

# Department of Forestry

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## Forestry Major

**Major Advisor: Dr. Stephen C. Grado**

Office: 357 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 Products concentrations lead to a professional degree in Forestry at Mississippi State University and are accredited by the Society of American Foresters (SAF). The Forest Products concentration is also accredited by the Society of Wood Science and Technology (SWST).

**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 Products. Each concentration is an integral part of the Forestry Major and accredited by the SAF. The Forest Products concentration is also accredited by SWST. 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.

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 prerequisites 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 certain courses listed in the CFR Undergraduate Handbook.

## Natural Resource and Environmental Conservation Major

**Major Advisor: Dr. Stephen C. Grado**

Office: 357 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.

**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 the 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 1163	Accelerated Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

#### Mathematics

See concentration for requirements		3
ST 2113	Introduction to Statistics	3
or BQA 2113	Business Statistical Methods I	

#### Natural Science

CH 1043	Survey of Chemistry I	3
BIO 1134	Biology I	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

FO 4113	Forest Resource Economics <sup>1</sup>	3
Choose one of the following:		3
AEC 2713	Introduction to Food and Resource Economics	
EC 2113	Principles of Macroeconomics	
EC 2123	Principles of Microeconomics	

#### Major Core <sup>2</sup>

BIO 1144	Biology II	4
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 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
PSS 3303	Soils	3
WFA 3031	Introductory Wildlife/Fisheries Practices	1
WFA 4153	Principles of Wildlife Conservation and Management	3

#### Oral Communication Requirement

CO 1003	Fundamentals of Public Speaking	3
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#### Computer Literacy Requirement

FO 3103	Computer Application in Forest Resources	3
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**Writing Requirement**

Choose one of the following: 3

AIS 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	
MGT 3213	Organizational Communications	
BIO 3013	Professional Writing for Biologists	

<sup>1</sup> This course is also part of the Major Core

<sup>2</sup> Note: 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 for all courses required in his or her program; prerequisites and co-requisites are identified in the Course Description section of this Bulletin.

**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.

**Forest Management Concentration (FOMG)**

**Advisor: Dr. Donald L. Grebner**

Office: 329 Thompson Hall

This 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 business minor is available.

Courses to be taken in addition to those in the core curriculum of the Forestry Major are as follows:

MA 1313	College Algebra	3
PH 1113	General Physics I	3
or PH 2213	Physics I	
SBP 1103	Introduction to Sustainable Bioproducts	3
FO 3113	Forest Recreation Management	3
Business/Science Electives <sup>1</sup>		9
Professional Electives <sup>1</sup>		9
Free Elective		3
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> Professional electives and Business/Science electives are chosen from a list approved by the Department of Forestry.

**Wildlife Management Concentration (WFMG)**

**Advisor: Dr. Emily B. Schultz**

Office: 315 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 Major are as follows:

MA 1313	College Algebra	3
BIO 3524	Biology of Vertebrates	4
BIO 4203	Taxonomy of Spermatophytes	3

FO 4353	Natural Resource Law	3
WFA 3133	Applied Aquatic and Terrestrial Ecology	3
WFA 4243	Wildlife Techniques	3
WFA 4433	Mammalogy	3
WFA 4443	Ornithology	3
Professional Elective <sup>1</sup>		3
Physical Science Elective		3
<b>Total Hours</b>		<b>126</b>

<sup>1</sup> Professional electives are chosen from a list approved by the Department of Forestry.

## Environmental Conservation Concentration (ENCO)

**Advisor: Dr. Scott D. Roberts**

Office: 351 Thompson Hall

Students interested in careers dealing with complex environmental issues in the realm of forest resource management may prepare themselves through this concentration. All students within this concentration are required to take the following seven courses:

MA 1313	College Algebra	3
PH 1113	General Physics I	3
or PH 2213	Physics I	
WFA 3133	Applied Aquatic and Terrestrial Ecology	3
FO 3113	Forest Recreation Management	3
FO 4463	Forest Hydrology and Watershed Management	3
FO 4472	GIS for Natural Resource Management	3
& FO 4471	and GIS for Natural Resource Management Lab	
or FO 4453	Remote Sensing Applications	
Emphasis Electives <sup>1</sup>		14
<b>Total Hours</b>		<b>127</b>

<sup>1</sup> See Department Advisor for list of currently approved emphasis electives.

## Urban Forestry Concentration (URBN)

**Advisor: Dr. Stephen C. Grado**

Office: 357 Thompson Hall

This concentration addresses an emerging need for the management of trees in towns and cities. Urban 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 major are as follows:

MA 1313	College Algebra (or equivalent)	3
FO 3113	Forest Recreation Management	3
FO 4353	Natural Resource Law	3
FO 4471	GIS for Natural Resource Management Lab	3
& FO 4472	and GIS for Natural Resource Management	
or FO 4453	Remote Sensing Applications	
LA 3623	Urban Planning Theory	3
FO 4453	Remote Sensing Applications	3
PS 1113	American Government	3
PSS 2423	Plant Materials I	3
PSS 4353	Arboriculture and Landscape Maintenance	3
REF 3333	Principles of Real Estate	3
REF 3433	Real Property Evaluation	3
<b>Total Hours</b>		<b>128</b>

## Forest Products Concentration (FP)

Advisor: Dr. Laura A. Grace

Office: 309 Thompson Hall

This concentration is designed for students interested in the forest products industry. The program of study consists of the core courses for the university and the forestry major, plus courses specific to the concentration.

MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
CH 1053	Survey of Chemistry II	3
PH 1113	General Physics I	3
SBP 1103	Introduction to Sustainable Bioproducts	3
SBP 3113	Biomaterial Phys Mech	3
FP 4013	Wood Anatomy	3
FP Processing Elective <sup>1</sup>		3
FP Electives <sup>1</sup>		12
<b>Total Hours</b>		<b>128</b>

<sup>1</sup> See Departmental Advisor for list of current approved electives.

## Natural Resources and Environmental Conservation

### General Education Requirements

#### English

EN 1103	English Composition I	3
or EN 1163	Accelerated 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
GR 1114	Elements of Physical Geography	4
PSS 3303	Soils	3
PSS 3301	Soils Laboratory	1

#### Math

MA 1313	College Algebra	3
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 2123	Principles of Microeconomics	
SO 1003	Introduction to Sociology	3

#### Major Core

Chemistry - See concentration for requirements		
FO 1101	Forest Resources Survey	1
FO 2113	Dendrology	3
FO 3113	Forest Recreation Management	3
FO 4213	Forest Biometrics	3

FO 4313	Spatial Technologies in Natural Resources Management	3
FO 4343	Forest Administration and Organization	3
FO 4353	Natural Resource Law	3
FO 4413	Natural Resources Policy	3
GR 2313	Maps and Remote Sensing	3
NREC 3213	Environmental Measurements	3
NREC 4423	Environmental Assessment	3
WFA 3133	Applied Aquatic and Terrestrial Ecology	3
<b>Oral Communication Requirement</b>		
CO 1003	Fundamentals of Public Speaking	3
or CO 1013	Introduction to Communication	
<b>Computer Literacy Requirement</b>		
FO 3103	Computer Application in Forest Resources	3
<b>Writing Requirement</b>		
Choose one of the following:		3
AIS 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
MGT 3213	Organizational Communications	3
BIO 3013	Professional Writing for Biologists	3
<b>Concentration Courses</b>		38
See Concentration Requirements		
<b>Total Hours</b>		124

## 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 the 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.

### Natural Resource Law and Administration Core Courses

CH 1043	Survey of Chemistry I	3
PHI 1113	Introduction to Logic	3
BL 2413	The Legal Environment of Business	3
PS 3063	Constitutional Powers	3
Professional Electives - See advisor for list of approved electives		20
Free Electives		6
<b>Total Concentration Hours</b>		38

## 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.

### Resource Conservation Science Core Courses

MA 1713	Calculus I	3
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or MA 1613	Calculus for Business and Life Sciences 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
FO 4463	Forest Hydrology and Watershed Management	3
or FO 4483	Forest Soils	
Emphasis Electives - Choose Terrestrial or Aquatic - See advisor for list of approved electives		15
Professional Electives - See advisor for list of approved electives		6
Free Electives		3
<b>Total Concentration Hours</b>		<b>38</b>

## Natural Resource Technology Concentration (NRT)

**Advisor: Dr. David L. Evans**

Office: 353 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.

### Natural Resource Technology Core Courses

MA 1323	Trigonometry	3
CH 1043	Survey of Chemistry I	3
FO 2213	Forest Measurements	3
FO 4453	Remote Sensing Applications	3
FO 4471	GIS for Natural Resource Management Lab	1
FO 4472	GIS for Natural Resource Management	2
Professional Electives - See advisor for list of approved elective		20
Free Electives		3
<b>Total Concentration Hours</b>		<b>38</b>