

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

#### Mathematics

See concentrations

#### Science

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

#### Humanities

See concentrations

#### Fine Arts

Select from General Education list 3

#### Social Science

AEC 2713 or EC 2113 or EC 2123	Introduction to Food and Resource Economics Principles of Macroeconomics Principles of Microeconomics	3
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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 or BIO 4214	Agricultural Crop Physiology General Plant Physiology	3-4
PSS 4313	Soil Fertility and Fertilizers	3

#### Oral Communication Requirement:

CO 1003 or CO 1013	Fundamentals of Public Speaking Introduction to Communication	3
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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 2543, PSS 3133, PSS 3633, PSS 4103, 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

### Required Co-op Courses

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 3473, 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
Humanities - Select from General Education list	6
Social Science - Select from General Education list	3

### ICM Concentration Courses

AEC 1223 or AELC 4203	Computer Applications for Agriculturists and Life Scientists Applications of Computer Tech to Agricultural Education, Leadership, and Communications	3
BCH 4013	Principles of Biochemistry	3
BIO 3304 or PSS 4314	General Microbiology Microbiology and Ecology of Soil	4
CH 1043 or CH 1213	Survey of Chemistry I <sup>1</sup> Chemistry I	3
CH 1053 or CH 1223	Survey of Chemistry II <sup>1</sup> Chemistry II	3
CH 1051 or CH 1211	Experimental Chemistry Investigations in Chemistry I	1
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 or PO 3103	Plant Genetics Genetics I	3
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, agri-business, 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

### IPM 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	
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
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#### 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
<b>Total Hours</b>		<b>124</b>

**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
<b>Environmental Ag Consulting</b>	
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
<b>Environmental Policy and Regulation</b>	
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
<b>Environmental Conservation</b>	
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 or EN 1104	English Composition I Expanded English Composition I	3
EN 1113 or EN 1173	English Composition II Accelerated Composition II	3

#### Mathematics

See concentration requirements

#### Science

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

#### Humanities

See concentration requirements

#### Fine Arts

See concentration requirements

#### Social/Behavioral Sciences

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

#### Major Core

ACC 2013	Principles of Financial Accounting	3
AEC 1223 or AELC 4203	Computer Applications for Agriculturists and Life Scientists Applications of Computer Tech to Agricultural Education, Leadership, and Communications	3
CH 1051 or CH 1211	Experimental Chemistry Investigations in Chemistry I	1

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
<b>Writing Requirement</b>		
AELC 3203	Professional Writing in Agriculture, Natural Resources, and Human Sciences	3
<b>Oral Communication Requirement</b>		
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

**Total Hours** **122**

<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
<b>Total Hours</b>		<b>124</b>

<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	