequisites: PSS 2423 and PSS 3303). Three hours lecture. Online course. Nursery crop production including site selection and planning, plant nutrition, water relations and irrigation, shipping, and managing people and resources

**PSS 6373 Geospatial Agronomic Management: 3 hours.**

(Prerequisites PSS 3303, PSS 3133). Three hours lecture. This class will utilize the basic tools of geographical information systems and geographical positioning systems technologies to analyze agronomic case studies

**PSS 6383 Agriculture Remote Sensing I: 3 hours.**

(Prerequisites: MA 1313 and any GIS course or consent of instructor). Two hours lecture. Two hours lab. Online course. The study of whole-farm systems using data captured by camera, spectroscopic satellites, and telemetric sensors. Emphasis is placed on integrating multiple ag-related geospatial concepts into field-level production inquiries

**PSS 6393 Agriculture Remote Sensing II: 3 hours.**

(Prerequisite: PSS 4383/6383 or GR 4313/6313). Two hours lecture and two hours laboratory. The advanced study of whole-farm systems using data captured by camera, spectroscopic satellites, and telemetric sensors. Emphasis is placed on integrating multiple ag-related geospatial concepts into field-level production inquiries

**PSS 6411 Remote Sensing Seminar: 1 hour.**

One hour lecture. (Prerequisite: Junior Standing). Lectures by remote sensing experts from industry, academia, and governmental agencies on next-generation systems, applications, and economic and societal impact of remote (Same as ECE 4411/6411, FO 4411/6411,GR 4411/6411)

**PSS 6413 Turfgrass Management: 3 hours.**

(Prerequisite: PSS 2113). Three hours lecture. An advanced comprehensive study of turfgrasses and the varied management strategies employed for golf and sports turf, home lawns, commercial turf, and sod production

**PSS 6423 Golf Course Operations: 3 hours.**

(Prerequisite: PSS 4413/6413). Two hours lecture . Two hours laboratory. Scheduling maintenance practices, golf course construction and renovation with emphasis on operation and care of specialized turf equipment

**PSS 6443 Athletic Field Management: 3 hours.**

(Prerequisite: PSS 2113 or consent of instructor). Three hours lecture. A comprehensive study of athletic fields, including construction, maintenance, renovation and management. Emphasis will be placed on interactions between soil properties and sports turf performance

**PSS 6453 Vegetable Production: 3 hours.**

(Prerequisite: PSS 3303 and PSS 3301 or PSS 4113/6113 or BIO 4214/6214). Two hours lecture. Two hours laboratory. Principles and practices of commercial vegetable production

**PSS 6463 Community Food Systems: 3 hours.**

Two hours lecture. Two hours laboratory. Exploration of aspects in community food systems including planning and design, sustainable growing practices, and human nutrition and health. (Same as LA 4463/6463 and FNH 4463/6463)

**PSS 6473 Hydroponic and Soilless Crop Production: 3 hours.**

(Prerequisite: PSS 4343/6343). Three hours lecture. The fundamentals of growing crops using hydroponics and soilless culture, particularly in controlled environments such as greenhouses and vertical farms

**PSS 6483 Introduction to Remote Sensing Technologies: 3 hours.**

(Prerequisite: Senior or graduate standing, or consent of instructor). Three hours lecture. Electromagnetic interactions, passive sensors, multispectral and hyperspectral optical sensors, active sensors, imaging radar, SAR, Lidar, digital image processing, natural resource applications (Same as ECE 4423/6423 and ABE 4483/6483)

**PSS 6493 Plant Genetics: 3 hours.**

(Prerequisites: PSS 1313, BIO 1134 or BIO 2113). Three hours lecture. An introductory application of genetics and genetic principles as they apply to plant reproduction and crop production. Understanding of mitosis and meiosis, diploid and polyploid genetics, and the generation of transgenic crops

**PSS 6503 Plant Breeding: 3 hours.**

(Prerequisite: PO 3103). Three hours lecture. Application of genetic principles to the improvement of economic crop plants; history, methods and procedures of plant breeding

**PSS 6543 Precision Agriculture II: 3 hours.**

(Prerequisite: PSS/ABE 2543 and Junior Standing). Two hours lecture. Two hours lab. Site-specific management techniques are examined. Continuous decision-making processes of farm production are integrated using a whole-system, geospatial approach (same as ABE 4543/6543)

**PSS 6553 Plant Growth and Development: 3 hours.**

Three hours lecture. Online course. Structure of plant developmental processes and how environmental factors interact to affect and control plant growth and development

**PSS 6603 Soil Chemistry: 3 hours.**

(Prerequisite: PSS 3303). Three hours lecture. Soil is a mixture of inorganic and organic solids, air, and water. Soil may contain micro and macro organisms and root. All of these things interact and influence each other

**PSS 6613 Floriculture Crop Programming: 3 hours.**

(Prerequisite: PSS 4343/6343). Two hours lecture. Three hours laboratory. A detailed study of the techniques involved in the production of the major commercial flower crops

**PSS 6633 Weed Biology and Ecology: 3 hours.**

(Prerequisites: BIO 2113, PSS 3133. Junior standing or consent of instructor). Two hours lecture. Two hours laboratory. Weed identification and population responses to agricultural production systems

**PSS 6733 Ag. Flight Technologies I: 3 hours.**

(Prerequisites: Junior Level or higher). Two hours online lecture, two hours online laboratory. The course instructs students in Small Unmanned Aerial Systems (sUAS) manual flight skills and the FAA Remote Pilot certification exam materials, and is a prerequisite course for advanced autonomous flight training (PSS 4743/6743)

**PSS 6743 Ag. Flight Technologies II: 3 hours.**

(Prerequisites: PSS 4733/6733 Ag. Flight Tech. I AND Instructor Approval). Three hours lecture. Enrolled students attend a week-long advanced autonomous flight workshop at Mississippi State University, Starkville campus. At week's end, students take the FAA Part 107 Remote Pilot Certification. (Course may be taken two times)

**PSS 6813 Herbicide Technology: 3 hours.**

(Prerequisites: PSS 3133 and junior standing). Two hours lecture. Three hours laboratory. Classification and use of herbicides. A detailed look at herbicide application-field use and factors influencing herbicide activity. Credit may not be given for this course and PSS 4823/6823

**PSS 6823 Turfgrass Weed Management: 3 hours.**

(Prerequisite: PSS 3133 and Junior standing). Two hours lecture. Three hours laboratory. Classification and use of herbicides with emphasis on herbicides and emphasis on herbicides used in turfgrasses. Credit may not be given for this course and PSS 4813/6813

**PSS 6833 Temperature Stress Physiology: 3 hours.**

(Prerequisite: BIO 4214/6214 or BCH 4013/6013). Three hours lecture. Online course. The course focuses on cellular structures and stress metabolites, thermodynamics, and signal transduction before addressing plan responses to heat, chilling, and freezing stresses

**PSS 6990 Special Topics in Plant and Soil Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PSS 7000 Directed Individual Study in Plant and Soil Sciences: 1-6 hours.**

Hours and credits to be arranged

**PSS 8012 Thesis Proposal Writing: 2 hours.**

Two hours lecture. Students access and apply university thesis standards to their research. Focusing on clear, lucid writing techniques with appropriate style and grammar, in collaboration with the major professor, students complete the first three sections of their research thesis in this course

**PSS 8013 Biometrics in Agricultural Data and Experiments: 3 hours.**

(Prerequisite: ST 8114 Statistical Methods or equivalent). Three hours lectures. Introduction to R statistical software as it applies to agricultural research, research methods, data types, experimental designs, data analyses, data synthesis, and interpretation of agronomic research results

**PSS 8103 Pasture Development: 3 hours.**

Three hours lecture. Utilization systems for forage crops in the southeast; adaption, morphology, identification, and physiology of grasses and legumes; analyses of forage quality; interpretation of forage research

**PSS 8123 Crop Ecology: 3 hours.**

(Prerequisite: BIO 4213/6213 or consent of instructor). Three hours lecture. The geographical distribution, use, and adaptation of field crops as influenced by soil, climate, and other environmental factors

**PSS 8163 Environmental Plant Physiology: 3 hours.**

(Prerequisites: Graduate Standing). Three hours lecture. The influences of physical factors of the environment on growth and development of crop plants

**PSS 8203 Seed Physiology: 3 hours.**

(Prerequisite: PSS 4243/6243 or approval of instructor). Three hours lecture. Physiology of seed maturation, germination, dormancy, and deterioration, relation of seed quality to growth and development of plants

**PSS 8333 Advanced Soil Fertility: 3 hours.**

(Prerequisites: Graduate standing). Three hours lecture. Advanced course in soil fertility; special emphasis on all soil conditions affecting plant growth. Study of plant nutrient interactions with the soil solid phase and solution phase

**PSS 8343 Soil Plant Atmosphere Relationships: 3 hours.**

(Prerequisite: PSS 3301 and PSS 3303 or consent of instructor). Three-hour lecture on-line. Relationship of physical factors, water and heat, within the soil-plant-atmosphere continuum. Field-scale regimes including inputs, movement, and storage; emphasis on crop production

**PSS 8513 Advanced Plant Breeding: 3 hours.**

(Prerequisite: PSS 4503/6503 or equivalent). Three hours lecture. An intensive review of methods of plant improvement and the application of these methods to modern plant breeding. (Same as PSS 8573, GNS 8113.)

**PSS 8553 Phytohormones and Growth Regulations: 3 hours.**

(Prerequisites: BIO 4214/6214 or PSS 4113/6113 and CH 2503). Three hours lecture. Plant growth regulating compounds: synthesis, metabolism, and effects on plant growth and development

**PSS 8563 Post-Harvest Physiology of Horticultural Plants: 3 hours.**

(Prerequisites: Organic Chemistry and BIO 4214/6214 or equivalent). Three hours lecture. The nature, evaluation, and control of chemical and physiological changes that occur after harvest of horticultural products

**PSS 8573 Morphology of Horticultural Plants: 3 hours.**

(Prerequisite: BIO 4204/6204). Three hours lecture. An intense review of methods of plant One hour lecture. Four hours improvement and the application of these methods to modern laboratory. Development of the floral and vegetative organs of horticultural plants. (Same as PSS 8513 and GNS 8113)

**PSS 8631 Topics in Genomics: 1 hour.**

(Prerequisites:PSS/BCH 8653 BCH 4713/6713 or BCH 8643 or consent of instructor). Review and discussion of classic and current genomics literature;individual presentation of a seminar highlighting an area of genomics research. (Same as BCH 8631)

**PSS 8634 Environmental Fate of Herbicides: 4 hours.**

(Prerequisites: CH 4513/6513, PSS 4813/6813). Three hours lecture. Three hours laboratory. Fate of herbicides, including of drift, volatility, metabolism, environmental factors that influence these processes

**PSS 8643 Principles of Spray Application and Technology: 3 hours.**

(Prerequisite: PSS 4813/6813). Two hours lecture. Two hours lab. This course will examine the science and technical principles of spray application technologies and how they work in agriculture. This course will also cover adjuvant, nozzle, pump, physical and chemical properties of sprays and how to design a sprayer

**PSS 8645 Field Applications of Weed Sciences Principles I: 5 hours.**

(Prerequisite: PSS 6633 and PSS 6813 or consent of instructor). Three hours lecture. Four hours laboratory. Field weed identification; herbicide symptomology; problem solving in cotton soybean, and vegetables; application equipment calibration

**PSS 8653 Genomes and Genomics: 3 hours.**

(Prerequisites:BCH 4113/6113 or BCH 4713/6713 or BCH 8643 or consent of instructor) Overview of genome structure and evolution with emphasis on genomics, the use of molecular biology, robotics, and advanced computational methods to efficiently study genomes. (Same as BCH 8653)

**PSS 8655 Field Applications of Weed Science Principles II: 5 hours.**

(Prerequisite: PSS 8645 or consent of instructor). Three hours lecture. Four hours laboratory. Field weed identification; herbicide symptomology; problem solving in turf, field corn, rice, sorghum and pastures; application equipment calibration

**PSS 8701 Current Topics in Weed Science: 1 hour.**

(Prerequisites: Graduate standing, PSS 4813/6813 or consent of instructor). Lecture, discussion and readings in selected areas of current interest in weed science. Maximum total credits in graduate program allowed, 4 hours-M.S.; 6 hours-Ph.D

**PSS 8711 Current Topics in Weed Science: 1 hour.**

(Prerequisite: Graduate standing). Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8721 Current Topics in Weed Science: 1 hour.**

(Prerequisites: Graduate standing, PSS 4813/6813 or consent of instructor). Lecture, discussion and readings in selected areas of current interest in weed science. Maximum total credits in graduate program allowed, 4 hours-M.S.; 6 hours-Ph.D

**PSS 8724 Herbicide Physiology and Biochemistry: 4 hours.**

(Prerequisites: PSS 4813/6813, BIO 4214/6214 and CH 4513/6513 or consent of instructor). Three hours lecture. Three hours laboratory. Herbicide, plant growth regulator and allelochemic chemistry, mode of action, and effects on plants and plant constituents: fate/ persistence of herbicides in the environment

**PSS 8731 Current Topics in Weed Science: 1 hour.**

(Prerequisite: Graduate standing). Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8741 Current Topics in Weed Science: 1 hour.**

(Prerequisite: Graduate standing). Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8751 Current Topics in Weed Science: 1 hour.**

(Prerequisite: Graduate standing). Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8761 Current Topics in Weed Science: 1 hour.**

(Prerequisite: Graduate standing). Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8771 Current Topics in Weed Science: 1 hour.**

(Prerequisite: Graduate standing). Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8811 Graduate Seminar: 1 hour.**

(Prerequisites: Graduate Standing). One hour lecture. Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8821 Graduate Seminar: 1 hour.**

(Prerequisites: Graduate Standing). One hour lecture. Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8831 Graduate Seminar: 1 hour.**

(Prerequisites: Graduate Standing). One hour lecture. Review of literature on assigned topics; preparation of formal papers and presentation of them at staff seminars

**PSS 8990 Special Topics in Plant and Soil Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two not covered in existing courses. (Courses limited to two offerings under one title within two academic years). offerings under one title within two academic years)

**PSS 9000 Research in Plant and Soil Sciences: 1-13 hours.**

Hours and credits to be arranged. Hours and credits to be arranged

## Psychology Courses

**PSY 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**PSY 1013 General Psychology: 3 hours.**

Three hours lecture. The study of human behavior, heredity and growth; motivation: feeling and emotion; frustration; conflict; learning; language; thinking, attention; sensation; perception; intelligence; aptitudes; social influences

**PSY 1021 Careers in Psychology: 1 hour.**

(Prerequisite:PSY 1013). One hour lecture. Introduction to professions and career opportunities in the field of psychology by University faculty and practicing professionals

**PSY 2990 Special Topics in Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PSY 3003 Environmental Psychology: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Study of the social and physical environmental factors and their effects on behavior. Theory, research, and application will be examined

**PSY 3023 Applied Psychology: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Principles, techniques, and results of psychology applied to a wide range of problems in daily life and work

**PSY 3073 Psychology of Interpersonal Relations: 3 hours.**

(Prerequisite: PSY 1013 and Junior standing.) Three hours lecture. Examination of psychological principles, theories and research which apply to various types of human interaction

**PSY 3104 Introductory Psychological Statistics: 4 hours.**

(Prerequisite: PSY 1013, MA 1313). Three hours lecture. Two hours laboratory. An introduction to the techniques and practices in statistical analyses used in psychological experimentation and evaluation along with practical experience in statistical software packages

**PSY 3203 Psychology of Gender Differences: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Survey of the biological, physiological, and sociocultural factors which influence the psychological differentiation of the genders

**PSY 3213 Psychology of Abnormal Behavior: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Behavioral patterns and causes of deviant behavior from childhood through later maturity. Etiology and symptomatology are emphasized

**PSY 3314 Experimental Psychology: 4 hours.**

(Prerequisite: PSY 3103). Two hours lecture. Four hours laboratory. Introduction to the methods and techniques of research and design. Practical experience in conducting experiments, analyzing data, and writing scientific reports

**PSY 3343 Psychology of Learning: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Survey of a variety of learning situations. Consideration of the variables and conditions which influence the learning process

**PSY 3353 Motivation: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Study of the role of motivation in behavior theory; biological and psychological bases; historical and contemporary views

**PSY 3363 Behavioral Modification: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Intensive examination of the principles and procedures used to modify the behavior of humans in contemporary situations

**PSY 3413 Human Sexual Behavior: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Varieties of sexual behavior. Research methods and findings; typical behaviors; homosexuality; sexual disorders; sexual assault and sexual victims; treatments; pornography and prostitution; sexual risk perception

**PSY 3503 Health Psychology: 3 hours.**

(Prerequisites: PSY 1013 or PSY 1093). Three hours lecture. Overview of research on psychophysiological disorders and related interventions. Emphasis is placed on chronic physical disorders and their relationship to psychological functioning

**PSY 3623 Social Psychology: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Human behavior as a product of social interaction; social perception; social norms and roles; group processes, interrelationship of personality, culture, and group

**PSY 3713 Cognitive Psychology: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Introduction to the basic areas of cognitive psychology, including perception, attention, memory, reasoning, and language

**PSY 3803 Introduction to Developmental Psychology: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. A survey and evaluation of current theory and research concerning development from infancy to young adulthood. Cognitive, social, and emotional development is emphasized

**PSY 4000 Directed Individual Study in Psychology: 1-6 hours.**

Hours and credits to be arranged

**PSY 4203 Theories of Personality: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Current theories of personality. Structure, development, dynamics, acculturation processes. Methods, techniques, and research in personality assessment

**PSY 4223 Drug Use and Abuse: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Study of basic principles of drug use and abuse. Includes an introduction to psychopharmacology and basic treatment strategies

**PSY 4233 Culture and Psychology: 3 hours.**

(Prerequisite: PSY 1013 or graduate standing). Three hours lecture. Course covers contemporary theories and research in how culture influences behavior and mental processes including: dimensions on which cultures vary, cultural universals and culture-specific aspects of development, identity, personality, cognition, emotions, language and communication, social behavior, health, and psychopathology

**PSY 4323 History of Psychology: 3 hours.**

(Prerequisite: PSY 1013 and junior standing). Three hours lecture. A discussion of people, events, and theoretical and empirical contributions relevant to development of psychology

**PSY 4333 Introduction to Clinical Psychology: 3 hours.**

(Prerequisites: PSY 3213 and PSY 3314 or consent of instructor). Three hours lecture. Survey of assessment techniques, intervention procedures, professional issues of contemporary clinical psychology. Emphasis placed on the Boulder (scientist-practitioner) model

**PSY 4343 Clinical Child Psychology: 3 hours.**

(Prerequisites: PSY 3213; PSY 4313 or PSY 3803). Three hours lecture. Overview of childhood disorders and related interventions

**PSY 4353 Psychology and the Law: 3 hours.**

(Prerequisite PSY 1013 and Junior Standing). Three hours lecture. Examination of the roles of psychologists in the legal system; application of psychological theory and research to issues in the legal system

**PSY 4364 Advanced Forensic Psychology Lab: 4 hours.**

(Prerequisite: PSY 3314 and consent of Instructor). Ten hours research laboratory per week (hours to be arranged). Course provides students with direct experience planning, conducting, analyzing, and presenting research in the forensic psychology area. May be repeated for credit

**PSY 4373 Forensic Psychology: 3 hours.**

(Prerequisite: PSY 1013 and junior standing) Three hours lecture. Examines topics related to the application of clinical psychology to legal matters

**PSY 4403 Biological Psychology: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Nervous, endocrine, and immune systems of the body as they affect behavior and adjustment. Emphasis upon the role of the central and peripheral nervous systems

**PSY 4413 Cognitive Neuroscience: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Introduction to cognitive neuroscience including how the function of neural systems inform our understanding of perception, attention, working memory, memory storage, and higher-order thought

**PSY 4423 Sensation and Perception: 3 hours.**

(Prerequisite: PSY 1013 ). Three hours lecture. Survey of basic sensory mechanisms and perceptual phenomena. Sensory mechanisms reviewed will include vision, audition, olfaction, gustation, and touch with emphasis on vision and audition

**PSY 4473 Phonetics: 3 hours.**

(Prerequisites: Either EN 4403/6403, AN 4403/6403, or Instructor Consent). Three hours lecture. This course focuses on the physical and linguistic aspects of speech sounds, including how they are produced, transcribed, measured, and perceived. (Same as EN 4473/6473)

**PSY 4523 Industrial Psychology: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Applications of psychological principles and methods to industry emphasizing employee selection, placement, merit rating, training, human relations, and measurement and improvement of employee morale

**PSY 4624 Advanced Social Psychology Research Lab: 4 hours.**

(Prerequisite: PSY 3314 and PSY 3623 and consent of instructor) Research hours to be arranged. Course provides students with direct experience planning , conducting, analyzing and presenting research in the social psychology area

**PSY 4643 Social Cognition: 3 hours.**

(Prerequisite: PSY 3623 or consent of instructor). Three hours lecture. Examination of how people perceive, categorize and reason about other people and themselves

**PSY 4653 Cognitive Science: 3 hours.**

(Prerequisite: PSY 3713 or CSE 4633 or PHI 4142 or AN 4623). Three hour lecture. The nature of human cognition from an interdisciplinary perspective, primarily utilizing a computational model, including insights from philosophy, psychology, linguistics, artificial intelligence, anthropology, and neuroscience. (Same as CSE 4653/6653)

**PSY 4710 International and National Explorative Travel Program in Educational Psychology/Psychology: 1-3 hours.**

One to three hours lecture. Experiential learning through travel abroad or domestically within the United States focusing on specialized areas of study in Educational Psychology and/or Psychology. May be repeated two times. (Same as EPY 4710/6710)

**PSY 4713 Language and Thought: 3 hours.**

(Prerequisite: PSY 1013 and PSY 3713, or consent of instructor). Three hours lecture. Review of current research and theories. Symbolic process, concept formation, problem solving and language development

**PSY 4726 Internship in Psychology I: 6 hours.**

(Prerequisite: Consent of instructor). A minimum of twenty hours per week of professional experience in a human service or other field setting. One hour of seminar and group supervision

**PSY 4733 Memory: 3 hours.**

(Prerequisite: PSY 1013 and PSY 3713). Introduction to theoretical and practical aspects of memory. Discussion of laboratory memory, computer models of memory, memory self-concepts, everyday memory, and clinical memory problems

**PSY 4743 Psychology of Human-Computer Interaction: 3 hours.**

(Prerequisites: PSY 3713 or CS 4663/6663 or IE 4113/6113 or consent of the instructor). Two hours lecture. Two hours laboratory. Exploration of psychological factors that interact with computer interface usability. Interface design techniques and usability evaluation methods are emphasized. (Same as CS 4673/6673 and IE 4123/6123)

**PSY 4753 Applied Cognitive Psychology: 3 hours.**

(Prerequisite: PSY 3713 or IE 4113 or consent of instructor ). Three hours lecture. Human perceptual, cognitive, and motor capabilities and limitations are described with particular emphasis on the implications of developing effective, user-friendly man-machine systems

**PSY 4813 Positive Psychology: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. The scientific study of how human beings prosper in the face of adversity; become satisfied and content with their past; find happiness in the present; and become optimistic about the future

**PSY 4903 Seminar in Psychology: 3 hours.**

(Prerequisite: PSY 1013). In-depth examination of particular topics of current interest to faculty and students. Critical evaluation of current research

**PSY 4983 Psychology of Aging: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. A description and analysis of the development and changes occurring in individuals from early adulthood through late life

**PSY 4990 Special Topics in Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PSY 6223 Drug Use and Abuse: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Study of basic principles of drug use and abuse. Includes an introduction to psychopharmacology and basic treatment strategies

**PSY 6233 Culture and Psychology: 3 hours.**

(Prerequisite: PSY 1013 or graduate standing). Three hours lecture. Course covers contemporary theories and research in how culture influences behavior and mental processes including: dimensions on which cultures vary, cultural universals and culture-specific aspects of development, identity, personality, cognition, emotions, language and communication, social behavior, health, and psychopathology

**PSY 6323 History of Psychology: 3 hours.**

(Prerequisite: PSY 1013 and junior standing). Three hours lecture. A discussion of people, events, and theoretical and empirical contributions relevant to development of psychology

**PSY 6353 Psychology and the Law: 3 hours.**

(Prerequisite PSY 1013 and Junior Standing). Three hours lecture. Examination of the roles of psychologists in the legal system; application of psychological theory and research to issues in the legal system

**PSY 6373 Forensic Psychology: 3 hours.**

(Prerequisite: PSY 1013 and junior standing) Three hours lecture. Examines topics related to the application of clinical psychology to legal matters

**PSY 6403 Biological Psychology: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Nervous, endocrine, and immune systems of the body as they affect behavior and adjustment. Emphasis upon the role of the central and peripheral nervous systems

**PSY 6413 Cognitive Neuroscience: 3 hours.**

(Prerequisite: PSY 1013 or consent of instructor). Three hours lecture. Introduction to cognitive neuroscience including how the function of neural systems inform our understanding of perception, attention, working memory, memory storage, and higher-order thought

**PSY 6423 Sensation and Perception: 3 hours.**

(Prerequisite: PSY 1013 ). Three hours lecture. Survey of basic sensory mechanisms and perceptual phenomena. Sensory mechanisms reviewed will include vision, audition, olfaction, gustation, and touch with emphasis on vision and audition

**PSY 6473 Phonetics: 3 hours.**

(Prerequisites: Either EN 4403/6403, AN 4403/6403, or Instructor Consent). Three hours lecture. This course focuses on the physical and linguistic aspects of speech sounds, including how they are produced, transcribed, measured, and perceived. (Same as EN 4473/6473)

**PSY 6523 Industrial Psychology: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. Applications of psychological principles and methods to industry emphasizing employee selection, placement, merit rating, training, human relations, and measurement and improvement of employee morale

**PSY 6643 Social Cognition: 3 hours.**

(Prerequisite: PSY 3623 or consent of instructor). Three hours lecture. Examination of how people perceive, categorize and reason about other people and themselves

**PSY 6653 Cognitive Science: 3 hours.**

(Prerequisite: PSY 3713 or CSE 4633 or PHI 4142 or AN 4623). Three hour lecture. The nature of human cognition from an interdisciplinary perspective, primarily utilizing a computational model, including insights from philosophy, psychology, linguistics, artificial intelligence, anthropology, and neuroscience. (Same as CSE 4653/6653)

**PSY 6710 International and National Explorative Travel Program in Educational Psychology/Psychology: 1-3 hours.**

One to three hours lecture. Experiential learning through travel abroad or domestically within the United States focusing on specialized areas of study in Educational Psychology and/or Psychology. May be repeated two times. (Same as EPY 4710/6710)

**PSY 6713 Language and Thought: 3 hours.**

(Prerequisite: PSY 1013 and PSY 3713, or consent of instructor). Three hours lecture. Review of current research and theories. Symbolic process, concept formation, problem solving and language development

**PSY 6733 Memory: 3 hours.**

(Prerequisite: PSY 1013 and PSY 3713). Introduction to theoretical and practical aspects of memory. Discussion of laboratory memory, computer models of memory, memory self-concepts, everyday memory, and clinical memory problems

**PSY 6743 Psychology of Human-Computer Interaction: 3 hours.**

(Prerequisites: PSY 3713 or CS 4663/6663 or IE 4113/6113 or consent of the instructor). Two hours lecture. Two hours laboratory. Exploration of psychological factors that interact with computer interface usability. Interface design techniques and usability evaluation methods are emphasized. (Same as CS 4673/6673 and IE 4123/6123)

**PSY 6753 Applied Cognitive Psychology: 3 hours.**

(Prerequisite: PSY 3713 or IE 4113 or consent of instructor ).Three hours lecture. Human perceptual, cognitive, and motor capabilities and limitations are described with particular emphasis on the implications of developing effective, user-friendly man-machine systems

**PSY 6983 Psychology of Aging: 3 hours.**

(Prerequisite: PSY 1013). Three hours lecture. A description and analysis of the development and changes occurring in individuals from early adulthood through late life

**PSY 6990 Special Topics in Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PSY 7000 Directed Individual Study in Psychology: 1-6 hours.**

Hours and credits to be arranged

**PSY 8011 Reading Seminar in Clinical Psychological Science: 1 hour.**

Course serves as advanced one credit reading seminar on topics relevant to clinical psychological science directed primarily towards advanced graduate students in clinical psychology. Course is intended to provide a brief overview of contemporary, historical, or emerging topics relevant to science and practice of psychology. (Repeatable six times)

**PSY 8013 Reading Seminar in Clinical Psychological Science II: 3 hours.**

(Prerequisite: Permission of Instructor). Three hours seminar. An advanced 3-credit reading seminar on topics relevant to clinical psychological science directed primarily towards advanced graduate students in clinical psychology

**PSY 8111 Scientist-Practitioner Applications: 1 hour.**

(Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists

**PSY 8121 Scientist-Practitioner Applications: 1 hour.**

(Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists

**PSY 8131 Scientist-Practitioner Applications: 1 hour.**

(Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists

**PSY 8141 Scientist-Practitioner Applications: 1 hour.**

(Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists

**PSY 8151 Scientist-Practitioner Applications: 1 hour.**

(Prerequisite: Consent of instructor). Two hours laboratory. A minimum of two hours per week in supervised service delivery and research activities of clinical psychologists

**PSY 8214 Quantitative Methods in Psychology II: 4 hours.**

(Prerequisite: PSY 3103). Three hours lecture. Three hours laboratory. Advanced experimental design and methods with emphasis on analysis of variance

**PSY 8233 Ethical and Professional Issues in Clinical Psychology: 3 hours.**

(Prerequisite: Consent of instructor). Theory and application of current ethical, legal, and professional standards in clinical psychology across settings

**PSY 8313 Developmental Psychology: 3 hours.**

(Prerequisite: PSY 3803). Three hours lecture. Human growth processes and related developmental tasks in areas such as creative ability, language, social competency, and bodily fitness

**PSY 8323 Psychopathology: 3 hours.**

(Prerequisites: PSY 3213). In-depth coverage of contemporary systems of psychiatric diagnosis, and biological, psychological, and social theories of the etiology of psychological disorders

**PSY 8333 Systems of Psychotherapy: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. A comparative introduction to the theories, techniques, and outcomes of major approaches to psychotherapy

**PSY 8354 Intelligence Testing: 4 hours.**

(Prerequisite: Consent of Instructor). Three hours lecture. Two hours laboratory. Administration, scoring, and interpretation of the standard psychometric instruments in evaluating individual intellectual functioning

**PSY 8364 Personality Appraisal: 4 hours.**

(Prerequisite: PSY 8323). Three hours lecture. Two hours laboratory. Administration, scoring and interpretations using standard self-report and projective methods of individual personality assessment. Current research is also explored

**PSY 8373 Child Psychopathology and Treatment of Childhood Disorders: 3 hours.**

(Prerequisite: PSY 3213). Three hours lecture. Research on the nature, assessment and treatment of disorders of childhood/adolescence

**PSY 8383 Behavior Therapy: 3 hours.**

(Prerequisite: Consent of instructor). Three hours lecture. A survey of contemporary literature relating to the theory, techniques, and outcomes of behavior therapy. Emphases placed on systematic desensitization and operant conditioning techniques

**PSY 8450 Applied Clinical Practicum: 1-4 hours.**

(Prerequisite: Director of Clinical Training consent). A minimum of fifty hours per semester (per credit hour registered) in supervised service delivery and research activities of clinical psychologists. May be repeated for credit

**PSY 8460 Applied External Clinical Practicum: 1-4 hours.**

(Prerequisite: Director of Clinical Training consent). A minimum of fifty hours per semester (per credit hour registered) in supervised service delivery and research activities at an external site under the supervision of a licensed psychologist. May be repeated for credit

**PSY 8513 Psychological Research: 3 hours.**

(Prerequisite: PSY 3313). Three hours lecture. Practicum in the techniques of planning and execution of various areas of psychological research

**PSY 8533 Introduction to Clinical Practicum in Psychology: 3 hours.**

(Prerequisite: Consent of instructor). One hour lecture. Two hours practicum. Intensive introduction to clinical interviewing, as well as the research literature in clinical psychology

**PSY 8573 Psychopharmacology: 3 hours.**

(Prerequisites: PSY 4403 and PSY 8323). Three hours lecture. Overview of research on pharmacological and combined treatments for psychological disorders. Emphasis is placed on psychological disorders in adulthood

**PSY 8613 Advanced Social Psychology: 3 hours.**

(Prerequisite: PSY 3623). Three hours lecture. Examination of research and theories of attraction and liking. Emphasis upon reinforcement theory, gain-loss theory, and dissonance theory

**PSY 8623 Advanced Social and Developmental Psychology: 3 hours.**

(Prerequisite: PSY 3623 & PSY 3803 or instructor consent). Three hours lecture. Examination of research, theories, methodology, and core tenets of developmental and social psychology and their interaction. Emphasis upon lifespan development, age-graded influences and cohort differences, social cognition, emotion, attitudes, culture, and intergroup relations

**PSY 8643 Psycholinguistics: 3 hours.**

(Prerequisite: PSY 8713 or consent of instructor). Three hours seminar. Seminar covering the field of psycholinguistics, which is the discipline that explores the psychological processes underlying the acquisition, production, and comprehension of language

**PSY 8653 Applied Cognitive Reading Seminar: 3 hours.**

(Prerequisite: consent of instructor for all non-psychology or non-cognitive science graduate students). Seminar exploring current topics in Applied Psychology and Cognitive Science

**PSY 8663 Individual Differences in Cognition: 3 hours.**

(Prerequisite: PSY 8713 or consent of instructor). Three hours seminar. Seminar examining individual differences in cognition from a historical, theoretical, and research perspective. From both the psychometric and empirical traditions, numerous topics will be explored, including intelligence theory, reasoning, spatial ability, and working memory

**PSY 8673 Models of Cognition Seminar: 3 hours.**

(Prerequisite: PSY 8713 or consent of instructor). Three hours lecture. Seminar exploring current topics in the modeling of cognitive processes

**PSY 8683 Cognitive Science Research Skills: 3 hours.**

(Prerequisite: consent of instructor for all students not in the applied cognitive science concentration). Three hours lecture. An introduction to computational and writing research skills necessary for a research career in cognitive science

**PSY 8693 Advanced Cognitive Science Research Skills: 3 hours.**

(Prerequisite: PSY 8683 or consent of instructor). Three hours lecture. A survey of advanced computational and writing research skills necessary for a research career in cognitive science

**PSY 8703 Advanced Cognitive Science: 3 hours.**

(Prerequisite: PSY 8683 or consent of instructor). Three hours lecture. The science of intelligent systems as understood through the contributions of psychology, linguistics, artificial intelligence, anthropology, neuroscience, and philosophy

**PSY 8713 Issues and Methods in Cognitive Psychology: 3 hours.**

(Prerequisite: Graduate Standing). Three hours lecture. Exploration of theoretical issues and research methods in current Cognitive Psychology

**PSY 8723 Cognitive Models of Skills: 3 hours.**

(Prerequisite: Graduate Standing). Three hours lecture. Introduction to cognitive modeling, with a focus on computational models of skill acquisition and expert skill (Same as CS 8613)

**PSY 8731 Applied Cognitive Science Research Seminar: 1 hour.**

One hour seminar. Presentations of research in applied cognitive science



**PSY 8743 Perception and Attention: 3 hours.**

(Prerequisite: PSY 8713 or consent of instructor). Three hours lecture. An advanced survey of classic and current research on human perception and attention including the underlying neural and psychological mechanisms

**PSY 8753 Advanced Human Memory: 3 hours.**

(Prerequisite: PSY 8713 or consent of instructor). Three hours lecture. An advanced survey of classic and current research on human memory from the biology of memory to the neuroscience of memory

**PSY 8763 Expertise and Cognitive Skill Acquisition: 3 hours.**

(Prerequisite: PSY 8713 or consent of instructor). Three hours lecture. An advanced survey of the scientific literature on human acquisition of cognitive skills and expertise with a focus on theories that address human performance

**PSY 8773 Computational Cognitive Neuroscience: 3 hours.**

(Prerequisite: PSY 8713 or consent of instructor). Three hours lecture. An introduction to computational modeling of cognition with a focus on computational models that demonstrate the use of distributed representations in the brain

**PSY 8783 Cognitive Science Professional Skills: 3 hours.**

(Prerequisite: consent of instructor for all students not in the applied cognitive science concentration). Three hours lecture. An introduction to the professional skills necessary for a successful research career in cognitive science

**PSY 8793 Advanced Cognitive Science Professional Skills: 3 hours.**

(Prerequisite: PSY 8783 or consent of instructor). Three hours lecture. Advanced professional skills necessary for a research career in cognitive science including initiating a lab, establishing collaborations, and securing a research position

**PSY 8803 Advanced Quantitative Methods for Industrial Organizational and General Psychology: 3 hours.**

(Prerequisites: PSY 8214). Three hours lecture. Study of advanced analytic and multivariate quantitative methods applied to contemporary problems and research in industrial/organizational and general psychology

**PSY 8813 Psychological Sciences Teaching Practicum: 3 hours.**

Three hours lecture. This course will cover general teaching theory and course management, though the primary focus will be specific to teaching psychology. This includes psychological demonstrations and labs, specialized readings from the journal *Teaching of Psychology*, and the development of a teaching portfolio

**PSY 8823 Diversity in Applied Psychology: 3 hours.**

(Prerequisites: PSY 8533 & PSY 8513, or permission of instructor). Three hours lecture. A theoretical and skill development course for clinicians and researchers to strengthen multicultural/cross cultural/diversity awareness, knowledge, and skills in the competencies necessary for working with ethnically and culturally diverse clients and research participants

**PSY 8990 Special Topics in Psychology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PSY 9000 Research in Psychology: 1-13 hours.**

Hours and credits to be arranged

**PSY 9730 Doctoral Internship in Clinical Psychology: 1-3 hours.**

(Prerequisite: Consent of the instructor). Supervised predoctoral internship for psychologists involving the theory and practice of evaluations, consultation, interventions, research, and related activities within a professional setting. May be repeated for credit 2 times

## Petroleum Engineering Courses

**PTE 1101 Introduction to Petroleum Engineering: 1 hour.**

Overview and history of the petroleum industry and petroleum engineering; nature of oil and gas reservoirs, exploration and drilling, formation evaluation, well completions and production, surface facilities, reservoir mechanics, improved oil recovery; impact of ethical, societal, environmental considerations; career development resources including professional society participation

**PTE 2990 Special Topics in Petroleum Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PTE 3331 Professional Development Seminar: 1 hour.**

(Prerequisites: Petroleum Engineering majors with Junior Standing). One hour lecture. A seminar focused on professional development and topics of interest/concern to the petroleum engineering professional. (Same as CHE 3331)

**PTE 3902 Petroleum Engineering Lab 1: 2 hours.**

(Prerequisite: Credit or registration in PTE 3953). Four hours laboratory. Laboratory experiments, statistical analysis, and report writing in rock properties and drilling and completion

**PTE 3903 Petroleum Reservoir Fluid Properties: 3 hours.**

(Prerequisite: PH 2213, and credit or registration in MA 2733 and CHE 3113). Three hours lecture. A study of the physical and chemical properties of petroleum reservoir fluids for use in the study, evaluation, and management of oil and gas reservoirs

**PTE 3912 Petroleum Engineering Lab 2: 2 hours.**

(Prerequisite: Credit or registration in PTE 3903). Four hours laboratory. Laboratory measurement of the properties of reservoir fluids at different pressures and temperatures

**PTE 3953 Petroleum Reservoir Rock Properties and Fluid Flow: 3 hours.**

(Prerequisites: PH 2213, and credit or registration in MA 2733). Three hours lecture. Study of the physical properties of petroleum reservoir rocks as they relate to the flow of oil, water, and gas through porous and permeable rocks

**PTE 3963 Drilling: 3 hours.**

(Prerequisite: CHE 3203, C or better in PTE 3953, and credit or registration in EM 3213 and MA 2743). Three hours lecture. A study of the equipment used and method of drilling and completion of oil and gas wells

**PTE 3973 Petroleum Production Operations: 3 hours.**

(Prerequisites: MA 2743 and CHE 3203 and C or better in PTE 3953 and PTE 3903). Three hours lecture. A study of tools and equipment used in oil and gas production, surveillance of well performance, and prediction of future performance

**PTE 4000 Directed Individual Study in Petroleum Engineering: 1-6 hours.**

Hours and credit to be arranged

**PTE 4800 Undergraduate Research: 1-13 hours.**

The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience, while allowing the university to track undergraduate participation in these activities. Hours, credits and deliverables to be arranged

**PTE 4903 Petroleum Reservoir Engineering 1: 3 hours.**

(Prerequisite: CHE 2114 and CHE 3113 and C or better in PTE 3903 and PTE 3953 and credit or registration in MA 3253). Three hours lecture. Estimating oil and gas originally in place, volumes to be recovered, data requirements, and scheduling of recoverable volumes for economic analysis

**PTE 4913 Petroleum Reservoir Engineering 2: 3 hours.**

(Prerequisite: MA 3253 and C or better in PTE 4903). Three hours lecture. Compressible, incompressible, and multiphase fluid flow; natural gas petroleum reservoirs; wellbore performance

**PTE 4923 Completion Design: 3 hours.**

(Prerequisite: EM 3213, PTE 3963, and PTE 3973). Three hours lecture. A study of the use of acids and the fracturing technology for recovery of petroleum products from petroleum reservoirs

**PTE 4953 Formation Evaluation: 3 hours.**

(Prerequisite: C or better in PTE 3953). Three hours lecture. Study of electrical porosity and radiation logs and wireline formation tests that are used to compute fluid saturation, fluid type, and rock properties

**PTE 4963 Oil Recovery Methods: 3 hours.**

(Prerequisite: PTE 4903). Three hours lecture. Study of the use of water flooding, carbon dioxide, and other methods used to enhance oil recovery

**PTE 4983 Petroleum Engineering Capstone Design: 3 hours.**

(Prerequisites: PTE 3963, PTE 3973, PTE 4913, PTE 4953; Co-requisites: PTE 4923, PTE 4963, PTE 4993). Three hours lecture. Design projects characteristic of petroleum engineering including consideration of cost, design optimization, codes and standards, and professional ethics. Course includes reporting through oral and written communications

**PTE 4990 Special Topics in Petroleum Engineering: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**PTE 4993 Petroleum Economic Analysis: 3 hours.**

(Prerequisites: IE 3913, IE 4613 and credit or registration in PTE 4903). Three hours lecture. Study of unconventional oil and gas production, production forecasting, operating and capital costs associated with oil, discounted cash flows, risk analysis, and reserve classification

## Readings in Education Courses

**RDG 2990 Special Topics in Reading Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**RDG 3113 Early Literacy Instruction I: 3 hours.**

(Prerequisite: Admission to Teacher Education. Co-requisite: RDG 3123 and EDE 3123). Three hours lecture. Field experience. Foundational knowledge of the English linguistic system. Methods/materials for teaching systematically the oral/ written language connection, concepts about print, phonological/orthographic awareness, phonics principles

**RDG 3123 Early Literacy Instruction II: 3 hours.**

(Prerequisite: Admission to Teacher Education. Co-requisite: RDG 3113 and EDE 3123). Three hours lecture. Field experience. Concepts, materials, and teaching strategies for oral language development and early systematic reading and writing instruction specific to vocabulary, fluency and comprehension

**RDG 3223 Diagnosing and Assessing Reading Difficulties in Children: 3 hours.**

(Prerequisites: EDE 2523,3123, RDG 3113,3123; Co-Requisites: EDE 3523, RDG 3413). Three hours lecture. The selection, utilization, and interpretation of instruments used to diagnose and assess reading difficulties in children, K-6, and outline remedial procedures

**RDG 3413 Middle Level Literacy: 3 hours.**

(Prerequisite: RDG 3113,3123, EDE 2523, 3123; Corequisite: RDG 3223, EDE 3523). Three hours lecture. Field experience. Literacy teaching and learning for upper elementary and middle school. Emphasis on literacy instruction, strategy instruction, and assessment at the middle grades

**RDG 3423 Middle Level Literacy II: 3 hours.**

(Prerequisite: RDG 3113 and RDG 3123; Corequisite: RDG 3413 and EDE 3223). Three hours lecture. Field experience. Instructional strategies and materials for teaching literacy in the elementary and middle school. Focus on writing, comprehension and teaching diverse students

**RDG 3513 Developing Reading Strategies in the Secondary School Content Areas: 3 hours.**

(Pre-requisite: Admission to Teacher Education) Basic theories and techniques needed by content area teachers for teaching reading to secondary school students

**RDG 4000 Directed Individual Study in Reading Education: 1-6 hours.**

Hours and credits to be arranged

**RDG 4133 Integrating Literacy Instruction in the Content Areas: 3 hours.**

(Pre-Requisites: EDE 3123, EDE 3223, EDE 3523, RDG 3113, RDG 3123, RDG 3413, RDG 3223; Co-Requisites: EDE 4113, EDE 4123, EDE 4143, & EDE 4153). Two hours lecture. Two hours lab. Field based. Selection, organization, teaching, and assessment for integrating literacy across content areas - K-6; general effectiveness

**RDG 4990 Special Topics in Reading Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**RDG 6113 Middle Level Literacy Development and Instruction: 3 hours.**

(Prerequisite: RDG 3113). Three hours lecture. Advanced Theory and applied methods, techniques, and analyses of literacy strategies for the middle years learner (ages 9-14)

**RDG 6123 Elementary Literacy Instruction I: 3 hours.**

Three hours lecture. Foundational knowledge of the English linguistic system applied to explicit, systematic instruction for print concepts, phonological awareness, word recognition, and spelling from early childhood through upper elementary grades

**RDG 6133 Integrating Reading and Writing Across the Curriculum: 3 hours.**

Three hours lecture. Theory, research, and methods for teaching elementary students to use literacy as a tool for learning in the content areas

**RDG 6143 Elementary Literacy Instruction II: 3 hours.**

Three hours lecture. Concepts, materials, and teaching strategies for oral language development, academic vocabulary, reading fluency, reading comprehension, and writing

**RDG 6223 Diagnosing and Assessing Reading Difficulties in Children: 3 hours.**

(Pre-Requisites: RDG 6113 and RDG 6123). Three hours lecture. Diagnosing and assessing reading difficulties in grades K-6 through identification, usage, and interpretation of various instruments and remedial procedures

**RDG 6990 Special Topics in Reading Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**RDG 7000 Directed Individual Study in Reading Education: 1-6 hours.**

Hours and credits to be arranged

**RDG 8133 Middle Level Content Area Literacy Instruction: 3 hours.**

Three hours lecture. Theory, research, and methods for teaching middle level students to use literacy as a tool for learning in the content areas

**RDG 8153 Psychology of Reading: 3 hours.**

Three hours lecture. Analysis of reading patterns; conditions favorable and unfavorable to progress in reading skill; the readiness concept; problems of levels. Prevention and correction of reading handicaps

**RDG 8453 Research in Reading: 3 hours.**

Three hours lecture. The function of research in the development of reading programs; contribution of research to reading

**RDG 8593 Issues and Innovations in Reading: 3 hours.**

Issues and innovations related to trends, methodology, and materials in the teaching of reading

**RDG 8653 Teaching Reading in the Secondary Schools: 3 hours.**

Three hours lecture. A study of reading problems of middle and upper level students. A study of technology, materials, and methods used in developmental reading for secondary students

**RDG 8713 Teaching Struggling Readers and Writers: 3 hours.**

Two hours lecture. Two hours laboratory. Practicum experience teaching struggling elementary school literacy learners; identifying literacy learning strengths and difficulties; teaching to improve achievement

**RDG 8723 Seminar in Literacy Education: 3 hours.**

Three hours lecture. Evaluation of the theories and models of literacy and pivotal moments in literacy. Evaluation of research in literacy education and acquisition of academic literacies that are frequently used to share scholarly literacy information

**RDG 8990 Special Topics in Reading Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**RDG 9000 Research in Elementary Education: 1-13 hours.**

Hours and credits to be arranged

**Real Estate Finance Courses****REF 2990 Special Topics in Real Estate Finance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**REF 3333 Principles of Real Estate: 3 hours.**

(Prerequisite: Junior standing). Three hours lecture. A survey of the activities involved in the acquisition, transfer, operation, and management of real estate

**REF 3433 Real Property Evaluation: 3 hours.**

(Prerequisite: REF 3333). Three hours lecture. Methods, evaluation procedures, and techniques of appraising commercial and residential real property under various value-influencing conditions; case problems for appraisal

**REF 4000 Directed Individual Study in Real Estate Finance: 1-6 hours.**

Hours and credits to be arranged with Instructor

**REF 4153 Real Estate Investments: 3 hours.**

(Prerequisite: FIN 3123). Three hours lecture. Direct investment in real estate. Sources of funds; risk analysis; typical policies and procedures of investing and financing investment real estate

**REF 4253 Mortgage Financing: 3 hours.**

(Prerequisites: FIN 3123). Three hours lecture. Indirect investment in real estate. Institutional sources of funds, mortgage market mechanisms, mortgage derivatives, and mortgage underwriting

**REF 4333 Real Estate Law: 3 hours.**

(Prerequisite: BL 2413 or consent of instructor). Three hours lecture. The legal principles applicable to real estate, including types of ownership and interests, mortgages, restrictions, and regulations. (Same as BL 4333/6333)

**REF 4990 Special Topics in Real Estate Finance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**REF 6333 Real Estate Law: 3 hours.**

(Prerequisite: BL 2413 or consent of instructor). Three hours lecture. The legal principles applicable to real estate, including types of ownership and interests, mortgages, restrictions, and regulations. (Same as BL 4333/6333)

**REF 6990 Special Topics in Real Estate Finance: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**REF 7000 Directed Individual Study in Real Estate Finance: 1-6 hours.**

Hours and credits to be arranged with Instructor

**Religion Courses****REL 1003 Introductory Hebrew: 3 hours.**

Three hours lecture. An introduction to the Biblical Hebrew language, covering basic grammatical structures and building vocabulary

**REL 1103 Introduction to Religion: 3 hours.**

Three hours lecture. Religion seen as a human research for meaning in life or response to the holy. Studied through basic structures and modes of expression

**REL 1213 Introduction to the Old Testament: 3 hours.**

Three hours lecture. A survey of Old Testament literature with attention to theology and the cultural setting

**REL 1223 Introduction to the New Testament: 3 hours.**

Three hours lecture. A survey of New Testament literature with attention to theology and the cultural setting

**REL 2233 Introduction to Old Testament Archaeology: 3 hours.**

Three hours lecture. A survey of the Old Testament in the light of archaeological research. The approach is chronological-historical-archaeological. (Same as MEC 2233)

**REL 2990 Special Topics in Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**REL 3033 Theory and Method in the Study of Religion: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. An introduction to the central theories and methods in the study of religion, with an emphasis on critical analysis

**REL 3103 Religion & U.S. Culture: 3 hours.**

Three hours lecture. An exploration of multiple religious traditions and their effect on American culture

**REL 3113 Religions and Environment: 3 hours.**

Three hours lecture. A creative exploration of the intersection of religious and environmental values across cultures and places

**REL 3123 Philosophy of Religion: 3 hours.**

(Prerequisite: Three hours of philosophy). Three hours lecture. A critical inquiry into the rational justification of central theistic beliefs, with emphasis on the traditional philosophical arguments for and against the existence of God. (Same as PHI 3123)

**REL 3133 Seminar in Religion: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours seminar. The study of selected religious texts and essays, and practice in religious composition

**REL 3143 African American Religious Experience: 3 hours.**

Three hours lecture. The theology and oral tradition of Black Religion with specific emphasis on the Black Church in southeastern USA

**REL 3203 The Prophets of Ancient Israel: 3 hours.**

Three hours lecture, seminar. A study of the message and function of prophetic traditions within ancient Israel and in contemporary ancient Near Eastern societies

**REL 3213 World Religions I: 3 hours.**

Three hours lecture. A history and comparative study of beliefs and the cultural impact of the great religions of the East

**REL 3223 World Religions II: 3 hours.**

Three hours lecture. A history and comparative study of beliefs and the cultural impact of the great religions of the West

**REL 3323 Hindu Mythology: 3 hours.**

A survey of Hindu literature portraying the activities of gods, goddesses and sages, and their relevance to Hindu theology and religious practice

**REL 3453 Hinduism & Buddhism: 3 hours.**

Three hours lecture. Introduction to and critical-historical survey of significant texts, doctrines, themes, and thinkers in the main indigenous Indian religion traditions

**REL 3463 Systematic Theology: 3 hours.**

Three hour lecture. A systematic study of the theology of the Biblical Old and New Testament

**REL 3473 Islam: 3 hours.**

A survey of Islamic history, beliefs and practices, law, theology, philosophy and mysticism. (Same as MEC 3473)

**REL 3483 Judeo-Christian Ethics: 3 hours.**

A study of the foundation and contemporary application of Judeo-Christian ethics

**REL 3493 Pauline Theology: 3 hours.**

Three hours lecture. A study of the Apostle Paul's New Testament writings with the view to elucidating his theological perspective on a range of doctrinal and practical subjects

**REL 3540 Archaeological Travel and Participation Program: 1-6 hours.**

Participation in excavations in the Near East and related lecture program. (Same as AN 3540)

**REL 3553 Near Eastern Archaeology: 3 hours.**

Three hours lecture. Introduction to the contributions made by archaeological research to ancient Near Eastern history and prehistory, with special emphasis on the Syro-Palestinian area. (Same as AN 3553 and MEC 3553)

**REL 3593 Johannine Theology: 3 hours.**

Three hours lecture. A study of the Apostle John's New Testament writings with the view to elucidating his theological perspective on a range of doctrinal and practical subjects

**REL 3703 The Western Church: Beginning to Reformation: 3 hours.**

(Prerequisites: Completion of any 1000-level course in history or philosophy and religion). Three hours lecture. An examination of the institutions, doctrines, and spirituality of the Western Church and their impact on Western European politics, society, and culture. (Same as HI 3703)

**REL 4000 Directed Individual Study in Religion: 1-6 hours.**

Hours and credits to be arranged

**REL 4143 Classical Mythology: 3 hours.**

Three hours lecture. Myths and legends of Greece and Rome and their use in literature and the arts through the ages. (Same as FL 4143)

**REL 4403 The Ancient Near East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as HI 4403/6403 and MEC 4403/6403. )

**REL 4990 Special Topics in Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**REL 6403 The Ancient Near East: 3 hours.**

(Prerequisite: Completion of any 1000-level history course). Three hours lecture. A study of the origins and development of civilizations in Mesopotamia, Egypt, and Syria-Palestine from prehistoric times to the end of the Persian period. (Same as HI 4403/6403 and MEC 4403/6403.)

**REL 6990 Special Topics in Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**REL 7000 Directed Individual Study in Religion: 1-6 hours.**

Hours and credits to be arranged

**REL 8990 Special Topics in Religion: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Sustainable Bioproducts Courses

**SBP 1001 Undergraduate Seminar: 1 hour.**

One hour lecture. Intended for incoming and continuing students to receive guidance on university, college, and department procedures, services, and facilities

**SBP 1103 Introduction to Sustainable Bioproducts: 3 hours.**

Three hours lecture. A survey of biomass structure, anatomy, properties and chemistry, and the processes used to manufacture sustainable biomass-based products

**SBP 2012 Introduction to Bioproduct Industries: 2 hours.**

One hour lecture and one hour Laboratory/Field Trip. This course will be taught as a site tour of bioproduct industries focusing on conversion and use of biomass resources in the Southeastern United States. (During the two weeks of intersession term, class will meet six hours per day.)

**SBP 2123 Materials and Processing of Structural Bioproducts: 3 hours.**

(Prerequisite: SBP 2012 or consent of instructor). Three hours lecture. Introduction to the processing of sustainable biomaterials including generation of by-products; operations management involved in bioproducts manufacturing specifically structural composites; product evaluation methods with internationally acknowledged standards

**SBP 2990 Special Topic in Sustainable Bioproducts: 1-9 hours.**

(1-9). Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SBP 3113 Physics of Biomaterials: 3 hours.**

(Prerequisites: SBP 1103 or consent of instructor) Two hours lecture & three hours lab. Focuses on understanding important physical properties of biomaterials and the relationship of these properties to manufacturing processes and product uses. Other topics will include dimensional stability, thermal & electrical properties & moisture movement

**SBP 3123 Biomass to Bioproducts: 3 hours.**

(Prerequisite: CH 1213 or consent of instructor). Three hours lecture. Introduces students to chemical/physical properties of forestry & agro crops; provides overview of a large span of bioproducts derived from plant materials, their economic and environmental benefits; describes major components of biomass chemistry, comparing woody/non-woody plants

**SBP 3133 Mechanics of Biomaterials: 3 hours.**

Three hours lecture and two hours lab. The course is designed for students to gain fundamental knowledge about mechanics of biomaterials, including tensile, compression, shear, and bending properties. It also introduces the effects of load duration and environmental factors on these mechanical properties

**SBP 4000 Directed Individual Study: 6 hours.**

(1-6). Hours and credits to be arranged

**SBP 4013 Wood Anatomy: 3 hours.**

(Prerequisite: SBP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. Anatomy of commercial timber species; elements of botanical microtechnique, fundamentals of microscopy, and fundamental properties: gross and minute structural characteristics of wood leading to identification

**SBP 4023 Lignocellulosic Biomass Chemistry: 3 hours.**

(Prerequisites: CH 1213 or CH 1223 or consent of instructor). Three hours lecture. This course will give a brief introduction to the major chemical composition of wood. The distribution of wood components (cellulose, hemicelluloses, lignin, and extractives), their structures, isolation, processes & applications will be covered

**SBP 4113 Adhesives and Biocomposites: 3 hours.**

(Prerequisite: SBP 1103, SBP 2012, SBP 2123, SBP 3113, SBP 3123 or consent of instructor). Two hours lecture. Three hours laboratory. Introduces students to theories and practices of wood composite products, wood adhesives and manufacturing, and evaluation of various wood composite products

**SBP 4123 Lumber Manufacturing: 3 hours.**

Two hours lecture. Three hours laboratory. Raw materials, production methods and product specifications for sawn wood products. Machinery and plant layout. Operation, control, and analysis of lumber manufacturing systems; markets

**SBP 4133 Biorefinery Processes: 3 hours.**

(Prerequisites: SBP 4023 or consent of instructor). Three hours lecture. This course will cover biomass resources; biorefinery concepts; and the different chemical and thermochemical processes used to convert biomass into chemicals and fuels

**SBP 4153 Biomass Products Manufacturing: 3 hours.**

(Prerequisite: BIO 1134/BIO 1144/consent of instructor) Three hours lecture. Introduction to concepts of conversion of biomass covering subjects: physical properties of wood, product manufacturing, wood chemistry, composites/adhesives, and the use of organisms or isolated enzymes used to break down cellulose, lignin and hemicelluloses

**SBP 4213 Deterioration and Preservation of Biomaterials: 3 hours.**

(Prerequisite: SBP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. Develop an understanding on biological and non-biological abiotic agents that cause wood deterioration; biological control methods; design considerations; wood preservatives and preservation systems; treatability of wood; treatment mechanics; preservative effectiveness; commodity standards

**SBP 4243 Sustainable Bioproducts: 3 hours.**

(Prerequisite: CH 1213 or consent of instructor). Three hours lecture. Introduction to concepts of conversion of biomass covering topics including physical properties of wood, product manufacturing practices, wood chemistry, composites/adhesives. Also, the use of organisms or isolated enzymes used to break down cellulose, lignin and hemicelluloses

**SBP 4253 Quantitative Methods in Sustainable Bioproducts: 3 hours.**

(Prerequisites: SBP 2123 or consent of instructor). Three hours lecture. The study and practical application of quantitative techniques commonly used in industry to evaluate the net worth of raw materials, and the cause and effect on process variables

**SBP 4263 Furniture Design and Fabrication: 3 hours.**

(Prerequisite: SBP 3133 or consent of instructor). Two hours lecture. Three hours laboratory. Basic theories and principles of furniture strength design and manufacturing; mechanical properties of environmentally preferable materials; green and sustainable design of certifications; testing standards. Machines used, function and operation. Advanced manufacturing and quality control methods

**SBP 4313 Bioproducts and the Environment: 3 hours.**

(Prerequisites: SBP 2012, 2123, and 3123 or consent of instructor). Three hours lecture. An introduction to environmental topics and laws, environmental impact, and control technologies associated with emissions from diverse sustainable bioproducts industries, including global and national issues

**SBP 4353 Forest Products Marketing: 3 hours.**

Three hour lecture. Marketing and business practices used by forest products companies trading in lumber, engineered wood products and furniture

**SBP 4443 Capstone Sustainable Bioproducts: 3 hours.**

Prerequisites: (Senior standing or consent of instructor). Integration of knowledge from courses and current issues involving team projects that explore manufacturing problems or product design, emphasizing LCA, social /global perspectives, and problem solving

**SBP 4450 Undergraduate Research in Sustainable Bioproducts: 1-6 hours.**

(Prerequisite: Senior Standing and consent of instructor). 1-6 Variable hour laboratory. This course is introduced to introduce senior level students to the concepts of independent and original research. (Course limited to two offerings)

**SBP 4800 Undergraduate Research in Sustainable Bioproducts: 1-13 hours.**

Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience

**SBP 4990 Special Topic in Sustainable Bioproducts: 1-9 hours.**

(1-9). Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SBP 6013 Wood Anatomy: 3 hours.**

(Prerequisite: SBP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. Anatomy of commercial timber species; elements of botanical microtechnique, fundamentals of microscopy, and fundamental properties: gross and minute structural characteristics of wood leading to identification

**SBP 6023 Lignocellulosic Biomass Chemistry: 3 hours.**

(Prerequisites: CH 1213 or CH 1223 or consent of instructor). Three hours lecture. This course will give a brief introduction to the major chemical composition of wood. The distribution of wood components (cellulose, hemicelluloses, lignin, and extractives), their structures, isolation, processes & applications will be covered

**SBP 6113 Adhesives and Composites: 3 hours.**

(Prerequisite: SBP 1103, SBP 2012, SBP 2123, SBP 3113, SBP 3123 or consent of instructor). Two hours lecture. Three hours laboratory. Introduces students to theories and practices of wood composite products, wood adhesives and manufacturing, and evaluation of various wood composite products

**SBP 6123 Lumber Manufacturing: 3 hours.**

Two hours lecture. Three hours laboratory. Raw materials, production methods and product specifications for sawn wood products. Machinery and plant layout. Operation, control, and analysis of lumber manufacturing systems; markets

**SBP 6133 Biorefinery Processes: 3 hours.**

(Prerequisites: SBP 4023 or consent of instructor). Three hours lecture. This course will cover biomass resources; biorefinery concepts; and the different chemical and thermochemical processes used to convert biomass into chemicals and fuels

**SBP 6153 Biomass Products Manufacturing: 3 hours.**

(Prerequisite: BIO 1134/BIO 1144/consent of instructor) Three hours lecture. Introduction to concepts of conversion of biomass covering subjects: physical properties of wood, product manufacturing, wood chemistry, composites/adhesives, and the use of organisms or isolated enzymes used to break down cellulose, lignin and hemicelluloses

**SBP 6213 Deterioration and Preservation of Biomaterials: 3 hours.**

(Prerequisite: SBP 1103 or consent of instructor). Two hours lecture. Three hours laboratory. Develop an understanding on biological and non-biological abiotic agents that cause wood deterioration; biological control methods; design considerations; wood preservatives and preservation systems; treatability of wood; treatment mechanics; preservative effectiveness; commodity standards

**SBP 6243 Sustainable Bioproducts: 3 hours.**

(Prerequisite: CH 1213 or consent of instructor). Three hours lecture. Introduction to concepts of conversion of biomass covering topics including physical properties of wood, product manufacturing practices, wood chemistry, composites/adhesives. Also, the use of organisms or isolated enzymes used to break down cellulose, lignin and hemicelluloses

**SBP 6253 Quantitative Methods in Sustainable Bioproducts: 3 hours.**

(Prerequisites: SBP 2123 or consent of instructor). Three hours lecture. The study and practical application of quantitative techniques commonly used in industry to evaluate the net worth of raw materials, and the cause and effect on process variables

**SBP 6263 Furniture Design and Fabrication: 3 hours.**

(Prerequisite: SBP 3133 or consent of instructor). Two hours lecture. Three hours laboratory. Basic theories and principles of furniture strength design and manufacturing; mechanical properties of environmentally preferable materials; green and sustainable design of certifications; testing standards. Machines used, function and operation. Advanced manufacturing and quality control methods

**SBP 6313 Bioproducts and the Environment: 3 hours.**

(Prerequisites: SBP 2012, 2123, and 3123 or consent of instructor). Three hours lecture. An introduction to environmental topics and laws, environmental impact, and control technologies associated with emissions from diverse sustainable bioproducts industries, including global and national issues

**SBP 6353 Forest Products Marketing: 3 hours.**

Three hour lecture. Marketing and business practices used by forest products companies trading in lumber, engineered wood products and furniture

**SBP 6990 Special Topics in Sustainable Bioproducts: 1-9 hours.**

(1-9). Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SBP 7000 Directed Individual Study in Sustainable Bioproducts: 1-6 hours.**

Hours and credits to be arranged

**SBP 8013 Advanced Wood Science & Technology: 3 hours.**

Three hours lecture. Introduction to properties of wood (anatomy, chemical, physical, mechanical) and manufacturing process of sustainable biomass-based products will lead to an understanding of the basic concepts and current topics related to sustainability, natural products, and technology development in forest products and wood science

**SBP 8023 Professional Practices in Wood Products Industry: 3 hours.**

(Consent of instructor). Three hours lecture. Discussion and practice of workplace skills related to performance of duties in the wood products industry sector

**SBP 8111 Research Seminar I: 1 hour.**

One hour seminar. Review of current research work in wood science and technology; the scientific method; philosophy of research

**SBP 8121 Research Seminar II: 1 hour.**

One hour seminar. Review of current research work in wood science and technology; the scientific method; philosophy of research. This course focuses on oral communication skills

**SBP 8123 Advanced Lignocellulosic Biomass Chemistry: 3 hours.**

(Prerequisite: SBP 4023/6023 or consent of the instructor). Three hours lecture. Chemistry of major lignocellulosic biomass components. Chemical modification and swelling of cellulose, chemical and enzymatic degradation of polysaccharides and lignin, wood preservation, wood plasticization and wood conversion to value added chemicals

**SBP 8133 Environmental Issues in Sustainable Bioproducts: 3 hours.**

(Consent of instructor). Three hours lecture. Environmental impact, regulations, management of wood treatment by-products and chemical wastes; biodegradation microorganisms; bioremediation; biomass residues; soil, sediment, water, air contaminations; current clean-up technologies

**SBP 8143 Standards for Testing Sustainable Materials: 3 hours.**

(Prerequisites: Consent of instructor). Three hours lecture. This course will evaluate how solid and composite sustainable materials are used in product development. Students will gain an understanding of the importance of material properties and how they impact end-use product performance

**SBP 8203 Graduate Capstone: 3 hours.**

(Prerequisite: SBP 8023 or consent of instructor). Seminar. Integration and application of knowledge from previous coursework in sustainable bioproducts for the creation of an original project proposal. Emphasis on professional oral and written expression, logical organization of thought, literature review, data presentation, budget writing, and peer evaluation

**SBP 8213 Advanced Wood Mechanics: 3 hours.**

(Prerequisite: Consent of Instructor). Two hours lecture. Three hours laboratory. Study of elastic and viscoelastic behavior of wood composites; fracture in wood; stress analysis; current topics in wood mechanics

**SBP 8990 Special Topic In Sustainable Bioproducts: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SBP 9000 Research in Sustainable Bioproducts: 1-13 hours.**

Hours and credits to be arranged

## Social Justice Courses

**SJ 1303 Introduction to Social Justice Studies: 3 hours.**

Three hours lecture. Introductory examination of contemporary justice realities to understand the dynamics of oppression; linking competing theories of social justice to hierarchies grounded in race, ethnicity, nationality, gender, class, and sexuality, and to particular strategies for social transformation and change. (Same as GS 1303 and SO 1303)

**SJ 4993 Social Justice Studies Capstone: 3 hours.**

(Prerequisite: SJ/GS/SO 1303). Three hours lecture. Explores the goals and strategies of social justice movements through an analysis of theory, empirical research, and historical context. Students will also learn and apply several approaches through a written research project or applied social justice project

## Student Ldshp Comm Engagement Courses

**SLCE 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**SLCE 1002 Day One Leadership Community: 2 hours.**

One hour lecture, two hours leadership laboratory. Introduction to and engagement of core principles of leadership through instruction, mentor discussion, and community service-learning projects

**SLCE 3412 Montgomery Leadership Program, Semester I: 2 hours.**

Montgomery Leadership Program, Semester One (2). (Prerequisite: Admission into Montgomery Leadership Program). Two hours seminar. One hour field experience. Engagement of core principles of leadership through instruction, mentor component, and community service-learning projects for MSU students selected to participate in Montgomery Leadership Program

**SLCE 3812 Montgomery Leadership Program, Semester II: 2 hours.**

Montgomery Leadership Program, Semester Two (2). (Prerequisite: Admission in the Montgomery Leadership Program and completion of SLCE 3412). Two hours lecture. One hour field experience. Advanced principles of leadership through instruction, mentor component, community service-learning projects, and peer class facilitation through Day One Leadership Community

**SLCE 4000 Directed Individual Study in Student Leadership: 1-6 hours.**

Hours and credits to be arranged

**SLCE 4153 Mentoring for At-Risk Youths: 3 hours.**

(Prerequisite: JR/SR Standing and Permission of Instructor). One hour lecture, four hours practical experience. This course trains students to mentor at-risk juveniles to facilitate their successful transition to productive community roles. (Same as CRM 4153 and SO 4153)

**SLCE 4812 Montgomery Leadership Program, Semester III: 2 hours.**

Montgomery Leadership Program, Semester Three (2). (Prerequisite: Admission in the Montgomery Leadership Program and completion of SLCE 3812). Two hours lecture. One hour field experience. Advanced principles of leadership through instruction, mentor component, community service-learning projects, and peer class facilitation through Day One Leadership Community

**SLCE 4990 Special Topics in Student Leadership and Community Engagement Program: 1-9 hours.**

Special Topic in Leadership (1-6). Credit and title to be arranged. This course is used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to offerings under one title within two academic years.)

## Sociology Courses

**SO 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**SO 1003 Introduction to Sociology: 3 hours.**

Three hours lecture. The nature and development of culture; social aspects of personality; analysis of community life, population trends, social classes, institutions, processes, and organization; culture change

**SO 1103 Contemporary Social Problems: 3 hours.**

Three hours lecture. Analysis of problems related to: life cycle, sexuality, family disruptions, health, illness, death and dying, addictions, crime, minorities, population, environment, resources and poverty. Suggested solutions

**SO 1173 Introduction to Gender Studies: 3 hours.**

Three hours lecture. An introduction to theoretical concepts in Gender Studies. This course will examine the influence of the women's movement on the academic development of Gender Studies. (Same as AN 1173 and GS 1173)

**SO 1203 Sociology of Families: 3 hours.**

Three hours lecture. A study of how social inequality, diversity, and social change shape families and family life, with emphasis on contemporary American families

**SO 1303 Introduction to Social Justice Studies: 3 hours.**

Three hours lecture. Introductory examination of contemporary justice realities to understand the dynamics of oppression; linking competing theories of social justice to hierarchies grounded in race, ethnicity, nationality, gender, class, and sexuality, and to particular strategies for social transformation and change. (Same as GS 1303 and SJ 1303)

**SO 2203 Introduction to Race and Ethnicity: 3 hours.**

(Prerequisite: Three hours in an introductory social science). Three hours lecture. Introduction to the sociological examination of race and ethnicity; overview of theories and methods; exploration of how race and ethnicity impact individual and group identity and social institutions and structures. (Same as AAS 2203 and AN 2203)

**SO 2990 Special Topics in Sociology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SO 3003 Social Inequality: 3 hours.**

(Prerequisite: SO 1003). Three hours lecture. Investigates the nature, causes, and consequences of social inequality and stratification, the relationships among class, race, and gender inequalities in cross-cultural perspective

**SO 3013 Society and the Individual: 3 hours.**

(Prerequisite: SO 1003). Three hours lecture. A study of interrelationship between society and the individual. Emphasis is placed on the structural aspects of socialization and the social construction of reality

**SO 3053 Organizations in Modern Society: 3 hours.**

(Prerequisite: SO 1003). Three hours lecture. Examines the nature and types of formal organizations, their impact on, and outcomes for, individuals and society; organizational structures, processes, environments and effectiveness

**SO 3103 Social Theory I: 3 hours.**

(Prerequisite: Nine hours of sociology, CS 1013 or equivalent and junior standing). Lecture course. Study of European and American sociological theory intellectual antecedents as well as social-cultural context

**SO 3123 Policing and Society: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003). Three hours lecture. An overview of police functions and responsibilities at all levels from a sociological perspective. Focuses on symbiotic roles of policing and other societal organizations

**SO 3213 Introduction to Social Research: 3 hours.**

(Prerequisite: Nine hours of sociology and/or criminology courses). Three hour lecture. A survey of the general field of research and methodology, including an examination of the various types of research designs, techniques, and procedures

**SO 3303 Rural Sociology: 3 hours.**

(Prerequisite: Six hours of social science or consent of instructor). Three hours lecture. A study of rural society, its organizations, agencies, institutions, population trends and composition, patterns of settlement, social processes, and changing character

**SO 3313 Deviant Behavior: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Introduction to the social and cultural factors related to human deviance. Special attention is given to the study of various theories of deviance

**SO 3323 Contemporary Woman: 3 hours.**

Three hours lecture. Introductory course for the Concentration in Women's Studies. Major topics are women's heritage, identity, culture, and vulnerabilities

**SO 3333 Society and Religion: 3 hours.**

Three hours lecture. Religion as an institution. Examines the social origins of religion and its functions, both positive and negative, in social movements, social control and politics. (Same as Rel 3333)

**SO 3343 Gender, Crime, and Justice: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Gender differences in criminal behavior, victimization, and criminal justice processing, emphasizing the unique experiences of women in all of these areas. (Same as CRM 3343 and GS 3343)



**SO 3353 Race, Crime, & Justice: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Racial differences in criminal behavior, victimization, and criminal processing, emphasizing the unique experiences of racial minorities in these areas (Same as CRM 3353 and AAS 3353)

**SO 3503 Violence in the United States: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. In-depth study of violence, including types of violence, categories of offenders and victims, its social consequences, and potential solutions. (Same as CRM 3503)

**SO 3603 Criminological Theory: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Survey of the major sociological and criminological explanations of crime. (Same as CRM 3603)

**SO 3703 Racial and Ethnic Inequality: 3 hours.**

(Prerequisite: SO/AN/AAS 2203, or permission of the instructor.) Three hours seminar. Review of the current literature on racial and ethnic inequality in the United States. This class focuses on contemporary topics on racial and ethnic inequality. Course can be taken three times for credit

**SO 4000 Directed Individual Study in Sociology: 1-6 hours.**

Hours and credits to be arranged

**SO 4113 Social Organization and Change: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. An intensive examination of recent research focusing on the prediction, explanation and control of social change with attention to trends in developing countries

**SO 4123 Poverty, Analysis: People, Organization and Program: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. Historical perspectives; problems of definition and measurement; socio-cultural situations contributing to deprivation; delineation of poverty groups; social consequences of poverty; poverty programs and organizations

**SO 4133 Feminist Theories: 3 hours.**

(Prerequisite: SO/GS/AN 1173 or consent of instructor). Three hours lecture. Analysis and application of classical and contemporary feminist theories, exploring the intersections of gender with race, ethnicity, socioeconomic status, sexuality, culture, social institutions, and various social contexts. (Same as EN 4133/6133: Feminist Theories and GS 4133/6133: Feminist Theories)

**SO 4143 Gender, Race, and Social Movements: 3 hours.**

Three hours lecture. This course examines theories and research on social movements, gender and race in the United States. (Same as GS 4143/6143 and AAS 4143/6143)

**SO 4153 Mentoring for At-Risk Youths: 3 hours.**

(Prerequisite: JR/SR Standing and Permission of Instructor). One hour lecture, four hours practical experience. This course trains students to mentor at-risk juveniles to facilitate their successful transition to productive community roles. (Same as CRM 4153 and SLCE 4153)

**SO 4173 Environment and Society: 3 hours.**

(Prerequisite: AN 1103 or SO 1003 or consent of instructor). Three hours lecture. A study of the interaction between human society and the environment including the social aspects of environmental problems. (Same as AN 4173/6173)

**SO 4203 The Family in the United States: 3 hours.**

(Prerequisite: SO 1203). Three hours lecture. A study of the American family as an institution, with emphasis on change and interrelationships with other institutions

**SO 4223 Comparative Family Systems: 3 hours.**

(Prerequisite: SO 1203). Three hours lecture. A systematic study of family patterns in selected cultures of the world

**SO 4233 Juvenile Delinquency: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Critical study of problems, causes, ways of handling; attitudes, roles and relationships of persons involved, including youthful offenders, social workers, court and law enforcement officials. (Same as CRM 4233/6233)

**SO 4243 Drugs, Crime and Control: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Focus on the social factors which give rise to illicit drug use, patterns and trends in drug crime and strategies to control drug crime. (Same as CRM 4243/6243)

**SO 4253 White Collar and Computer Crime: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An overview of the sociological and criminological literature in the area defined as White Collar Crime and Computer Crime. (Same as CRM 4253/6253)

**SO 4273 Sociology of Education: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. A sociological analysis of education as a social institution, its role in the larger society, the organization of schooling, and the social dynamics of classrooms

**SO 4303 Urban Sociology: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. A sociological and ecological study of urban areas emphasizing the processes of population, environment, technology and social organization

**SO 4323 Victimology: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. A critical study of victims, examining theories of victimization, the social construction of victimization, the relationship between victims and offenders, and victim prevention efforts. (Same as CRM 4323/6323)

**SO 4333 Sociology of Sport: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. Examination of sport as a social institution in American society, its contributions to society and to participants

**SO 4343 Media, Crime and Justice: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003). An overview of the role media plays in shaping criminal justice policy, as well as public knowledge about crime and the criminal justice system

**SO 4403 Sociology of Gender and Sexuality: 3 hours.**

(Prerequisites: SO 1003, or approval of instructor). Three hours lecture. Changing character of gender and sexuality and significance in various social institutions. Intersection between gender, sexuality and other forms of inequality. (Same as GS 4413/6413 Sociology of Gender and Sexuality)

**SO 4413 Aging and Retirement in American Society: 3 hours.**

(Prerequisites: Nine hours of sociology or related disciplines). Three hours lecture. A study of the social and economic aspects of aging and of the social problems in American society related to the aged and retired groups

**SO 4423 Health and Society: 3 hours.**

(Prerequisite: Three hours in sociology or consent of instructor). Three hours lecture. Examines health and the health care structure of the United States as it relates to our culture, norms and social institutions

**SO 4433 Sociology of Death and Dying: 3 hours.**

(Prerequisite: 3 hours in Sociology). Three hours lecture. Examines death as a social event, the social nature of death, relationships at the end of life, and social structural impacts on death and dying

**SO 4453 Power, War, and Peace: 3 hours.**

Three hours lecture. Introduction to three major topics in sociology/criminology: power, war and peace. Minor topics include: power and organizations, the relationship between power and war, terrorism, torture, ethnic conflict, reconstruction and reconciliation, and social movements (same as CRM 4453)

**SO 4503 Gender and Work: 3 hours.**

Three hours lectures. This course presents research and theories on the role of gender in shaping labor market opportunities, experiences, and rewards; remedies for enduring problems, including those applied in the United States' workplace and abroad; and new research directions. (Same as GS 4503/6503 Gender and Work)

**SO 4513 Correctional Systems: 3 hours.**

(Prerequisites: CRM 1003 and CRM 3603 or consent of instructor). Three hours lecture. Survey of contemporary correctional systems and practices. Emphasis placed on the formal organization and functioning of penal systems (same as CRM 4513/6513)

**SO 4523 Law and Society: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Explores the social origins of law and how law can both maintain social order and bring about social change (Same as CRM 4523/6523)

**SO 4543 Gender and Food: 3 hours.**

Three hours seminar. A service-learning course exploring the intersections between social inequalities, food and culture, with an emphasis on communities. Overview of historic and contemporary approaches to food system and inequalities. (Same as GS 4543: Gender and Food and SW 4543: Gender and Food)

**SO 4623 Social Work with the Aged: 3 hours.**

Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as AN 4623/6623 and EN 4623/6623)

**SO 4633 Language and Society: 3 hours.**

Three hours lecture. Examination of relationship between language and society. How language varies regionally and socially; people's use of and attitudes toward different ways of speaking. (Same as AN 4633/6633 and EN 4633/6633)

**SO 4643 Race and the Media: 3 hours.**

(Prerequisites: SO/AAS 2203, or CO 1403, or AAS 1063 or equivalent). Three hours lecture. Examines the relationship between society, race, and the media. An examination of the social influence of how racial representations are produced, distributed, and consumed. (Same as AAS 4643 and CO 4643)

**SO 4703 Population Problems and Processes: 3 hours.**

(Prerequisite: SO 1003 or consent of the instructor). Three hours lecture. World population growth and its consequences, population change and national policies, family planning, recent U.S. population trends, basic demographic measurement, the demographic report

**SO 4713 Social Work Senior Seminar: 3 hours.**

Review and evaluation of censuses, vital statistics, and demographic surveys and their uses, with emphasis on measurement, methods, and analytical techniques

**SO 4733 Community: Organization and Relationships: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. Rural-urban approach to community; types of local societies and community organizations; perspectives in community study

**SO 4804 Social Research Practice: 4 hours.**

(Prerequisite: SO 3213 or equivalent). Three hours lecture, two hours lab. Practical application of sociological analysis and methods conducting social research projects. Includes selection of methods and analytical techniques, data management, computer-based analysis, and report writing

**SO 4990 Special Topics in Sociology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SO 6113 Social Organization and Change: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. An intensive examination of recent research focusing on the prediction, explanation and control of social change with attention to trends in developing countries

**SO 6123 Poverty Analysis: People, Organization and Programs: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. Historical perspectives; problems of definition and measurement; socio-cultural situations contributing to deprivation; delineation of poverty groups; social consequences of poverty; poverty programs and organizations

**SO 6133 Feminist Theories: 3 hours.**

(Prerequisite: SO/GS/AN 1173 or consent of instructor). Three hours lecture. Analysis and application of classical and contemporary feminist theories, exploring the intersections of gender with race, ethnicity, socioeconomic status, sexuality, culture, social institutions, and various social contexts. (Same as EN 4133/6133: Feminist Theories and GS 4133/6133: Feminist Theories)

**SO 6143 Gender, Race, and Social Movements: 3 hours.**

Three hours lecture. This course examines theories and research on social movements, gender and race in the United States. (Same as GS 4143/6143 and AAS 4143/6143)

**SO 6173 Environment and Society: 3 hours.**

(Prerequisite: AN 1103 or SO 1003 or consent of instructor). Three hours lecture. A study of the interaction between human society and the environment including the social aspects of environmental problems. (Same as AN 4173/6173)

**SO 6223 Comparative Family Systems: 3 hours.**

(Prerequisite: SO 1203). Three hours lecture. A systematic study of family patterns in selected cultures of the world

**SO 6233 Juvenile Delinquency: 3 hours.**

(Prerequisites: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. Critical study of problems, causes, ways of handling; attitudes, roles and relationships of persons involved, including youthful offenders, social workers, court and law enforcement officials. (Same as CRM 4233/6233)

**SO 6243 Drugs, Crime and Control: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Focus on the social factors which give rise to illicit drug use, patterns and trends in drug crime and strategies to control drug crime. (Same as CRM 4243/6243)

**SO 6253 White Collar and Computer Crime: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. An overview of the sociological and criminological literature in the area defined as White Collar Crime and Computer Crime. (Same as CRM 4253/6253)

**SO 6273 Sociology of Education: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. A sociological analysis of education as a social institution, its role in the larger society, the organization of schooling, and the social dynamics of classrooms

**SO 6303 Urban Sociology: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. A sociological and ecological study of urban areas emphasizing the processes of population, environment, technology and social organization

**SO 6323 Victimology: 3 hours.**

(Prerequisite: CRM 1003 and SO 1003 or consent of instructor). Three hours lecture. A critical study of victims, examining theories of victimization, the social construction of victimization, the relationship between victims and offenders, and victim prevention efforts. (Same as CRM 4323/6323)

**SO 6333 Sociology of Sport: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. Examination of sport as a social institution in American society, its contributions to society and to participants

**SO 6403 Sociology of Gender and Sexuality: 3 hours.**

(Prerequisites: SO 1003, or approval of instructor). Three hours lecture. Changing character of gender and sexuality and significance in various social institutions. Intersection between gender, sexuality and other forms of inequality. (Same as GS 4413/6413 Sociology of Gender and Sexuality)

**SO 6413 Aging and Retirement in American Society: 3 hours.**

(Prerequisites: Nine hours of sociology or related disciplines). Three hours lecture. A study of the social and economic aspects of aging and of the social problems in American society related to the aged and retired groups

**SO 6423 Health and Society: 3 hours.**

(Prerequisite: Three hours in sociology or consent of instructor). Three hours lecture. Examines health and the health care structure of the United States as it relates to our culture, norms and social institutions

**SO 6433 Sociology of Death and Dying: 3 hours.**

(Prerequisite: 3 hours in Sociology). Three hours lecture. Examines death as a social event, the social nature of death, relationships at the end of life, and social structural impacts on death and dying

**SO 6503 Gender and Work: 3 hours.**

Three hours lectures. This course presents research and theories on the role of gender in shaping labor market opportunities, experiences, and rewards; remedies for enduring problems, including those applied in the United States' workplace and abroad; and new research directions. (Same as GS 4503/6503 Gender and Work)

**SO 6513 Correctional Systems: 3 hours.**

(Prerequisites: CRM 1003 and CRM 3603 or consent of instructor). Three hours lecture. Survey of contemporary correctional systems and practices. Emphasis placed on the formal organization and functioning of penal systems (same as CRM 4513/6513)

**SO 6523 Law and Society: 3 hours.**

(Prerequisites: SO 1003 and CRM 1003 or consent of instructor). Three hours lecture. Explores the social origins of law and how law can both maintain social order and bring about social change (Same as CRM 4523/6523)

**SO 6623 Language and Culture: 3 hours.**

Three hours lecture. Examination of language as a part of culture, a source of knowledge about other aspects of culture, and a social behavior. (Same as AN 4623/6623 and EN 4623/6623)

**SO 6633 Language and Society: 3 hours.**

Three hours lecture. Examination of relationship between language and society. How language varies regionally and socially; people's use of and attitudes toward different ways of speaking. (Same as AN 4633/6633 and EN 4633/6633)

**SO 6703 Population Problems and Processes: 3 hours.**

(Prerequisite: SO 1003 or consent of the instructor). Three hours lecture. World population growth and its consequences, population change and national policies, family planning, recent U.S. population trends, basic demographic measurement, the demographic report

**SO 6713 Methods in Population Research: 3 hours.**

Review and evaluation of censuses, vital statistics, and demographic surveys and their uses, with emphasis on measurement, methods, and analytical techniques

**SO 6733 Community: Organization and Relationships: 3 hours.**

(Prerequisites: SO 1003 and junior standing). Three hours lecture. Rural-urban approach to community; types of local societies and community organizations; perspectives in community study

**SO 6990 Special Topics in Sociology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SO 7000 Directed Individual Study in Sociology: 1-6 hours.**

Hours and credits to be arranged

**SO 8103 Graduate Theory I: 3 hours.**

Social theories and intellectual antecedents: European and American origins and development. Includes entire range of socio-cultural complex associated with 19th- and early 20th-century sociology

**SO 8113 Graduate Theory II: 3 hours.**

Focus on post-19th century theory and antecedents. Delineation of the basic postures in the discipline and relative relationships of these postures to theory development

**SO 8213 Research Design: 3 hours.**

(Prerequisite: SO 8274). Three hours lecture. Emphasis on overall design, plan, structure, and strategy. Also limitations of theory, measurement, sampling and statistical testing in research

**SO 8223 Quantitative Analysis: 3 hours.**

(Prerequisite: SO 8213 and SO 8274). Three hours lecture. Questionnaire and question construction, sampling, field procedures, overview of advanced techniques of analysis, presentation of statistical materials

**SO 8233 Qualitative Analysis: 3 hours.**

(Prerequisite: SO 8213). Three hours lecture. Qualitative approaches to understanding social behavior. Exposure to all phases of qualitative research: epistemology, design, field work, ethics, and writing research results

**SO 8243 Spatial Analysis of Social Data: 3 hours.**

(Prerequisite: SO 8284 or equivalent, or consent of instructor). Three hours lecture. Spatial theories of society; relevant digital databases; procedures for visualizing data; exploratory spatial data; local and global spatial regression models

**SO 8274 Graduate Social Statistics I: 4 hours.**

(Prerequisite: ST 2113 or equivalent). Three hours lecture. Two hours laboratory. Probability, hypothesis testing, tests of means and proportions, contingency table analysis, analysis of variance, bivariate linear regressions correlation; data analysis and interpretation using current statistical software

**SO 8284 Graduate Social Statistics II: 4 hours.**

(Prerequisite: SO 8274). Three hours lecture. Two hours laboratory. Hypothesis testing, analysis of variance, multiple linear regression and correlation, causal models, exploratory factor analysis; data analysis and interpretation using current statistical software

**SO 8293 Structural Equations Modeling with Latent Variables in Sociology: 3 hours.**

(Prerequisite: SO 8284 or equivalent). Three hours lecture. The application of structural equation modeling techniques to sociological problems containing unobserved variables, focusing on estimation and interpretation of model parameters with errors of measurement

**SO 8303 Seminar in Crime, Deviance, and Social Control: 3 hours.**

Three hours lecture. Review of the historical and current literature on crime, criminal justice, deviance, and social control in the United States

**SO 8313 Political Sociology: 3 hours.**

Three hours seminar. Study of power relations within and across societies and the relationships between social groups and politics. Special attention given to the links between stratification, power, and contentious politics

**SO 8333 Seminar in Communities, Environment, and Health: 3 hours.**

Three hours lecture. This class is a review of the historical and current literature on the sociological study of communities, the environment, and health

**SO 8343 Complex Organizations: 3 hours.**

Theory and research in organizations. Nature and types of organizations; determinants and consequences of organizational growth; organizational effectiveness; production, authority, and control systems in organizations

**SO 8353 Seminar in Social Inequalities: 3 hours.**

Three hours seminar. Review of the historical and current literature on social inequalities in the United States

**SO 8403 Seminar in Race Relations: 3 hours.**

Three hours lecture. Contributions of anthropology, sociology and psychology to the field of race relations. Critical analysis of recent studies, current racial theories and programs

**SO 8413 Seminar in Social Stratification: 3 hours.**

Three hours lecture. Critical analyses of theories and research on social class and related social structures. Explores race/gender/class stratification and policies to alter income/wealth inequality

**SO 8423 Seminar in Deviant Behavior: 3 hours.**

Examination of relation between social conditions, social problems, deviance, and deviant careers. The organization of social control activities, and the social differentiation of deviant populations

**SO 8433 Seminar in Criminology: 3 hours.**

Exploration of conceptual, methodological, and substantive problems of research in the field of criminology. The classification of criminals and criminal careers receives special emphasis

**SO 8443 Seminar in Rural Sociology: 3 hours.**

Three hours seminar. An exploration of rural sociology, with an emphasis on critical approaches to rural places, people, and communities. Overview of historic and contemporary approaches to rural sociology

**SO 8453 Masculinities: 3 hours.**

Three hours lecture. An exploration of masculinities studies, with an emphasis on contextualizing masculinities within patterns of stratification. Overview of historic and contemporary approaches to masculinities

**SO 8503 Seminar in the Family: 3 hours.**

An advanced seminar on the family institution, emphasizing theoretical and conceptual frameworks, topics of current concern to family sociology, and major literature in the area

**SO 8523 Symbolic Interaction and Social Structure: 3 hours.**

Review of classic and current sociological literature in symbolic interaction and development of self as process and product of social structure

**SO 8703 Seminar in Population: 3 hours.**

(Prerequisite: SO 4703/6703 or equivalent). Study of population dynamics; theories of optimum population; population policies and programs; zero population growth; interrelationship of population phenomena with socioeconomic developments

**SO 8900 Fields of Sociology: 1-3 hours.**

(Hours and credits to be arranged up to 3 hours.) A seminar in selected areas of sociological research and practice

**SO 8963 Exploring Issues in Gender: 3 hours.**

(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program). Three hours lecture. An intensive introduction to theories of gender structures social, economic and cultural inequalities. Designed for online Diversity Certificate Program students. (Same as GS 8963 )

**SO 8973 Gender and Work: 3 hours.**

(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program). Three hours lecture. An intensive examination of how gender impacts experiences of work from the home to the corporation. Designed for online Diversity Certificate Program Students. (Same as GS 8973 )

**SO 8983 Seminar in Race Relations: 3 hours.**

(Prerequisite: Graduate standing and enrollment in the Diversity Certificate Program). Three hours lecture. Contributions of anthropology, sociology, and psychology to race relations. Critical analysis of recent studies, current racial theories and programs. Designed for online Diversity Certificate Program students

**SO 8990 Special Topics in Sociology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SO 9000 Research in Sociology: 1-13 hours.**

Hours and credits to be arranged

## Sport Studies Courses

### **SS 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

### **SS 2003 Foundations of Sport Industry: 3 hours.**

Three hours lecture. Overview and analysis of the knowledge in sport management, including an examination of sport and sport-related organizations Acquaints student with job opportunities in the profession and discusses future trends

### **SS 2103 Sport Careers and Practicum: 3 hours.**

(Prerequisite: SS 2003). One hour lecture. Two hours practicum. In-depth investigation of skills and competencies necessary for careers in the sport industry. Requires supervised work experience of 100 hours in a sport management setting

### **SS 3103 Sport Sponsorship: 3 hours.**

Three hours lecture. The primary objective is to learn the fundamental aspects of sport sponsorship and apply knowledge to management practice. It is to understand how sport sponsorship principles and practices are combined and applied to solve sport industry problems

### **SS 3203 Sport Law: 3 hours.**

Three hours lecture. This course addresses the influence of torts, contracts, employment-related issues, and intellectual property on the sport industry

### **SS 3303 Communication Management in Sport: 3 hours.**

Three hours lecture. Functions and tasks of communication professionals in the sport business, including such fields as public relations, media relations, community relations, and promotions

### **SS 3403 Facility and Event Management in Sport: 3 hours.**

Three hours lecture. This course covers the requisite responsibilities and tasks involved in facility and event management in sport industry

### **SS 3503 Sport and Recreational Leadership: 3 hours.**

Three hours lecture. This course examines the process of leadership as it relates to leadership needs in the delivery of recreation, leisure, and sport professions

### **SS 3603 Program Planning in Sport and Recreation: 3 hours.**

(Prerequisite: SS 2003). Three hours lecture. Explore and examine the theoretical foundations and community programming skills, methods, and techniques that are necessary to deliver recreational activities within a variety of agencies and organizations

### **SS 3703 Contemporary Issues in Intercollegiate Athletics: 3 hours.**

(Prerequisite: SS 2003). Three hours lecture. A comprehensive foundation concerning contemporary issues surrounding intercollegiate athletics. Specifically, social, ethical, financial, economic, management, and governance matters in college level sport will be examined

### **SS 3903 Ancient and Medieval Sport History: 3 hours.**

Three hours lecture. The course will explore the history of sports, the history of physical education, and the history of ideas and beliefs about physical activity and human nature. The course will focus on the history of sport in ancient Greece, Rome, and medieval Europe

### **SS 4000 Directed Individual Study in Sport Studies: 1-9 hours.**

Hours and credit to be arranged

### **SS 4003 Philosophy of Sport & Physical Activity: 3 hours.**

Three hours lecture. An examination and development of philosophic reasoning skills to better understand the role that philosophy plays in our understanding and conception of physical activity and sport

### **SS 4103 Ethics in Sport Management: 3 hours.**

Three hours lecture. Ethical issues relevant to administration in the sport business industry across a range of areas, including professional sport, collegiate sport, and youth/ high school sport

### **SS 4203 Funding of Sport: 3 hours.**

Three hours lecture. Foundation of fiscal management concepts in the sport industry, including finance, economics, accounting, and general business practices

### **SS 4303 Globalization and Sport: 3 hours.**

Three hours lecture. The impact of globalization trends on the sports industry. The course explores various theories of globalization as they relate to the business of sport

### **SS 4393 Sport Studies Internship: 3 hours.**

(Prerequisite: Consent of instructor). Hours and credits to be arranged. A supervised observation and practicum experience in a sports communication setting

### **SS 4396 Sports Studies Internship: 6 hours.**

(Prerequisite: Consent of instructor). Hours and credits to be arranged. A supervised observation and practicum experience in a sports communication setting

### **SS 4403 Gender and Sport: 3 hours.**

Three hours lecture. An exploration of how ideologies and inequalities related to gender may be constructed, perpetuated, and/or challenged in and through sport. (Same as GS 4403/6403)

### **SS 4503 Sport Promotion and Sales Management: 3 hours.**

(Prerequisite: SS 3103). Three hours lecture. The focus of this course is to examine the sport sales process in sponsorship and ticketing. Role-play exercises will be used extensively to simulate the sales environment, leading to a live attempt at sales

### **SS 4803 Seminar in Sports Studies: 3 hours.**

(Prerequisite: Senior standing). Three hours lecture. In-depth investigation of current topics in sport studies with a focus on applying research to address issues in the sport industry

### **SS 4990 Special Topics in Sport Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

### **SS 6003 Philosophy of Sport & Physical Activity: 3 hours.**

Three hours lecture. An examination and development of philosophic reasoning skills to better understand the role that philosophy plays in our understanding and conception of physical activity and sport

### **SS 6303 Globalization and Sport: 3 hours.**

Three hours lecture. The impact of globalization trends on the sports industry. The course explores various theories of globalization as they relate to the business of sport

### **SS 6403 Gender and Sport: 3 hours.**

Three hours lecture. An exploration of how ideologies and inequalities related to gender may be constructed, perpetuated, and/or challenged in and through sport. (Same as GS 4403/6403)

### **SS 6503 Sport Promotion and Sales Management: 3 hours.**

(Prerequisite: SS 3103). Three hours lecture. The focus of this course is to examine the sport sales process in sponsorship and ticketing. Role-play exercises will be used extensively to simulate the sales environment, leading to a live attempt at sales

**SS 6990 Special Topics in Sport Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SS 7000 Directed Individual Study in Sport Studies: 1-9 hours.**

Hours and credit to be arranged

**SS 8123 Sport Management: 3 hours.**

Three hours lecture. Study of principles, problems, human relationships, and procedures in supervision in sports administration. Involves theories of leadership, programs, and philosophies in the sport industry

**SS 8203 Funding of Sport: 3 hours.**

Three hours lecture. Overview of fiscal management concepts in the sport and recreation industries, including finance, economics, accounting, and general business practices

**SS 8803 Sport Law: 3 hours.**

Three hours lecture. The analysis and application of the legal foundations, concepts and issues impacting the sports industry

**SS 8823 Sport Sponsorships: 3 hours.**

Three hours lecture. An examination of the uniqueness of the sport sponsorships and importance of the effective advancement and visibility of the sport brand and positioning

**SS 8833 Event and Facility Management: 3 hours.**

Three hours lecture. The principles and applications of management, design, and maintenance concepts as they apply to indoor and outdoor events and facilities

**SS 8883 Ethical Issues in Sport: 3 hours.**

Three hours lecture. Philosophical exploration in the recognition, analysis, and implementation of ethical thought and the ethical decision making process within the multivalued contexts of the sports industry

**SS 8893 History and Philosophy of Sport Seminar: 3 hours.**

Three hours seminar. An investigation of historical events, political and social climates, and personalities, as well as philosophies which have influenced sport from early civilization to the present

**SS 8990 Special Topics in Sport Studies: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

## Statistics Courses

**ST 2113 Introduction to Statistics: 3 hours.**

Prerequisite: ACT Math subscore 24 (or higher for some sections) or grade of C or better in MA 1103 or MA 1313 or MA 1213. Two hours lecture. Two hours laboratory. Introduction to descriptive statistics, random variables, probability distributions, estimation, confidence intervals, & hypothesis testing. Computer instruction for analysis. (Same as MA 2113)

**ST 2990 Special Topics in Statistics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ST 3123 Introduction to Statistical Inference: 3 hours.**

(Prerequisite: ACT math subscore 24, or grade of C or better in MA 1313 ). Two hours lecture, Two hours laboratory. Basic concepts and methods of statistics, including descriptive statistics, probability random variables, sampling distribution, estimation, hypothesis testing, introduction to analysis of variance, simple linear regression. (Same as MA 3123),

**ST 4000 Directed Individual Study in Statistics: 1-6 hours.**

Hours and credits to be arranged

**ST 4111 Seminar in Statistical Packages: 1 hour.**

One hour lecture. Introduction to the statistical computer packages available at MSU

**ST 4211 Statistical Consulting: 1 hour.**

(Prerequisite: Consent of the department). Provides students with the opportunity to participate as statistical consultants on real projects; consultants are required to attend a weekly staff meeting. (May be repeated for credit.)

**ST 4213 Nonparametric Methods: 3 hours.**

(Prerequisite: An introductory course in statistical methods). Three hours lecture. Nonparametric and distribution-free methods, including inferences for proportions, contingency table analysis, goodness of fit tests, statistical methods based on rank order, and measures of association

**ST 4243 Data Analysis I: 3 hours.**

(Prerequisite: MA 2743, Corequisite MA 3113). Three hours lecture. Data description and descriptive statistics, probability and probability descriptions, parametric one-sample and two-sample inference procedures, simple linear regression, one-way ANOVA. Use of SAS. (Same as MA 4243/6243)

**ST 4253 Data Analysis II: 3 hours.**

(Prerequisite: MA/ST 4243/6243 and MA 3113). Three hours lecture. Multiple linear regression fixed, mixed, and random effect models; block design; two-factor analysis of variance; three-factor analysis of variance; analysis of covariance. Use of SAS. (Same as MA 4253/6253)

**ST 4313 Introduction to Spatial Statistics: 3 hours.**

(Prerequisite: Grade of C or better in ST 3123, or equivalent). Two hours lecture. Two hours laboratory. Spatial data analysis; kriging, block kriging, cokriging, variogram models; median polish and universal kriging for mean-nonstationary data; spatial autoregressive models; estimation and testing; spatial sampling

**ST 4523 Introduction to Probability: 3 hours.**

(Prerequisite: MA 2733). Three hours lecture. Basic concepts of probability, conditional probability, independence, random variables, discrete and continuous probability distributions, moment generating function, moments, special distributions, central limit theorem. (Same as MA 4523/6523)

**ST 4543 Introduction to Mathematical Statistics I: 3 hours.**

(Prerequisite: MA 2743). Three hours lecture. Combinatorics; probability, random variables, discrete and continuous distributions, generating functions, moments, special distributions, multivariate distributions, independence, distributions of functions of random variables. (Same as MA 4543/6543)

**ST 4573 Introduction to Mathematical Statistics II: 3 hours.**

(Prerequisite: ST 4543/6543). Three hours lecture. Continuation of ST 4543/6543. Transformations, sampling distributions, limiting distributions, point estimation, interval estimation, hypothesis testing, likelihood ratio tests, analysis of variance, regression, chi-square tests. (Same as MA 4573/6573)

**ST 4990 Special Topics in Statistics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ST 6111 Seminar in Statistical Packages: 1 hour.**

One hour lecture. Introduction to the statistical computer packages available at MSU

**ST 6211 Statistical Consulting: 1 hour.**

(Prerequisite: Consent of the department). Provides students with the opportunity to participate as statistical consultants on real projects; consultants are required to attend a weekly staff meeting. (May be repeated for credit.)

**ST 6213 Nonparametric Methods: 3 hours.**

(Prerequisite: An introductory course in statistical methods). Three hours lecture. Nonparametric and distribution-free methods, including inferences for proportions, contingency table analysis, goodness of fit tests, statistical methods based on rank order, and measures of association

**ST 6243 Data Analysis I: 3 hours.**

(Prerequisite: MA 2743, Corequisite MA 3113). Three hours lecture. Data description and descriptive statistics, probability and probability descriptions, parametric one-sample and two-sample inference procedures, simple linear regression, one-way ANOVA. Use of SAS. (Same as MA 4243/6243)

**ST 6253 Data Analysis II: 3 hours.**

(Prerequisite: MA/ST 4243/6243 and MA 3113). Three hours lecture. Multiple linear regression fixed, mixed, and random effect models; block design; two-factor analysis of variance; three-factor analysis of variance; analysis of covariance. Use of SAS. (Same as MA 4253/6253)

**ST 6313 Introduction to Spatial Statistics: 3 hours.**

(Prerequisite: Grade of C or better in ST 3123, or equivalent). Two hours lecture. Two hours laboratory. Spatial data analysis; kriging, block kriging, cokriging, variogram models; median polish and universal kriging for mean-nonstationary data; spatial autoregressive models; estimation and testing; spatial sampling

**ST 6523 Introduction to Probability: 3 hours.**

(Prerequisite: MA 2733). Three hours lecture. Basic concepts of probability, conditional probability, independence, random variables, discrete and continuous probability distributions, moment generating function, moments, special distributions, central limit theorem. (Same as MA 4523/6523)

**ST 6543 Introduction to Mathematical Statistics I: 3 hours.**

(Prerequisite: MA 2743). Three hours lecture. Combinatorics; probability, random variables, discrete and continuous distributions, generating functions, moments, special distributions, multivariate distributions, independence, distributions of functions of random variables. (Same as MA 4543/6543)

**ST 6573 Introduction to Mathematical Statistics II: 3 hours.**

(Prerequisite: ST 4543/6543). Three hours lecture. Continuation of ST 4543/6543. Transformations, sampling distributions, limiting distributions, point estimation, interval estimation, hypothesis testing, likelihood ratio tests, analysis of variance, regression, chi-square tests. (Same as MA 4573/6573)

**ST 6990 Special Topics in Statistics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ST 7000 Directed Individual Study in Statistics: 1-6 hours.**

Hours and credits to be arranged

**ST 8114 Statistical Methods: 4 hours.**

(Prerequisite: MA 1313). Three hours lecture. Two hours laboratory. Fall and Spring semesters. Descriptive statistics; sampling distributions; inferences for one and two populations; completely random, block, Latin square, split-plot designs; factorials; simple linear regression; chi-square tests

**ST 8123 Statistical Thinking: Probability Models and Theory of Statistics: 3 hours.**

(Prerequisite: MA 2733). Three hours Lecture. This course introduces concepts and theory of statistical inference, focuses on how to use data to infer (estimation and testing) about the unknown parameters and to do so in the most optimal way, it also covers basic theory of Bayesian inference

**ST 8133 Statistical Modeling: 3 hours.**

(Prerequisite: ST 8123). Three hours lecture. This course introduces statistical modeling in wide variety of situations, modeling univariate data with an appropriate probability distribution, modeling bivariate and multivariate data using general linear modeling (regression and design models), modeling binary data through logit link function, modelling categorical data

**ST 8214 Design and Analysis of Experiments: 4 hours.**

(Prerequisite: ST 8114) Three hours lecture. Three hours laboratory. Offered spring semester. Procedures in planning and analyzing experiments; simple, multiple, and curvilinear regression; factorial arrangement of treatments; confounding; fractional replication; block designs; lattices; split-plots

**ST 8253 Regression Analysis: 3 hours.**

(Prerequisite: ST 8114 or equivalent). Three hours lecture. Fall and Spring semesters. Simple linear regression analysis and related inferences, remedial measures, multiple and polynomial regression, use of indicator variables, variable selection methods, and use of computer

**ST 8273 Advanced Regression Analysis: 3 hours.**

(Prerequisite: ST 8253). Three hours lecture. Continuation of ST 8253, including non-linear regression models for continuous response variables, generalized linear models such as logistic regression models for binary data and log-linear regression models for count data, and generalized linear mixed-effects models for longitudinal data

**ST 8313 Introduction to Survey Sampling: 3 hours.**

(Prerequisite: ST 8114). Three hours lecture. Topics include: design, planning, execution, and analysis of sample surveys; simple random, stratified random, cluster, and systematic sampling; ratio and regression estimation

**ST 8353 Statistical Computations: 3 hours.**

(Prerequisite: ST 8114). Three hours lecture. Programming with R, including an introduction to the R language, programming statistical graphics, numerical optimization, simulation study, parallel computation, high accuracy computation, projects, and report writing

**ST 8413 Multivariate Statistical Methods: 3 hours.**

(Prerequisite: ST 8253). Three hours lecture. Multivariate normal; multiple and partial correlation; principal components; factor analysis; rotation; canonical correlation; discriminant analysis; Hotelling's  $T^2$ ; cluster analysis; multidimensional scaling; multivariate analysis of variance

**ST 8433 Multivariate Statistical Analysis: 3 hours.**

(Prerequisites: ST 8413 and ST 8613 or consent of instructor). Three hours lecture. Theory of multivariate statistical methodology, including multivariate normal and Wishart distributions, Hotelling's  $T^2$ , classification, multivariate analysis of variance and covariance, canonical correlation, principal components analysis

**ST 8533 Applied Probability: 3 hours.**

(Prerequisite: ST 4543/6543). Three hours lecture. An introduction to the applications of probability theory. Topics include Markov Chains, Poisson Processes, and Renewal, Queueing, and Reliability theories. Other topics as time permits

**ST 8553 Advanced Probability Theory: 3 hours.**

(Prerequisites: ST 6543 and MA 8633 or consent of instructor). Three hours lecture. A measure-theoretic presentation of the theory of probability including independence and conditioning, convergence theorems, characteristic functions, and limit theorems

**ST 8563 Advanced Stochastic Processes: 3 hours.**

(Prerequisite: ST 8553 or consent of instructor). Three hours lecture. Continuation of ST 8553, including Markov processes, second-order processes, stationary processes, Ergodic theory, martingales, stopping lines, and Brownian motion

**ST 8603 Applied Statistics: 3 hours.**

(Prerequisite: ST 4253/6253 or equivalent). Three hours lecture. Advanced analysis of experimental data. Topics include mixed and random models, incomplete block design, changeover trials, experiments, analysis of covariance, and repeated measures design

**ST 8613 Linear Models I: 3 hours.**

(Prerequisites: ST 4253/6253 and ST 4573/6573). Three hours lecture. Random vectors, multivariate normal, distribution of quadratic forms, estimation and statistical inferences relative to the general linear model of full rank, theory of hypothesis testing

**ST 8633 Linear Models II: 3 hours.**

(Prerequisite: ST 8613). Three hours lecture. Continuation of ST 8613, including generalized inverses; general linear model not of full rank, related inferences, applications; computing techniques; design models, analyses, hypothesis testing; variance-component models

**ST 8733 Advanced Statistical Inference I.: 3 hours.**

(Prerequisites: MA/ST 4573/6573 or consent of instructor). Three hours lecture. Theoretical statistics, including sufficiency and completeness, UMVU estimators, likelihood estimation, Bayesian estimation, UMP tests, likelihood-based tests, sequential tests, optimality, and asymptotic properties

**ST 8743 8743 Advanced Statistical Inference II: 3 hours.**

(Prerequisites: ST 8733 or consent of instructor). Three hours lecture. Theoretical statistics, including order statistics, power functions, efficiency, asymptotic theory, nonparametric rank-based hypothesis testing, permutation testing, M estimation, jackknife procedure, and bootstrap procedure

**ST 8853 Advanced Design of Experiments I: 3 hours.**

(Prerequisite: ST 8603 or ST 8214). Three hours lecture. Noise reducing designs; incomplete block designs; factorial experiments, Yates' algorithms, confounding systems; fractional replication; pooling of experiments; nested designs; repeated measurement designs; messy data analyses

**ST 8863 Advanced Design of Experiments II: 3 hours.**

(Prerequisites: ST 8853 and ST 8613). Three hours lecture. Continuation of ST 8853, including analysis of covariance, split-plot designs and variants, applications of the general linear model, response surface methodology, randomization models, pseudo-factors, and cross-over design

**ST 8913 Smoothing Methods in Statistics: 3 hours.**

(Prerequisite: ST 6573 or ST 8123). Three hours lecture. Basic ideas of nonparametric estimation, Kernel-based smoothing methods of univariate density and regression estimation, mathematical analysis of kernel smoothing, bias reduction, optimal and data-based bandwidth choices, estimations of functions related to density and regression functions

**ST 8923 Time Series: 3 hours.**

(Prerequisite ST 8123). Three hours lecture. Survey of modeling and forecasting methods for random processes that evolve over time

**ST 8951 Seminar in Statistics: 1 hour.**

(Prerequisite: Consent of Instructor). (May be repeated for credit). Review of literature on assigned topics; discussions and presentations of papers

**ST 8990 Special Topics in Statistics: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**ST 9000 Research in Statistics: 1-13 hours.**

Hours and credits to be arranged

## Social Work Courses

**SW 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**SW 2303 Social Welfare Policy I: 3 hours.**

Three hours lecture. In-depth study of the historical and contemporary effects of social welfare policy on client systems

**SW 2313 Introduction to Social Work/Social Welfare: 3 hours.**

Three hours lecture. A study of professional social work and the historical and philosophical development of social work and social welfare

**SW 2323 Social Welfare Policy II: 3 hours.**

Three hours lecture. The course provides an analysis and evaluation of social welfare policies as institutional responses to social problems, social justice, and human needs

**SW 2990 Special Topics in Social Work: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SW 3003 Social Work with At-Risk Populations: 3 hours.**

Three hours lecture. Examines the role and interaction of social workers with vulnerable groups. Includes concepts of racism, sexism, homophobia, oppression, affirmation action, and xenophobia



**SW 3013 Human Behavior and the Social Environment I: 3 hours.**

Three hours lecture. Examines biological, psychological, social-structural, and cultural aspects of human development from conception through young adulthood from a social systems perspective, emphasizing diversity and oppression

**SW 3023 Human Behavior and the social Environment II: 3 hours.**

Three hours lecture. Examines biological, psychological, social-structural, and cultural aspects of human development from middle adulthood to death from a social systems perspective, emphasizing diversity and oppression

**SW 3033 Seminar in Resilience: 3 hours.**

Examines current research, theoretical perspectives, and a bio-psycho-social approach to resilience. Focuses on planning & applying resilience practices to promote well-being

**SW 3043 Military Social Work: 3 hours.**

Three hours lecture. Explores history and roles of social workers with veterans and military families, including practice settings, ethical concerns, and effects of culture, advocacy, interventions, and policy

**SW 3213 Research Methods in Social Work: 3 hours.**

(Prerequisite: ST 2113 ) Three hours lecture. A survey of research methodology in social work practice, including an examination of the various types of research design, techniques, and procedures

**SW 3513 Social Work Practice I: 3 hours.**

(Prerequisite: Admission to the Social Work Program). Three hours lecture. The course emphasizes problem-solving methods utilizing communication theories and skills working with individuals, families, groups, and communities in preparation for generalist social work practice

**SW 3523 Social Work Practice II: 3 hours.**

(Prerequisite: Admission to the Social Work Program). Three hours lecture. The course focuses on processes involved in engaging client systems in data collection, assessment, intervention, evaluation, and termination in preparation for generalist social work practice

**SW 3533 Social Work with Communities and Organizations: 3 hours.**

(Prerequisite: Admission to the Social Work Program). Three hours lecture. The course focuses on processes involved in engaging client systems in problem solving with emphasis upon groups and larger systems in generalist social work practice

**SW 4000 Directed Individual Study in Social Work: 1-6 hours.**

(Prerequisites: Six hours of social work, junior standing, and consent of instructor). Hours and credits to be arranged. Independent research of problems related to social work

**SW 4533 Substance Abuse and Addictions in Social Work Services: 3 hours.**

Examines the role/interaction of social workers with people who use alcohol, drugs, (AOD). Concepts of use abuse, and dependence. Emphasis on the impact of AOD use on families/children

**SW 4543 Gender and Food: 3 hours.**

Three hours seminar. A service-learning course exploring the intersections between social inequalities, food and culture, with an emphasis on communities. Overview of historic and contemporary approaches to food system and inequalities. (Same as GS 4543: Gender and Food and SO 4543: Gender and Food)

**SW 4613 Child Welfare Services: 3 hours.**

Three hours lecture. Assessment of parental and society's responsibilities in meeting physical, social, psychological, and legal needs of children and examining the delivery, policies, systems, and services

**SW 4623 Social Work with the Aged: 3 hours.**

Three hours lecture. Assessment of social, psychological, physical, and economic needs of aging persons; their utilization of services, conjoint planning and creation of new community based resources

**SW 4633 Social Work in Health Care: 3 hours.**

Three hours lecture. Assessment of social work knowledge, values, and skills in understanding psychosocial aspects of illness, medical terminology, recording, discharge planning, ethics, team disciplines, and community resources

**SW 4643 Social Work Services in Schools: 3 hours.**

Three hours lecture. Assessment of the development, concepts, policies, planning, implementation, and evaluation of social work services in primary and secondary schools

**SW 4653 Social Work with Family Violence: 3 hours.**

Three hours lecture. A study of social workers' roles in responding to family violence, including societal context, family dynamics, extent, precursors, consequences, treatment, and prevention of family violence

**SW 4663 Administration in Social Work: 3 hours.**

Assessment of functions of human service management, planning and program, organizational theory and design, resources, supervision, funding, information systems, and evaluation of service delivery

**SW 4713 Social Work Senior Seminar: 3 hours.**

(Prerequisite: Admission to the Social Work Program; Co-requisite: Scheduled completion of all curriculum requirements excluding SW 4916 and SW 4926). Critical evaluation of current issues in social work practice; examination of career opportunities; and assessment of personal educational preparation for practice

**SW 4916 Social Work Field Practicum/Seminar I: 6 hours.**

(Prerequisites: Admission to the Social Work Program and SW 4713). The course provides students opportunities to apply generalist social work practice methods by completing a minimum of 450 supervised hours in a social work agency

**SW 4926 Social Work Practicum/Seminar II: 6 hours.**

(Prerequisites: Admission to the Social Work Program and SW 4713). The course provides students opportunities to apply generalist social work practice methods by completing a minimum of 450 supervised hours in a social work agency

**SW 4990 Special Topics in Social Work: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SW 6990 Special Topics in Social Work: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**SW 8990 Special Topics in Social Work: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

## Technology Courses

**TECH 1273 Computer Applications: 3 hours.**

Three hours lecture. The course introduces basic computer technology and software applications for educational, business, and personal use

**TECH 2123 Database Management: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or BIS 1012 and keyboarding proficiency). Two hours lecture. Two hours laboratory. An exploration of database management technology as it applies to business applications in today's contemporary business environment. Provides hands-on technology experience with database management software

**TECH 2133 Spreadsheet Design and Analysis: 3 hours.**

(Prerequisite: TECH 1273, TKT 1273, or BIS 1012). Two hours lecture. Two hours laboratory. An exploration of the design and analysis of electronic spreadsheet technology, with hands-on practices

**TECH 2990 Special Topics in Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TECH 3133 Administrative Management and Procedures: 3 hours.**

(Prerequisite: TECH 1273, TKT 1273 or equivalent and Junior class standing). Three hours lecture. Principles and practices of effective administrative management and procedures. Planning/directing workplace activities, systems, and technology; selecting/training employees; developing professional leadership and communication skills

**TECH 3213 Call Center Management: 3 hours.**

(Prerequisites: TECH 1273, TKT 1273 or equivalent and Junior class standing). Three hours lecture. Presents the strategic, financial, and tactical knowledge and skill needed to manage an effective and efficient call center

**TECH 3463 Computer Repair and Maintenance: 3 hours.**

(Prerequisites: TECH 1273, TKT 1273 or BIS 1012 and keyboarding proficiency). Two hours lecture. Two hours laboratory. An exploration into hardware functions, operating system and software installation, diagnostic and troubleshooting techniques, and safety

**TECH 3623 Designing Technology Training: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or BIS 1013 and keyboarding proficiency, or TECH 2123 or TKB 2123). Three hours lecture. Learning strategies, design, and development of technology training programs for organizations

**TECH 4000 Directed Individual Study in Technology: 1-6 hours.**

Hours and credit to be arranged

**TECH 4143 History and Philosophy of Career and Technology Education: 3 hours.**

Three hours lecture. History, development, aims, and purposes of career and technical education

**TECH 4203 Emerging Technologies: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or permission of instructor). Three hours lecture. This course identifies and explores emerging technologies in instructional and information technology

**TECH 4263 Diversity in Work and Educational Environments: 3 hours.**

Three hours lecture. Exploring the changing dynamics of the workforce and educational environments in examination of cultural and technological facts and assumptions

**TECH 4283 Advanced Office Systems: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or BIS 1012, TECH 2133 or TKB 2133; keyboarding proficiency or consent of the instructor). Two hours lecture. Two hours laboratory. Advanced project-based applications that integrate realistic business practices and build software application

**TECH 4333 Introduction to Computer Science Education: 3 hours.**

Three hours lecture. This course introduces fundamental principles, concepts, and practices of computer science and explore pedagogies of teaching computer science at K-8 grade levels

**TECH 4343 Information Technology Project Management: 3 hours.**

(Prerequisites: TECH 1273, TKT 1273 or BIS 1012 and keyboarding proficiency). Three hours lecture. Concepts, skills, tools, and techniques involved in information technology project management as it applies in contemporary business environment

**TECH 4403 Strategies for Campus Transition and Success for Veterans: 3 hours.**

(Prerequisites: TECH 3133 or TKB 3133). Three hours lecture. This course will examine issues that veterans may experience as it relates to campus transition, academic success, psycho-social adjustment, and the role of various entities

**TECH 4413 Veterans' Benefits and Certification-Policies and Procedures: 3 hours.**

Three hours lecture. This course will provide an in-depth examination of all veteran educational benefits, certification policies and procedures, and school certifying officials' responsibilities

**TECH 4423 History of Administration of Veterans' Benefits: 3 hours.**

Three hours lecture. This course is a historical survey of legislative and organizational developments of the Veterans' Benefits Administration (VBA) from 1776 through present day

**TECH 4433 The Development of Veterans' Benefits, Laws and Policies: 3 hours.**

Three hours lecture. This course will examine the origins and factors that shaped the current Montgomery GI Bill educational assistance program and its implementation

**TECH 4443 Design of Instructional Games and Simulations: 3 hours.**

(Prerequisites: TECH 4753/6753 or TKT 4753/6753, or consent of instructor). Three hours lecture. An exploration of games and simulations: the evaluation, design, and infusion of games and simulations in instructional settings

**TECH 4473 Methods of Teaching Online: 3 hours.**

Three hours lecture. A study of objectives, materials, and methods appropriate for teaching online

**TECH 4483 Methods of Teaching STEM in the Middle School: 3 hours.**

Three hours lecture. A study of objectives, materials, and methods appropriate for teaching STEM in the middle school

**TECH 4493 Methods of Teaching Career Pathways Experiences: 3 hours.**

Three hours lecture. Principles of promotion, organization, and operation of Career Pathway Experience classes in career and technical education; instruction in analyzing needs, developing materials, evaluating the program

**TECH 4543 Information Processing: 3 hours.**

Three hours lecture. Applications in advanced word processing and desktop publishing

**TECH 4553 Advanced Information Processing: 3 hours.**

Three hours lecture. This course will examine the principles of computer hardware, software, and operating systems, including installations, diagnostics and troubleshooting techniques. It will also provide an overview of the framework of computer network, including network models, protocols, devices and risk issues associated with network management

**TECH 4563 Introduction to Data Networks: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or BIS 1012). Three hours lecture. Strategies in supporting the users of data networking systems and exploration of the associated networking hardware and software those are appropriate for the office environment

**TECH 4573 Data Networks II: 3 hours.**

(Prerequisites: TECH 4563 or TKB 4563 or consent of instructor). Three hours lecture. Designed to provide students with advanced level knowledge and skills to identify major tasks in managing server systems, employing basic security and performance tuning techniques, and troubleshooting common system problems

**TECH 4583 Graphics and Web Design: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or BIS 1012 and key boarding proficiency). Two hours lecture. Two hours laboratory. Principles and development of graphics and web design

**TECH 4623 Delivery and Evaluation of Technology Training: 3 hours.**

(Prerequisite: TECH 3623 or TKT 3623). Three hours lecture. Advanced design, live and computer-based strategies, development, delivery, and evaluation of technology training programs for organizations

**TECH 4683 Senior Seminar in Information Technology Services: 3 hours.**

(Prerequisites: TECH 3213 or TKT 3213, TECH 3463 or TKT 3463, TECH 4283 or TKB 4283, TECH 4623 or TKT 4623, and senior-level standing). Three hours seminar. Field experience under supervision of university staff for directed experience and report in end-user support, project management, and training

**TECH 4713 Authoring for Instruction: 3 hours.**

Three hours lecture. An introduction to the application of authoring languages for instructional purposes

**TECH 4733 Managing a Multimedia Learning Environment: 3 hours.**

Three hours lecture. The course examines the process of designing, managing and maintaining a multimedia learning environment

**TECH 4743 Elements of Electronic Desktop Publishing: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or consent of instructor). Three hours lecture. Design applications utilizing electronic desktop publishing technologies

**TECH 4753 Media for Presentations, Instruction and Gaming: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 Computer Applications or BIS 1012 or consent of the instructor). Three hours lecture. This course deals with the process of using multimedia for a variety of instructional and related applications

**TECH 4763 Digital Tools for 21st Century Teaching and Learning: 3 hours.**

Three hours lecture. Methods of using digital tools for effective learning that is aligned with national standards in the 21st century classroom

**TECH 4803 Integrating Technology for Meaningful Learning: 3 hours.**

(Prerequisites: TECH 4743/6743 or TKT 4743/6743 or consent of the instructor). Three hours lecture. This course deals with the process of using multimedia applications to present instruction and information

**TECH 4853 Philosophy and Principles of Vocational-Technical Instruction: 3 hours.**

Three hours lecture. Philosophy, objectives and methods of vocational-technical instruction. Introduction to teaching-learning principles and concepts

**TECH 4990 Special Topic in TECH: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TECH 6143 History and Philosophy of Career and Technology Education: 3 hours.**

Three hours lecture. History, development, aims, and purposes of career and technical education

**TECH 6263 Diversity in Work and Educational Environments: 3 hours.**

Three hours lecture. Exploring the changing dynamics of the workforce and educational environments in examination of cultural and technological facts and assumptions

**TECH 6283 Advanced Office Systems: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or BIS 1012, TECH 2133 or TKB 2133; keyboarding proficiency or consent of the instructor). Two hours lecture. Two hours laboratory. Advanced project-based applications that integrate realistic business practices and build software application

**TECH 6333 Introduction to Computer Science Education: 3 hours.**

Three hours lecture. This course introduces fundamental principles, concepts, and practices of computer science and explore pedagogies of teaching computer science at K-8 grade levels

**TECH 6403 Strategies for Campus Transition and Success for Veterans: 3 hours.**

(Prerequisites: TECH 3133 or TKB 3133). Three hours lecture. This course will examine issues that veterans may experience as it relates to campus transition, academic success, psycho-social adjustment, and the role of various entities

**TECH 6413 Veterans' Benefits and Certification-Policies and Procedures: 3 hours.**

Three hours lecture. This course will provide an in-depth examination of all veteran educational benefits, certification policies and procedures, and school certifying officials' responsibilities

**TECH 6423 History of Administration of Veterans' Benefits: 3 hours.**

Three hours lecture. This course is a historical survey of legislative and organizational developments of the Veterans' Benefits Administration (VBA) from 1776 through present day

**TECH 6433 The Development of Veterans' Benefits, Laws and Policies: 3 hours.**

Three hours lecture. This course will examine the origins and factors that shaped the current Montgomery GI Bill educational assistance program and its implementation

**TECH 6443 Design of Instructional Games and Simulations: 3 hours.**

(Prerequisites: TECH 4753/6753 or TKT 4753/6753, or consent of instructor). Three hours lecture. An exploration of games and simulations: the evaluation, design, and infusion of games and simulations in instructional settings

**TECH 6473 Methods of Teaching Online: 3 hours.**

Three hours lecture. A study of objectives, materials, and methods appropriate for teaching online

**TECH 6483 Method of Teaching STEM in the Middle School: 3 hours.**

Three hours lecture. A study of objectives, materials, and methods appropriate for teaching STEM in the middle school

**TECH 6493 Methods of Teaching Career Pathways Experiences: 3 hours.**

Three hours lecture. Principles of promotion, organization, and operation of Career Pathway Experience classes in career and technical education; instruction in analyzing needs, developing materials, evaluating the program

**TECH 6543 Information Processing: 3 hours.**

Three hours lecture. Applications in advanced word processing and desktop publishing

**TECH 6553 Advanced Information Processing: 3 hours.**

Three hours lecture. This course will examine the principles of computer hardware, software, and operating systems, including installations, diagnostics and troubleshooting techniques. It will also provide an overview of the framework of computer network, including network models, protocols, devices and risk issues associated with network management

**TECH 6573 Data Networks II: 3 hours.**

(Prerequisites: TECH 4563 or TKB 4563 or consent of instructor).

Three hours lecture. Designed to provide students with advanced level knowledge and skills to identify major tasks in managing server systems, employing basic security and performance tuning techniques, and troubleshooting common system problems

**TECH 6583 Graphics and Web Design: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or BIS 1012 and key boarding proficiency). Two hours lecture. Two hours laboratory. Principles and development of graphics and web design

**TECH 6713 Authoring for Instruction: 3 hours.**

Three hours lecture. An introduction to the application of authoring languages for instructional purposes

**TECH 6733 Managing a Multimedia Learning Environment: 3 hours.**

Three hours lecture. The course examines the process of designing, managing and maintaining a multimedia learning environment

**TECH 6743 Elements of Electronic Desktop Publishing: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 or consent of instructor). Three hours lecture. Design applications utilizing electronic desktop publishing technologies

**TECH 6753 Media for Presentations, Instruction and Gaming: 3 hours.**

(Prerequisites: TECH 1273 or TKT 1273 Computer Applications or BIS 1012 or consent of the instructor). Three hours lecture. This course deals with the process of using multimedia for a variety of instructional and related applications

**TECH 6763 Digital Tools for 21st Century Teaching and Learning: 3 hours.**

Three hours lecture. Methods of using digital tools for effective learning that is aligned with national standards in the 21st century classroom

**TECH 6803 Integrating Technology for Meaningful Learning: 3 hours.**

(Prerequisites: TECH 4743/6743 or TKT 4743/6743 or consent of the instructor). Three hours lecture. This course deals with the process of using multimedia applications to present instruction and information

**TECH 6853 Philosophy and Principles of Vocational-Technical Instruction: 3 hours.**

Three hours lecture. Philosophy, objectives and methods of vocational-technical instruction. Introduction to teaching-learning principles and concepts

**TECH 6990 Special Topic in TECH: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TECH 7000 Directed Individual Study in Technology: 1-6 hours.**

Hours and credits to be arranged

**TECH 8213 Content and Methods of Teaching in Career and Technology Education: 3 hours.**

Three hours lecture. The content of various types of courses in career and technical education; instruction in appropriate techniques and methods

**TECH 8233 Analysis of Workforce Education Programs and Survey Research in Workforce Development: 3 hours.**

Three hours lecture. An examination of workforce development from national and international perspectives and methods and issues in workforce education survey research

**TECH 8243 Research Problems in Instructional Systems and Workforce: 3 hours.**

Three hours lecture. The course explores issues and problems that impact instructional systems and workforce development and assesses the use of research findings for instructional decision making

**TECH 8263 Philosophy and Administration of Career and Technology Education: 3 hours.**

Three hours lecture. The development of competencies needed in the leadership, administration, management, and supervision of local programs in technology, and career and technical education

**TECH 8273 Contemporary Issues in Curriculum Planning in ISWD: 3 hours.**

Three hours lecture. Assessment of the contemporary issues that impact curriculum planning in instructional systems and workforce development

**TECH 8443 Theory of Multimedia Learning: 3 hours.**

Three hours lecture. This course reviews multimedia design principles that are based on empirical research studies and the cognitive theory of multimedia learning to foster effective multimedia instruction

**TECH 8523 Project Management in Instructional Design: 3 hours.**

Three hours lecture. This course explores project management principles and methodologies used to analyze, manage, plan, and implement instructional design projects and program systems

**TECH 8533 Evaluation and Assessment in Instructional Systems & Technology: 3 hours.**

Three hours lecture. Focus on the effective course/program evaluation and assessment methods, theories, and applications in instructional systems and technology

**TECH 8543 Multimedia Design I: 3 hours.**

Three hours lecture. This course focuses on major principles and guidelines for creating instructional graphics and provides hands-on skills in graphic design

**TECH 8623 Instructional Design I: 3 hours.**

Three hours lecture. The analysis, design, development, implementation, and evaluation of instruction for organizations

**TECH 8643 Multimedia Design II: 3 hours.**

(Prerequisite: TECH 8543 or TKT 8543). Three hours lecture. This course focuses on the concepts, issues, and practices for creating effective instructional videos and provides hands-on skills in digital video production

**TECH 8693 Multiple Perspectives on Instructional Systems and Technology: 3 hours.**

Three hours lecture. This course surveys major theoretical perspectives of instructional design and examines related research and applications in a variety of instructional design settings

**TECH 8703 Trends and Issues in Instructional Systems: 3 hours.**

Three hours lecture. Focuses on the trends, issues, theories, and applications of instructional systems. It introduces the areas of instructional design, multimedia, distance education, and human performance technologies

**TECH 8713 Research in Instructional Systems & Workforce Development: 3 hours.**

Two hours lecture. Two hours laboratory. This course deals with the research process as related to Instruction Systems and Workforce Development (ISWD) from idea formulation through data analysis and interpretation

**TECH 8723 Instructional Design II: 3 hours.**

(Prerequisite: TECH 8623 or TKT 8623). Three hours lecture. Advanced application of instructional design for organizations

**TECH 8743 Interactive Media: 3 hours.**

(Prerequisite: TECH 8643 or TKT 8643). Two hours lecture. Two hours laboratory. This course will provide experiences in investigating, designing, developing and integrating a variety of interactive instructional multimedia

**TECH 8753 Technology Issues for School Administrators: 3 hours.**

Three hours lecture. Investigates the trends and issues in instructional systems that impact school administrators

**TECH 8773 Teaching and Training with Multimedia: 3 hours.**

Three hours lecture. The process of developing instructional and training materials including adapting existing materials to fit specific objectives and methods in a multimedia learning environment

**TECH 8793 Directed Project and Portfolio Development: 3 hours.**

Three hours lecture. The course focuses on the development and presentation of a project and a portfolio based on the student's program area of concentration. Evaluation by jury

**TECH 8813 Foundations of Distance Education: 3 hours.**

Three hours lecture. This course investigates foundation of distance education and trends and issues such as administration, design, development, implementation, instructional challenges, and evaluation in distance education

**TECH 8823 Design, Delivery, & Management of Distance Education: 3 hours.**

Three hours lecture. This course focuses on major theories and practices related to the design, delivery and management of distance education programs

**TECH 8843 Foundations of Instructional Systems and Technology: 3 hours.**

Three hours lecture. An examination of the foundation and philosophical knowledge for instructional systems and design models including evaluation of instructional design processes

**TECH 8853 Learning Technologies in Distance Education: 3 hours.**

(Prerequisite: TECH 8823 or TKT 8823). Three hours lecture. This course investigates theoretical concepts of online learning. With this understanding, students will then experience creating a practical e-learning module using an e-learning authoring system

**TECH 8863 Grant Writing Essentials: 3 hours.**

Three hours lecture. An introduction to the basic skills, principles, and techniques of successful grant writing

**TECH 9000 Research in Technology Teacher Education: 1-13 hours.**

Hours and credits to be arranged

**TECH 9213 Foundations, Trends and Issues in Workforce Development, Technology and Leadership Education: 3 hours.**

Three hours lecture. This course examines the foundations of education with a focus on workforce education programs, technology education programs and adult learning theories

**TECH 9913 Dissertation Seminar: 3 hours.**

Three hours seminar. Designed to assist students to successfully complete dissertation research using an activity-based approach. TECH 9913 may be taken in lieu of TECH 9000 or TKT 9000 Dissertation Research up to six hours

## Business Technology Courses

**TKB 1012 Keyboarding: 2 hours.**

One hour lecture: Two hours laboratory. Keyboard mastery; letter writing; vertical and horizontal centering; manuscript writing; tabulation. No credit allowed if student has earned high-school credit. Students with no high-school credit will be allowed to remove this deficiency during the freshman year

**TKB 6990 Special Topics in Business Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TKB 8990 Special Topics in Business Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years.)

## Industrial Technology Courses

**TKI 2990 Special Topics in Industrial Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TKI 4990 Special Topics in Industrial Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TKI 6213 Survey of Energy Sources and Power Technology: 3 hours.**

(Prerequisite: PH 1023 or higher and Junior Standing). Three hours lecture. Scientific and applied approaches to energy conversion, transmission, utilization, and conservation. Internal-external combustion, nuclear, fluid, hydroelectric, solar, etc. Current energy problems; lab demonstrations; activities

**TKI 6990 Special Topics in Industrial Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TKI 8990 Special Topics in Industrial Technology: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Technology Teacher Education Courses****TKT 2990 Special Topics in Technology Teacher Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TKT 4073 Instructional Materials Development and Use in Vocational Education: 3 hours.**

Three hours lecture. Development and use of lesson plans and supporting written and audio-visual materials

**TKT 4103 Deliver of the Vocational-Technical Instructional Program: 3 hours.**

Three hours lecture. Methods and techniques of instructing vocational-technical students in the classroom and laboratory setting

**TKT 4223 Management of the Vocational-Technical Learning Environment: 3 hours.**

Three hours lecture. Techniques for organizing and managing vocational-technical education facilities, equipment, supplies, and instructional programs. Methods of managing and controlling student laboratory activities

**TKT 4233 Design of the Vocational-Technical Instructional Program: 3 hours.**

Three hours lecture. Identifying and sequencing teaching content. Planning and designing vocational-technical programs and courses

**TKT 4253 Evaluation and Measurement of Students in Vocational Education and Technology: 3 hours.**

Three hours lecture. Construction, selection, interpretation, and uses of cognitive and psychomotor evaluation instruments used in vocational-technical programs

**TKT 4813 Introduction to Instructional Systems: 3 hours.**

Three hours lecture. An introduction to the field of Instructional Systems and the practice of scholarly writing in the field

**TKT 4990 Special Topics in Technology Teacher Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TKT 6073 Instructional Materials Development and Use in Vocational Education: 3 hours.**

Three hours lecture. Development and use of lesson plans and supporting written and audio-visual materials

**TKT 6103 Deliver of the Vocational-Technical Instructional Program: 3 hours.**

Three hours lecture. Methods and techniques of instructing vocational-technical students in the classroom and laboratory setting

**TKT 6223 Management of the Vocational-Technical Learning Environment: 3 hours.**

Three hours lecture. Techniques for organizing and managing vocational-technical education facilities, equipment, supplies, and instructional programs. Methods of managing and controlling student laboratory activities

**TKT 6233 Design of the Vocational-Technical Instructional Program: 3 hours.**

Three hours lecture. Identifying and sequencing teaching content. Planning and designing vocational-technical programs and courses

**TKT 6253 Evaluation and Measurement of Students in Vocational Education and Technology: 3 hours.**

Three hours lecture. Construction, selection, interpretation, and uses of cognitive and psychomotor evaluation instruments used in vocational-technical programs

**TKT 6813 Introduction to Instructional Systems: 3 hours.**

Three hours lecture. An introduction to the field of Instructional Systems and the practice of scholarly writing in the field

**TKT 6990 Special Topics in Technology Teacher Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**TKT 8193 Improvement of Instruction in Office Procedures and Communications: 3 hours.**

Three hours lecture. A study of secretarial skills in the office, office systems technology and techniques, and the communicative process

**TKT 8200 Internship in Career and Technology Education: 1-6 hours.**

1-6 Hours Internship. Opportunity under supervision of regular university staff for directed experience and reporting in the major area of interest

**TKT 8733 Telecommunications: Applications in Scholarships: 3 hours.**

Three hours lecture. The study and application of the telecommunications to professional scholarship and research endeavors; includes data search mechanisms applicable to and in support of graduate program demands

**TKT 8763 Strategic Technology Planning for Teachers and Administrators: 3 hours.**

Three hours lecture. This course will provide teachers and administrators with the theoretical and practical considerations for strategic planning and implementing technology in schools and school districts

**TKT 8803 Design and Evaluation of Instructional Software: 3 hours.**

Two hours lecture. Two hours laboratory. (Prerequisite: TKT 1273 and hypermedia authoring experience). Analysis, synthesis, and evaluation of instructional software designed for and applied to varied learning situations

**TKT 8833 Design and Implementation of Data Networks: 3 hours.**

Three hours lecture. Designed to provide students with applicable knowledge and skills to identify major tasks in building and maintaining networking hardware and system software components, and troubleshooting common system problems

**TKT 8873 Communication Tools in Technology for Teachers & Administrators: 3 hours.**

Three hours lecture. This course provides a comprehensive view of communication, its scope and importance for educators, with regard to written and oral communication in the digital-age workplace

**TKT 8990 Special Topics in Technology Teacher Education: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Veterinary Science Courses****VS 1012 Introduction to Veterinary Medicine Careers: 2 hours.**

Two hour online course covering the history and importance of the veterinary profession. Various careers in the profession with primary focus on veterinarians and technicians as well as the concept of veterinary health care teams

**VS 2990 Special Topics in Animal Health Sciences: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**VS 3014 Anatomy and Physiology: 4 hours.**

Three hours lecture. Two hours laboratory. A survey of structure and function of animal body systems and a study of their relationships. (Same as ADS 3014)

**Veterans Transition Program Courses****VTP 1001 Veteran/Service Member Transition: 1 hour.**

(Prerequisite: Veteran or Service Member, and currently enrolled in the V-TAC Program). One hour lecture. Introduction of skills that veterans and current military members need to transition to a college academic life style

**VTP 2990 Special Topics in Veterans Transition Program: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**Wildlife, Fisheries Aquaculture Courses****WFA 1001 First Year Seminar: 1 hour.**

One hour lecture. First-year seminars explore a diverse array of topics that provide students with an opportunity to learn about a specific discipline from skilled faculty members

**WFA 1102 Wildlife and Fisheries Profession: 2 hours.**

(Prerequisite: Freshman or Sophomore standing or consent of instructor). Two hour lecture. Orientation to the interdisciplinary and applied nature of wildlife and fisheries management and related fields, emphasizing the department, college, and university; student roles and responsibilities; and career opportunities

**WFA 2990 Special Topics in Wildlife, Fisheries, and Aquaculture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**WFA 3000 Internship: 1-4 hours.**

(Prerequisite: Junior standing and 2.75 GPA or better). Professional work experience with governmental or private agencies. (Hours and credits to be arranged)

**WFA 3031 Introductory Wildlife/Fisheries Practices: 1 hour.**

(Prerequisite: Junior standing). Field exercises and practical exposure to research and management of wildlife and fish species and habitats in Mississippi

**WFA 3133 Applied Ecology: 3 hours.**

(Prerequisite BIO 1134 and BIO 1144 or consent of instructor ). The application of ecological principles which serve as a basis for the management of wildlife and fisheries in terrestrial and aquatic habitats

**WFA 4000 Directed Individual Study in Wildlife, Fisheries and Aquaculture: 1-6 hours.**

Hours and credits to be arranged

**WFA 4113 Animal Behavior: 3 hours.**

(Prerequisite: WFA 3133, BIO 3104 or equivalent). Two hours lecture, two hours lab. Emphasizes applied approaches to the study of animal behavior. Covers fundamental principles, early studies in ethology, genetic, physiological and selective mechanisms, behavioral ecology, emerging field of conservation behavior, and integration of behavior into habitat management

**WFA 4123 Wildlife & Fisheries Biometrics: 3 hours.**

(Prerequisite: ST 2113 or ST 3123 and Grade of C or better in MA 1613 or consent of instructor). Two hours lecture. Two hours laboratory each week. Application of statistical and mathematical tools and software to address wildlife and fisheries management/research questions

**WFA 4133 Fisheries Science: 3 hours.**

(Prerequisite: ST 3113 or equivalent). Two hours lecture. Four hours laboratory, alternate weeks. Study of the biological parameters of fish populations

**WFA 4153 Principles of Wildlife Conservation and Management: 3 hours.**

(Prerequisite: Sophomore Standing and WFA 3133, FO 4123, or equivalent). Two hours lecture. Four hours laboratory on alternate weeks. Principles of game management; habitat improvement; wildlife techniques; public relations

**WFA 4173 Fish Physiology: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144 or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Basic anatomy and physiology of major systems in fish: integration of the physiological systems as they function during development, growth and maturation

**WFA 4183 Principles and Practices of Aquaculture: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144, or consent of instructor) Two hours lecture. Four hours laboratory alternate weeks. Principles and practices of aquaculture applied to the farming of marine and freshwater species of fish, crustaceans, and mollusks throughout the world

**WFA 4223 Wildlife Plant Identification: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144 or equivalent). Two hours lecture. Four hours laboratory alternate weeks. Identification, taxonomy, ecology, and management of wildlife food and cover plants

**WFA 4233 Limnology: 3 hours.**

(Prerequisite: WFA 3133 or consent of instructor ). Two hour lecture. Four hours laboratory alternate weeks. The physical, chemical, and biological processes underlying the function and productivity of freshwater ecosystems. Laboratory skills required to evaluate freshwater ecosystems

**WFA 4243 Wildlife Techniques: 3 hours.**

(Prerequisite: Sophomore or higher standing). Two hours lecture. Four hours laboratory. Contemporary research and management techniques and tools for wildlife populations and habitats

**WFA 4253 Application of Spatial Technologies to Wildlife and Fisheries Management: 3 hours.**

(Prerequisite: Sr. Standing or consent of instructor). Two hours lecture. Four hours laboratory weekly. Practical application of Global Positioning Systems and Geographic Information Systems to Wildlife and Fisheries Management

**WFA 4263 Wildlife Diseases: 3 hours.**

(Prerequisite: BIO 1134 and BIO 1144, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Effects and management of parasites and diseases in wild bird and mammal populations. (Same as CVM 4263/6263)

**WFA 4273 Ecology and Management of Human-Wildlife Conflicts: 3 hours.**

(Prerequisite: WFA 3133, or consent of instructor). Ecological principles and management approaches to resolve human-wildlife conflicts

**WFA 4283 Human-Wildlife Conflict Techniques: 3 hours.**

(Prerequisite: WFA 3133, or consent of instructor). Three hours lecture. Discussion, demonstration, and application of techniques used to resolve human-wildlife conflicts

**WFA 4313 Fisheries Management: 3 hours.**

(Prerequisite: WFA 3133 or consent of instructor). Two hours lecture. Laboratories alternate weeks. Principles of fisheries management and methods for assessment and analysis of fish populations and aquatic habitats

**WFA 4323 Wildlife Nutrition and Physiology: 3 hours.**

(Prerequisite: BIO1134 and BIO 1144, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Nutrition and physiology of aquatic and terrestrial wildlife, with emphasis on understanding life history strategies and functional adaptations to habitat and environmental variation

**WFA 4353 Fish and Wildlife Policy and Law Enforcement: 3 hours.**

Prerequisite: Sr. standing or consent of instructor). Three hours lecture. A survey of the major content areas of fish and wildlife policy and law enforcement. Emphasis is on the fundamentals of conservation policies and laws

**WFA 4363 Wildlife and Fisheries Administration and Communication: 3 hours.**

(Prerequisite: Junior standing or consent of instructor ). Two hours lecture. Three and one half hours lab, alternate weeks. Administrative and communicational techniques and skills in the workplace and political environments of wildlife and fisheries organizations

**WFA 4373 Principles and Practice of Conservation in Agriculture Landscapes: 3 hours.**

Two hours lecture. Four hours laboratory, alternate weeks. Introduces theoretical background for ecological conservation in agricultural landscapes with focus on the role of USDA Farm Bill programs in achieving conservation goals

**WFA 4383 Wetlands Ecology and Management: 3 hours.**

(Prerequisite: WFA 3133 and Junior Standing, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Hydrology, soils and biogeochemistry of wetlands; structure and function of important wetland types; wetland management for wildlife and fisheries; wetland creation and restoration

**WFA 4393 Urban Wildlife Ecology: 3 hours.**

(Prerequisites: Junior or higher standing, Grade C or better in WFA 3133, and/or Instructor Consent). Three hours lecture. Investigations of traditional wildlife conservation, ecology and management principles as they pertain to urban environments with an emphasis on species natural histories and urban ecosystem characteristics

**WFA 4394 Waterfowl Ecology and Management: 4 hours.**

(Prerequisite: WFA 3133 and Junior standing, or consent of instructor). Three hours lecture. Four hours laboratory. Annual ecology of North American waterfowl, habitat and population ecology and management, waterfowl identification, field trips, management plan, and current issues

**WFA 4423 Herpetology: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Evolution, systematics, biology and ecology of reptiles and amphibians

**WFA 4433 Mammalogy: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Three hours laboratory. Evolution, systematics, and ecology of mammals, with emphasis on North American groups

**WFA 4443 Ornithology: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Three hours laboratory. Recent and fossil avifauna of the world; its origin, distribution, classification, and biology

**WFA 4453 Ichthyology: 3 hours.**

(Prerequisites: BIO 1134 and BIO 1144 and WFA 3133, or consent of instructor). Two hours lecture. Three hours laboratory. Structure, evolution, classification, and life histories of fishes of the world with emphasis on North American freshwater forms

**WFA 4463 Human Dimensions of Fish and Wildlife Management: 3 hours.**

(Prerequisite: Junior standing or consent of instructor). Three hours lecture. Survey of the major content areas of human dimensions. Emphasis on the considerations and implications associated with measuring, evaluating and influencing people's attitudes and behaviors

**WFA 4473 Wildlife and Fisheries Practices: 3 hours.**

(Prerequisite: WFA 3133 and WFA 4153 and Senior Standing, or consent of instructor). Two hours lecture. Four hours laboratory. The integration of principles of ecology, wildlife and fisheries techniques and policies for effective planning and implementation of natural resource management

**WFA 4483 Seminar in Tropical Biology: 3 hours.**

(Prerequisites: WFA 3133 or consent of instructor ) One hour lecture. Four hours laboratory. An introduction to the composition and function of tropical ecosystems of the New World

**WFA 4484 Upland Avian Ecology and Management: 4 hours.**

(Prerequisites: WFA 3133 and WFA 4153 and Junior standing or consent of instructor). Three hours lecture. Four hours laboratory. The application of ecological principles to management of wildlife populations, focusing on avian species and communities inhabiting upland ecosystems

**WFA 4494 Large Mammal Ecology and Management: 4 hours.**

(Prerequisites: WFA 3133 and WFA 4153 and Junior standing). Three hours lecture. Four hours laboratory, alternate weeks. Ecological principles and applied methods used in the management of large mammals



**WFA 4513 Current Topics in Human-Wildlife Interactions: 3 hours.**  
(Prerequisites: Junior or higher standing, Grade of C or better in WFA 3133, and/or Instructor Consent). Three hours lecture. Investigations and related discussions regarding current topics and past trends in human-wildlife interactions emphasizing the role of wildlife damage management by wildlife biologists

**WFA 4613 Landscape Ecology: 3 hours.**  
Prerequisite (WFA 3133 and ST 3123 (or equivalents or consent of instructor). Two hours lecture, two hours lab. Foundational concepts and research methods of landscape ecology and application to ecology and management of natural resources

**WFA 4623 Conservation Biology: 3 hours.**  
Three hours lecture. Theory and applications of conservation biology, measures of biodiversity, ecological geography, measures and treatments of decline

**WFA 4633 Problem Solving in Conservation Biology: 3 hours.**  
(Pre-requisites: WFA-4623 or equivalent with instructor consent). Three hours lecture. Upper-level conservation biology course that builds on foundational concepts in lower-level courses in Conservation Biology. Focus on problem-solving of real-world conservation issues in a discussion, case-study, and in-class exercise format

**WFA 4800 Undergraduate Research in Wildlife, Fisheries & Aquaculture: 13 hours.**  
Hours, credits and deliverables to be arranged. The purpose of this course is to provide a student with the opportunity to participate in research and/or creative project beyond the traditional undergraduate experience

**WFA 4881 Current Topics in Conservation Biology: 1 hour.**  
(Prerequisites: WFA 3133, Applied Ecology and WFA 4623, Conservation Biology or consent of instructor). One hour lecture. A forum to discuss current literature and theory that advances the study of biodiversity and its application to conservation biology

**WFA 4990 Special Topics in Wildlife, Fisheries and Aquaculture: 1-9 hours.**  
Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**WFA 6113 Animal Behavior: 3 hours.**  
(Prerequisite: WFA 3133, BIO 3104 or equivalent). Two hours lecture, two hours lab. Emphasizes applied approaches to the study of animal behavior. Covers fundamental principles, early studies in ethology, genetic, physiological and selective mechanisms, behavioral ecology, emerging field of conservation behavior, and integration of behavior into habitat management

**WFA 6133 Fisheries Science: 3 hours.**  
(Prerequisite: ST 3113 or equivalent). Two hours lecture. Four hours laboratory, alternate weeks. Study of the biological parameters of fish populations

**WFA 6173 Fish Physiology: 3 hours.**  
(Prerequisite: BIO 1134 and BIO 1144 or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Basic anatomy and physiology of major systems in fish: integration of the physiological systems as they function during development, growth and maturation

**WFA 6183 Principles and Practices of Aquaculture: 3 hours.**  
(Prerequisites: BIO 1134 and BIO 1144, or consent of instructor) Two hours lecture. Four hours laboratory alternate weeks. Principles and practices of aquaculture applied to the farming of marine and freshwater species of fish, crustaceans, and mollusks throughout the world

**WFA 6223 Wildlife Plant Identification: 3 hours.**  
(Prerequisite: BIO 1134 and BIO 1144 or equivalent). Two hours lecture. Four hours laboratory alternate weeks. Identification, taxonomy, ecology, and management of wildlife food and cover plants

**WFA 6233 Limnology: 3 hours.**  
(Prerequisite: WFA 3133 or consent of instructor). Two hour lecture. Four hours laboratory alternate weeks. The physical, chemical, and biological processes underlying the function and productivity of freshwater ecosystems. Laboratory skills required to evaluate freshwater ecosystems

**WFA 6253 Application of Spatial Technologies to Wildlife and Fisheries Management: 3 hours.**  
(Prerequisite: Sr. Standing or consent of instructor). Two hours lecture. Four hours laboratory weekly. Practical application of Global Positioning Systems and Geographic Information Systems to Wildlife and Fisheries Management

**WFA 6263 Wildlife Diseases: 3 hours.**  
(Prerequisite: BIO 1134 and BIO 1144, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Effects and management of parasites and diseases in wild bird and mammal populations. (Same as CVM 4263/6263)

**WFA 6273 Ecology and Management of Human-Wildlife Conflicts: 3 hours.**  
(Prerequisite: WFA 3133, or consent of instructor). Ecological principles and management approaches to resolve human-wildlife conflicts

**WFA 6313 Fisheries Management: 3 hours.**  
(Prerequisite: WFA 3133 or consent of instructor). Two hours lecture. Laboratories alternate weeks. Principles of fisheries management and methods for assessment and analysis of fish populations and aquatic habitats

**WFA 6323 Wildlife Nutrition and Physiology: 3 hours.**  
(Prerequisite: BIO1134 and BIO 1144, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Nutrition and physiology of aquatic and terrestrial wildlife, with emphasis on understanding life history strategies and functional adaptations to habitat and environmental variation

**WFA 6343 Pond and Stream Management: 3 hours.**  
(Prerequisite: Junior or Senior standing or consent of instructor). Two hours lecture. Four hours laboratory alternate weeks. Ecological foundations and management techniques for fisheries in small impoundments and streams

**WFA 6353 Fish and Wildlife Policy and Law Enforcement: 3 hours.**  
Prerequisite: Sr. standing or consent of instructor). Three hours lecture. A survey of the major content areas of fish and wildlife policy and law enforcement. Emphasis is on the fundamentals of conservation policies and laws

**WFA 6373 Principles and Practice of Conservation in Agriculture Landscapes: 3 hours.**  
Two hours lecture. Four hours laboratory, alternate weeks. Introduces theoretical background for ecological conservation in agricultural landscapes with focus on the role of USDA Farm Bill programs in achieving conservation goals

**WFA 6383 Wetlands Ecology and Management: 3 hours.**

(Prerequisite: WFA 3133 and Junior Standing, or consent of instructor). Two hours lecture. Four hours laboratory, alternate weeks. Hydrology, soils and biogeochemistry of wetlands; structure and function of important wetland types; wetland management for wildlife and fisheries; wetland creation and restoration

**WFA 6393 Urban Wildlife Ecology: 3 hours.**

(Prerequisites: Junior or higher standing, Grade C or better in WFA 3133, and/or Instructor Consent). Three hours lecture. Investigations of traditional wildlife conservation, ecology and management principles as they pertain to urban environments with an emphasis on species natural histories and urban ecosystem characteristics

**WFA 6394 Waterfowl Ecology and Management: 4 hours.**

(Prerequisite: WFA 3133 and Junior standing, or consent of instructor). Three hours lecture. Four hours laboratory. Annual ecology of North American waterfowl, habitat and population ecology and management, waterfowl identification, field trips, management plan, and current issues

**WFA 6483 Seminar in Tropical Biology: 3 hours.**

(Prerequisites: WFA 3133 or consent of instructor ) One hour lecture. Four hours laboratory. An introduction to the composition and function of tropical ecosystems of the New World

**WFA 6484 Upland Avian Ecology and Management: 4 hours.**

(Prerequisites: WFA 3133 and WFA 4153 and Junior standing or consent of instructor). Three hours lecture. Four hours laboratory. The application of ecological principles to management of wildlife populations, focusing on avian species and communities inhabiting upland ecosystems

**WFA 6494 Large Mammal Ecology and Management: 4 hours.**

(Prerequisites: WFA 3133 and WFA 4153 and Junior standing). Three hours lecture. Four hours laboratory, alternate weeks. Ecological principles and applied methods used in the management of large mammals

**WFA 6513 Current Topics in Human-Wildlife Interactions: 3 hours.**

(Prerequisites: Junior or higher standing, Grade of C or better in WFA 3133, and/or Instructor Consent). Three hours lecture. Investigations and related discussions regarding current topics and past trends in human-wildlife interactions emphasizing the role of wildlife damage management by wildlife biologists

**WFA 6613 Landscape Ecology: 3 hours.**

Prerequisite (WFA 3133 and ST 3123 (or equivalents or consent of instructor). Two hours lecture, two hours lab. Foundational concepts and research methods of landscape ecology and application to ecology and management of natural resources

**WFA 6623 Conservation Biology: 3 hours.**

Three hours lecture. Theory and applications of conservation biology, measures of biodiversity, ecological geography, measures and treatments of decline

**WFA 6633 Problem Solving in Conservation Biology: 3 hours.**

(Pre-requisites: WFA-4623 or equivalent with instructor consent). Three hours lecture. Upper-level conservation biology course that builds on foundational concepts in lower-level courses in Conservation Biology. Focus on problem-solving of real-world conservation issues in a discussion, case-study, and in-class exercise format

**WFA 6881 Current Topics in Conservation Biology: 1 hour.**

(Prerequisites: WFA 3133, Applied Ecology and WFA 4623, Conservation Biology or consent of instructor). One hour lecture. A forum to discuss current literature and theory that advances the study of biodiversity and its application to conservation biology

**WFA 6990 Special Topics in Wildlife, Fisheries and Aquaculture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**WFA 7000 Directed Individual Study in Wildlife, Fisheries and Aquaculture: 1-6 hours.**

Hours and credits to be arranged

**WFA 8134 Research Methods in Wildlife and Fisheries Sciences: 4 hours.**

(Prerequisites: Graduate standing, ST 8114). Three hours lecture. Four hours laboratory. Graduate level introduction to application of scientific methods to wildlife and fisheries ecology and management

**WFA 8184 Advanced Population Ecology: 4 hours.**

(Prerequisite: ST 8114 Statistical Methods or instructor consent). Three hours lecture. Two hours laboratory, weekly. Theory of vertebrate population ecology including population modeling, population regulation, competition, predation, and life history strategies. Statistical methods of population sampling and population parameter estimation

**WFA 8212 Communication Skills in Wildlife and Fisheries: 2 hours.**

(Prerequisite: Graduate student status in the Department of Wildlife and Fisheries) Two hours lecture. Effective strategies for professional communication to scientific and lay audiences in the fields of wildlife, fisheries, and other natural resources sciences and management

**WFA 8223 Management of Impounded River Ecosystems: 3 hours.**

(Prerequisite: WF 6313/4313 or equivalent). Three hours lecture. A survey of guidance and criteria for managing reservoirs and associated riverine environments to enhance fisheries. Focus is on managing fish and their environment

**WFA 8273 Advanced Fisheries Management: 3 hours.**

(Prerequisites: WFA 4133/6133 and WFA 4313/6313 or consent of instructor) Three hours lecture. Field exercises during spring break. Advanced treatment of the multidimensional aspects of fisheries management in a global setting with emphasis on setting realistic objectives and establishing appropriate strategy

**WFA 8343 Concepts in Ecology and Natural Resource Management: 3 hours.**

Three hours lecture. A forum to discuss current literature and theory that advances the study of community ecology and its application to natural resource management

**WFA 8344 Wildlife Habitat Analysis and Management: 4 hours.**

(Prerequisite: BIO 4203. Three hours lecture. Four hours laboratory alternate weeks. Identification, ecology, analysis and management of plant communities of value to upland and wetland game species of North America

**WFA 8413 Advanced Fishery Science: 3 hours.**

(Prerequisites: WFA 4133/6133 and ST 3113, or equivalents). Two hours lecture. Two hours laboratory. Estimation and interpretation of vital statistics of fish populations: analysis of fishery data using computers; models for assessment of fish stocks

**WFA 8423 Applied Bayesian Statistics in Ag/Natural Resources: 3 hours.**

(Prerequisite: ST 8114 and ST 8253 or consent of instructor ).Two hours lecture. Four hours laboratory, alternate weeks. Bayesian statistics and Bayesian hierarchical models in wildlife, fishery, agricultural and other natural resource management applications

**WFA 8433 Natural Resource and Conservation Decision Making: 3 hours.**

Three hours lecture. Natural resource and conservation decision making including rapid prototyping of decision problems, structuring objectives, structured decision making, adaptive management, and relevant case studies of successful natural resource decision making. No prerequisite classes

**WFA 8463 Human Dimensions of Wildlife and Fisheries**

**Conservation: 3 hours.**

Three hours lecture. Theory, measurement and application of human dimensions in wildlife and fisheries conservation, with emphasis on how people value wildlife, how they want wildlife to be managed, and how they affect or are affected by wildlife and wildlife management decision making

**WFA 8663 Movement Ecology: 3 hours.**

[Prerequisite: ST 8114 or equivalent, or permission of instructor] Two hours lecture, two hours laboratory weekly. Principles of movement including displacement, path analysis, random walks and diffusion, home ranging, and habitat selection. Includes application to GPS and biologger data using Geographic Information Systems and Program R

**WFA 8713 Program Development and Evaluation for Conservation Educators: 3 hours.**

Three hours lecture. Development and evaluation of conservation education outreach programs and activities for varied audiences across; learning levels, abilities, and cultural environments

**WFA 8723 Conservation Education Outreach Techniques: 3 hours.**

Three hours lecture. Theory and practice for establishing effective conservation education and outreach programs

**WFA 8733 Conservation Leadership, Management, and Communication: 3 hours.**

Three hours lecture. Theory, best practices, and enhancement of skills in leadership, management, and communication for conservation educators with an emphasis on volunteer management but applicable to management of all organizational employees

**WFA 8743 Aquatic Biodiversity Conservation: 3 hours.**

Three hours lecture. Taxonomy, biodiversity, ecology, conservation and management matters of freshwater, tidal, and open ocean systems and application of knowledge to design and evaluate outreach educational materials related to aquatic systems

**WFA 8753 Terrestrial Biodiversity Conservation: 3 hours.**

Three hours lecture. Taxonomy, biodiversity, ecology, evolutionary biology, conservation and management matters of terrestrial biomes and application of knowledge to design and evaluate outreach educational materials related to terrestrial systems

**WFA 8763 Capstone Project for Conservation Education: 3 hours.**

Three hours lecture. Preparation for final comprehensive exam and establishment of a conservation education entity partnership for development, delivery, and evaluation of a conservation education project

**WFA 8990 Special Topics in Wildlife, Fisheries and Aquaculture: 1-9 hours.**

Credit and title to be arranged. This course is to be used on a limited basis to offer developing subject matter areas not covered in existing courses. (Courses limited to two offerings under one title within two academic years)

**WFA 9000 Research in Wildlife, Fisheries and Aquaculture: 1-13 hours.**

Hours and credits to be arranged

# Index

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## A

Academic Opportunities (undergraduate) .....	244
Academic Policies (undergraduate) .....	247
Academic Records .....	253
Academic Standing .....	258
Admission of International Students .....	8
Admission of Transfer Students .....	7
Admission to Teacher Education .....	9
Admissions Information (undergraduate) .....	6
African American Studies .....	82
Applications .....	6

## B

Books and Supplies .....	263
Building Construction Science .....	64
Business Administration Major .....	132

## C

Center for Academic Excellence .....	264
Center for Distance Education .....	229
Class Attendance .....	259
Classification of Students .....	260
College of Agriculture and Life Sciences .....	16
College of Architecture, Art, and Design .....	64
College of Arts & Sciences .....	74
College of Business .....	130
College of Education .....	148
College of Forest Resources .....	203
College of Professional and Continuing Studies .....	228
College of Veterinary Medicine .....	217
Colleges and Degree Programs .....	15
Colvard Student Union .....	266
Community-Engaged Learning Program .....	244
Computer-Based Testing Services .....	264
Conduct and Discipline .....	261
Confidentiality and Disposal of Student Records .....	253
Cooperative Education Program .....	244
Course Descriptions .....	269
Credit by Examination .....	255
Credits, Grades, and Standing .....	254

## D

Dave C. Swalm School of Chemical Engineering .....	182
Day One Leadership Program .....	244
Degrees, Degree Requirements, and Scheduling .....	247
Department of Aerospace Engineering .....	185
Department of Agricultural and Biological Engineering .....	20
Department of Agricultural and Biological Engineering .....	186
Department of Agricultural Economics .....	23
Department of Animal and Dairy Sciences .....	25
Department of Anthropology and Middle Eastern Cultures .....	83
Department of Art .....	65
Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology .....	29
Department of Biological Sciences .....	84
Department of Chemistry .....	87
Department of Classical & Modern Languages and Literatures .....	90
Department of Communication .....	95
Department of Computer Science and Engineering .....	190
Department of Counseling, Higher Education Leadership, Educational Psychology, and Foundations .....	152
Department of Electrical and Computer Engineering .....	195
Department of English .....	98
Department of Finance and Economics .....	133
Department of Food Science, Nutrition and Health Promotion .....	34
Department of Forestry .....	206
Department of Geosciences .....	101
Department of History .....	105
Department of Industrial and Systems Engineering .....	198
Department of Industrial Technology, Instructional Design, and Community College Leadership .....	160
Department of Kinesiology .....	164
Department of Landscape Architecture .....	41
Department of Management and Information Systems .....	136
Department of Marketing, Quantitative Analysis and Business Law ...	138
Department of Mathematics and Statistics .....	107
Department of Mechanical Engineering .....	201
Department of Music .....	170
Department of Philosophy and Religion .....	109
Department of Physics and Astronomy .....	111
Department of Plant and Soil Sciences .....	44
Department of Political Science and Public Administration .....	112
Department of Poultry Science .....	52
Department of Psychology .....	115

Department of Sociology .....	116
Department of Sustainable Bioproducts .....	204
Department of Teacher Education and Leadership .....	153
Department of Wildlife, Fisheries and Aquaculture .....	211
Disability Resource Center .....	266
Disciplinary Suspension and Expulsion .....	254
Division of Arts and Sciences .....	231
Division of Business .....	236
Division of Education .....	237

**E**

Economics .....	121
Entrance Requirements .....	6

**F**

Financial Aid .....	12
Fraternity and Sorority Life .....	267
Freshman .....	6

**G**

Gender Studies Minor .....	122
General Education Requirements .....	248
General Information .....	11
General Science .....	124
Grades and Quality Points .....	257
Graduate Admissions .....	9
Graduation and Commencement .....	260

**H**

How to Apply .....	13
--------------------	----

**I**

Information Technology Services .....	265
Intercollegiate Athletics .....	268
Interdisciplinary Studies .....	125
Interior Design .....	68
International Business Program .....	142
International Services .....	264
Introduction .....	3

**J**

John C. Longest Student Health Center .....	264
---	-----

**L**

Legal Resident Status .....	10
Liberal Arts .....	123
Libraries .....	262

**M**

Montgomery Leadership Program .....	244
MSU-Meridian .....	230
Music .....	126
Musical Organizations .....	267

**N**

National Student Exchange .....	245
---------------------------------	-----

**O**

Office of Academic Affairs .....	221
Office of the Graduate School .....	243

**P**

Payments .....	11
Policies .....	13
Pre-Professional Programs .....	129
Procedures for Access .....	253

**R**

Recognition of Academic Achievement .....	260
Recruiting .....	6
Refunds .....	11
Release of Directory Information .....	253
Release of Educational Records .....	254
Religion .....	267
Reserve Officers' Training Corps .....	240
Richard A. Rula School of Civil and Environmental Engineering .....	189
Richard C. Adkerson School of Accountancy .....	145

**S**

Scholarships .....	245
School of Architecture .....	70
School of Human Sciences .....	54
Services .....	262
Shackouls Honors College .....	215
Special Non-Degree Classification .....	7
Student Access to Records .....	253
Student Account Management .....	11
Student and Campus Life .....	266
Student Counseling Services .....	264
Student Housing .....	262
Student Life .....	262
Student Organizations .....	266
Student Publication .....	266
Student Support Services .....	266

Study Abroad ..... 245

**T**

The Career Center ..... 265  
The Holmes Cultural Diversity Center ..... 265  
The James Worth Bagley College of Engineering ..... 175  
The Student Association ..... 266  
Tuition and Required Fees (T&RF) ..... 11

**U**

Undergraduate Enrollment in Graduate Courses ..... 260  
University Dining Services ..... 263  
University Recreation ..... 268

**W**

Withdrawal ..... 259