

Add 4000/6000 Course

Course Attributes

Subject Abbreviation: WFB-Wildlife and Fish Biology **Catalog Title:** Waterfowl Ecology and Management **Additional Fee?**
Course Number: 4800 / 6800 **Transcript Title:** Waterfowl Ecology & Mgt. **Justification**
Effective Term: Fall 2018 **Cross-reference(s):**
College: Agric, Forestry and Life Sci **Grade Mode:** Standard Letter
Department: Forestry & Environmental Con

Form

User ID: shotali **Name:** Althea Hagan
Date: 03/12/2017 **Number:** 29948

Hours

Fixed Credit Course
Credit Hrs Contact Hrs

 3 3

Variable Credit Course
Credit Hrs Contact Hrs
Min Max Min Max

Rationale for Add Course

- Strengthen Program Requirement(s)
- Alignment of Student Learning Outcomes
- Alternative Delivery of Content
- Improve Time to Degree
- Evolution of the Discipline
- Changing Prerequisites
- Address DWF Rates
- General Education Modifications
- Other (Please specify.)

Schedule Types

- Field Course
- Independent Study
- Internship
- Lab No Fee
- Lab With Fee
- Lecture
- Other
- Seminar
- Studio
- Tutorial

Projected Enrollment

Year 1: 20
Year 2: 25
Year 3: 25
Year 4: 25

Evaluation

4000

A 90 - 100
B 80 - 89
C 70 - 79
D 60 - 69
F < 60

Undergraduate students will be evaluated in 4 general areas: (1) Waterfowl i.d. etc. test (20%), (2) Exam 1 (30%), (3) Final Exam 2 (40%), and in-class participation and attendance (10%). Only one unexcused absence; others by consent of instructor only.

6000

A 90 - 100
B 80 - 89
C 70 - 79
F < 70

Graduate students will be evaluated in 5 general areas: (1) Waterfowl i.d. etc. test (20%), (2) Exam 1 (20%), (3) Final Exam 2 (30%), (4) research proposal or manuscript (20%), and (5) in-class participation and attendance (10%). Only one unexcused absence; others by consent of instructor only. Graduate students will have an added assignment to earn graduate credit for the course. They will write a research proposal or scientific manuscript.

Catalog Description

Waterfowl evolutionary ecology, annual ecology of North American waterfowl, habitat selection, and population ecology and management, waterfowl and plant identification, waterfowl harvest management, waterfowl diseases, exposure to waterfowl and wetlands in North America, discussion of current waterfowl and wetland issues, and critical review of contemporary and classic literature.

Prerequisite(s) Corequisite(s)

College course work in ecology

Statement of need and justification based on assessment of student learning outcomes

To educate students and working professionals about waterfowl ecology, management, and conservation because of the ecological, environmental, and economic importance and values of waterfowl in North America.

Textbook(s)

Baldassarre, G. A., and E. G. Bolen. 2006. Waterfowl ecology and management, 2nd edition. Krieger Publishing Company, Malabar, Florida. 567pp.

Learning Objectives

1. To acquire knowledge of the annual and evolutionary ecology and habitat selection of North American waterfowl.
2. To acquire knowledge in habitat management and conservation that helps fulfill the annual life-cycle needs of North American waterfowl.
3. To acquire knowledge in taxonomy, identification, sexing and aging, plumage, and morphology of North American waterfowl.
4. To be exposed to managed waterfowl habitats on public and private lands.
5. To learn identification and management of plant and invertebrate foods of waterfowl.
7. To discuss and critique contemporary and classic literature and issues important to waterfowl and wetland ecology and conservation.
8. To gain knowledge of major waterfowl diseases and management strategies to alleviate them.
9. To become familiar with population and habitat monitoring and management methods (e.g., North American Waterfowl Management Plan, Adaptive Harvest Management).
10. To discuss emerging and current issues influencing waterfowl science and management.
11. Graduate students will learn to design and write a research proposal or a scientific manuscript in the format of The Journal of Wildlife Management.

Topical Outline

Week Topic

- 1 Course Overview, begin History of Waterfowl Management
- 2 History of Waterfowl Management
- 3 Identification, taxonomy, morphology, sexing, and aging
- 4 Finish waterfowl identification, begin waterfowl evolutionary ecology
- 5 I.D. Exam
- 6 Fall migration and wintering ecology
- 7 Finish wintering ecology, begin spring migration and breeding ecology
- 8 Exam I
- 9 Spring migration and breeding ecology
- 10 Finish breeding ecology, begin post-breeding ecology and molting
- 11 Low country Wetlands management field trip
- 12 Waterfowl harvest regulations process
- 13 Waterfowl adaptive harvest Management
- 14 Finish post-breeding ecology
- 15 Catch- and wrap- up

Add course requirements for 6000-level courses

Graduate students will be required to know scientific nomenclature of waterfowl.

Graduate students will write a research proposal or manuscript on a topic(s) approved by the instructor of record.

Syllabus

Upload File: [Syllabus Waterfowl Online-20170312123027.pdf](#)

Alan R. Joh

Chair, Department Curriculum Committee

10/23/17

Date

[Signature] _____ Date 10/23/17

Department Chair _____ Date
[Signature] _____ Date
Chair, College Curriculum Committee

[Signature] _____ Date 10/23/17
College Dean

Director, Calhoun Honors College _____ Date
[Signature] _____ Date
Chair, Undergraduate Curriculum Committee

Chair, Graduate Curriculum Committee _____ Date
[Signature] _____ Date
Provost

President _____ Date

Change 4000/6000 Course

Change a Course

Subject: PES-Plant and Env Sci
Number: 4330/6330
Effective Term: Fall 2018
Title: Landscape & Turf Weed Mgt
 Honors Course:
 Add Honors Course:
Last Term Course was taught: 201701

Brief Statement of Change Based on Assessment Results:

The new title reflects the inclusion of field crops in addition to landscape and turf weed management. The general treatment of weed management principles will be more useful and appealing to a greater number of students.

Rationale for Changing a Course

- Strengthen Program Requirement(s)
 Alignment of Student Learning Outcomes
 Alternative Delivery of Content
 Improve Time to Degree
 Evolution of the Discipline
 Changing Prerequisites
 Address DWF Rates
 General Education Modifications
 Other (Please specify.)

Change Catalog Title

From Landscape & Turf Weed Mgt
To Weed Management

Change Transcript Title

From Landscape & Turf Weed Mgt
To Weed Management

Learning Objectives

Learning Objectives 4330 and 6330: Students will:

1. Become familiar with and identify the most common 70 weedy species.
2. Understand the mode of action and environmental impacts of herbicides.
3. Know how to calibrate equipment used for weed management.

Additional Learning Objectives for 6330: Students will:

4. Be able to synthesize the ecological principles for effective weed management.
5. Be able to support their views on the regulations associated with herbicide use.

Topical Outline

Week 1 Introduction to topics and methodology of the course
 Weed Ecological Concepts Week 2 Seed and perennial parts
 Week 3 Competition and Allelopathy Week 4 Characteristics and environmental fate of herbicides
 Week 5 Exam 1 Week 6 Herbicide Mode of action Week 7 Fall Break
 Week 8 Pre-emergence Mode of Action Week 9 Landscape Weed Management
 Week 10 Field Crops Weed Management
 Week 11 Exam 2 Week 12 Herbicide resistance
 Week 13 Post-herbicide mode of action
 Week 14 Aquatics Weed management
 Week 15 Organic weed management Exam 3

Add course requirements for 6000-level courses

Problem-solving discussions (for 6330 students only)

Evaluation

4000	6000
A 90 - 100	A 90 - 100
B 80 - 89	B 80 - 89
C 70 - 79	C 70 - 79
D 60 - 69	F < 70
F < 60	Exam
Exam	1 10% Exam 2 15% Exam 3 15% Laboratory 40% Problem-solving discussion
1 20% Exam 2 20% Exam 3 20% Laboratory 40%	20%

Syllabus

Upload File: [syllabus PES 4330-20170913063143.pdf](#)

Description: syllabus

Form

User ID: pagudel **Name:** Paula Agudelo
Date: 09/13/2017 **Number:** 33326

Paula Gudelski

September 20, 2017

Chair, Department Curriculum Committee

Date

Gregory Righard

September 26, 2017

Department Chair

Date

Kee-Dee Taylor

10/23/17

Chair, College Curriculum Committee

Date

Jean A. Burkhead

10/23/17

College Dean

Date

Director, Calhoun Honors College

Date

John D. Hillfi

11/3/2017

Chair, Undergraduate Curriculum Committee

Date

Chair, Graduate Curriculum Committee

Date

Robert S. Jones

1/12/18

Provost

Date

President

Date

Change 4000/6000 Course

Change a Course

Subject: PES-Plant and Env Sci
Number: 4331/6331
Effective Term: Fall 2018
Title: Landscape & Turf Weed Mgt Lab
 Honors Course:
 Add Honors Course:
Last Term Course was taught: 999999

Brief Statement of Change Based on Assessment Results:

The new title reflects the inclusion of field crops in addition to landscape and turf weed management. The general treatment of weed management principles will be more useful and appealing to a greater number of students.

Rationale for Changing a Course

- Strengthen Program Requirement(s)
 Alignment of Student Learning Outcomes
 Alternative Delivery of Content
 Improve Time to Degree
 Evolution of the Discipline
 Changing Prerequisites
 Address DWF Rates
 General Education Modifications
 Other (Please specify.)

Change Catalog Title

From Landscape & Turf Weed Mgt Lab
To Weed Management Lab

Change Transcript Title

From Landscape & Turf Weed Mgt Lab
To Weed Management Lab

Learning Objectives

Learning Objectives 4330 and 6330: Students will:

1. Become familiar with and identify the most common 70 weedy species.
2. Understand the mode of action and environmental impacts of herbicides.
3. Know how to calibrate equipment used for weed management.

Additional Learning Objectives for 6330: Students will:

4. Be able to synthesize the ecological principles for effective weed management.
5. Be able to support their views on the regulations associated with herbicide use.

Topical Outline

Laboratory Schedule 1. Weed ID & seed project
 2. Weed ID & perennial weed survival demonstration 3. Weed ID & formulations & problems 4. Weed ID & liquid calibration demonstration -Walker Golf Course 5. Weed ID & liquid calibration problems 6. Weed ID & liquid and granular calibration 7. Weed ID & granular problems
 8. Weed ID & herbicide movement demonstration 9. Weed ID & Aquatic herbicide calibration problems 10. Weed ID & herbicide movement problems
 11. Lab Final Exam (Weed ID and Calibration) 12. Pesticide Applicators Examination

Add course requirements for 6000-level courses

Problem-solving discussion

Evaluation

4000	6000
A 90 - 100	A 90 - 100
B 80 - 89	B 80 - 89
C 70 - 79	C 70 - 79
D 60 - 69	F < 70
F < 60	

40%:

Weed ID 20% Collection 10% Calibration 10%

100% 40%: 50% 25% 25%

Weed ID 20% Collection 10% Calibration 10%

Syllabus

Upload File: [syllabus PES 4330-20170913063646.pdf](#)

Form

User ID: pagudel **Name:** Paula Agudelo

Date: 09/13/2017 **Number:** 33327

Paula Gudelski

Chair, Department Curriculum Committee

September 20, 2017

Date

Gregory Richard

Department Chair

September 20, 2017

Date

Kim Densley

Chair, College Curriculum Committee

10/23/17

Date

Jan A. Bohard

College Dean

10/23/17

Date

Director, Calhoun Honors College

Date

John D. Hill

Chair, Undergraduate Curriculum Committee

11/3/2017

Date

Chair, Graduate Curriculum Committee

Date

Robert S. Jones

Provost

1/12/18

Date

President

Date

SYLLABUS

Weed Management (PES 4330/6330 & HORT 4330/6330)

Fall 2018

LAB (PES 4331/6331 & HORT 4331/6331)

Location and Time: Lecture: E-146 Poole. Tuesdays and Thursdays, 11:00 a.m. to 12:15 p.m.
Lab: H-101 BRC. Wednesdays 1:25 -3:30 p.m.

Instructor: Dr. Ted Whitwell (101 Barre Hall); twhtwll@clemson.edu; (864)656-5333

Office Hours: 2:00 p.m. to 4:00 p.m. Tuesday, Thursday & Friday

Learning Objectives 4330 and 6330:

Students will:

1. Become familiar with and identify the most common 70 weedy species.
2. Understand the mode of action and environmental impacts of herbicides.
3. Know how to calibrate equipment used for weed management.

Additional Learning Objectives for 6330:

Students will:

4. Be able to synthesize the ecological principles for effective weed management.
5. Be able to support their views on the regulations associated with herbicide use.

Required Course Materials

Course Notes for HORT/PES 4330/6330 --- Campus Copy Shop or in blackboard

Weeds of Southern Turfgrasses (turf oriented)--- Order on line Extension publications **OR**

Weeds of the South (crop oriented) ISBN-13:978-0-8203-3046-4 – Amazon or CU bookstore.

Evaluation 4330:		Evaluation 6330:		Lab (40%):	
Exam 1	20%	Exam 1	10%	Weed ID	20%
Exam 2	20%	Exam 2	15%	Collection	10%
Exam 3	20%	Exam 3	15%	Calibration	10%
Laboratory	40%	Laboratory	40%		
		Problem-solving discussion	20%		

Attendance Policy

Regular and punctual attendance at all class and laboratory sessions is the responsibility of each student. Only medically excused absences for lecture and laboratory periods will be accepted to make up missed exams.

Academic Integrity

"As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning." Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form. In instances where academic standards may have been compromised, Clemson University has a responsibility to respond appropriately and expeditiously to charges of violations of academic integrity."

Calendar of Topics:

	Topic
Week 1	Introduction to topics and methodology of the course
	Weed Ecological Concepts
Week 2	Seed and perennial parts
Week 3	Competition and Allelopathy
Week 4	Characteristics and environmental fate of herbicides
Week 5	Exam 1
Week 6	Herbicide Mode of action
Week 7	Fall Break
Week 8	Pre-emergence Mode of Action
Week 9	Landscape Weed Management
Week 10	Field Crops Weed Management
Week 11	Exam 2
Week 12	Herbicide resistance
Week 13	Post-herbicide mode of action
Week 14	Aquatics Weed management
Week 15	Organic weed management
	Exam 3

Problem-solving discussions (for 6330 students only):

Submit your specific topic for pre-approval by September 19, 4:00 p.m.

You will have 10 min. to present the background and 10 min. to moderate/lead the discussion.

<i>General Topic</i>		<i>Examples of specific topics</i>
Clean Water Act	<i>Week 4</i>	<i>Groundwater contamination</i>
Clean Air Act	<i>Week 7</i>	<i>Particle sizes and drift</i>
Pesticides	<i>Week 8</i>	<i>Residue in food</i>
Organic Production	<i>Week 11</i>	<i>Biopesticides</i>
Intellectual Property	<i>Week 13</i>	<i>Patenting of soil microorganisms</i>
Biotechnology	<i>Week 15</i>	<i>Labeling of GMO in food</i>

Each student is expected to take the commercial pesticide examination or show a valid commercial pesticide license. Student rate for exam is \$38 dollars (non student rate is \$100).

Laboratory Schedule

1. Weed ID & seed project
2. Weed ID & perennial weed survival demonstration
3. Weed ID & formulations & problems
4. Weed ID & liquid calibration demonstration –Walker Golf Course
5. Weed ID & liquid calibration problems
6. Weed ID & liquid and granular calibration
7. Weed ID & granular problems
8. Weed ID & herbicide movement demonstration
9. Weed ID & Aquatic herbicide calibration problems
10. Weed ID & herbicide movement problems
11. Lab Final Exam (Weed ID and Calibration)
12. Pesticide Applicators Examination

Departmental Honors: Plant and Environmental Sciences

Students must complete a minimum of 12 credits as follows:

PES 3910 Junior Honors Research (1) in combination with any 3000/4000 course in the dept.

PES 4910 Senior Honors Research (3)

And 8 credits from the list below or life science honors courses approved by your advisor.

PES 3150 Environment and Agriculture (3)

PES 4230 Field Crops – Forages (3)

PES 4530 Soil Fertility Laboratory (1)

PES 4920 Senior Honors Research (1-3)

HORT 4610 Advanced Landscape Garden Design (4)

PLPA 3020 Plant Pathology Research (1-3)

ENT 4000 Insect Morphology (4)

ENT 4040 Urban Entomology (3)

ENT 4690 Aquatic Insects (3)

Change Major

If Gen Ed requirements are changed a separate Gen Ed Checklist form must accompany this form.

Major Name: Plant and Env Sciences
Degree: Bachelor of Science
Effective Catalog Year: 2018-2019
 Change Major Name to: PES **Curriculum Map:** PES changes 2018-19-20170912161500.pdf
 Change Degree to: Bachelor of Science
 Change Curriculum Requirements **Description:** PES curriculum map
 Change General Education Requirements **Additional Information:**
 Add, Change, or Delete Concentration(s) **Description:**
 Add, Change, or Delete Emphasis Area(s)

Summary/Explanation

We propose the following changes to the three concentrations in PES:

1. Delete AGRB 2050 Agriculture and Society as a requirement. This course now has restrictions by major. We propose to replace with 3cr of a Cross-cultural Awareness requirement of the student's choosing. The STS requirement will be satisfied by PES 3150 Environment and Agriculture, which will be removed from the list of courses approved for concentration requirements.
2. Add HORT 4560 Vegetable Crops as an alternative to 4220 Major World Crops. These two courses are now offered in alternate years, and allow students to choose depending on their particular interests. HORT 4560 will be removed from the list of courses approved for concentration requirements.
3. Move PES 4550 Seminar to the last semester. Students will make more of the invited presentations with better background in the different subjects. It is also a networking opportunity.
4. Reduce concentration requirements accordingly so that all are 120-121 credits. This improves time to graduation and aligns the three concentrations. In the Agricultural Biotechnology Concentration:
 5. Add BIOL3080 Biology of Plants Practicum as a requirement. This course used to not be enforced as a co-requisite to BIOL 3040, but now they are required to go together.
 In the Soil and Water Science Concentration:
 6. Delete PES 4080 Land Treatment of Wastewater as a requirement. This course is offered very intermittently, so we propose to move it to the list of courses approved for the Field Scale Environmental Mgt. Requirement, and increase those requirements to 6 credits. Also add GEOL 4820 and PES 4450 to the list, as these have been commonly used substitutions for PES 4080.

Rationale for Change Major

- Strengthen Program Requirement(s)**
 Alignment of Student Learning Outcomes
 Alternative Delivery of Content
 Improve Time to Degree
 Evolution of the Discipline
 Changing Prerequisites
 Address DWF Rates
 General Education Modifications
 Other (Please specify.)

Form

User ID: pagudel **Name:** Paula Agudelo
Date: 09/12/2017 **Number:** 33312

Paula Gudelotti

September 20, 2017

Chair, Department Curriculum Committee

Date

Gregory Righard

September 26, 2017

Department Chair

Date

K. Dale Zyl

10/23/17

Chair, College Curriculum Committee

Date

Jean A. Bertrand

10/23/17

College Dean

Date

Director, Calhoun Honors College

Date

John D. Hiffi

11/3/2017

Chair, Undergraduate Curriculum Committee

Date

Chair, Graduate Curriculum Committee

Date

Robert S. Jones

1/12/18

Provost

Date

President

Date

Plant and Environmental Sciences – Agronomy Concentration 2018-19

Freshman Year

First Semester			Second Semester		
BIOL 1030	General Biology I ¹	3	BIOL 1040	General Biology II ¹	3
BIOL 1050	General Biology Lab. I ¹	1	BIOL 1060	General Biology Lab II ¹	1
CH 1010	General Chemistry	4	CH 1020	General Chemistry	4
MATH 1020	Business Calculus OR	3	ENGL 1030	Accelerated Composition	3
	MATH 1060 Calculus One Variable (4)		STAT 2300	Statistical Methods I	3
PES 1040	Introduction to Plant Sciences	3	Arts and Humanities (Non-Lit.) Requirement ²		
Semester Hours: 14-15			Semester Hours: 17		

¹BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060.

²See General Education Requirements.

Sophomore Year

First Semester			Second Semester		
CH 2010	Survey of Organic Chemistry	3	AGRB 2050	Agriculture and Society	3
CH 2020	Survey of Organic Chemistry Lab.	1	COMM 2500	Public Speaking OR	3
ENT 3010	Insect Biology and Diversity	4		COMM 1500 Intro. Human Comm.	
PES 2020	Soils	4	GEN 3000	Fundamental Genetics	3
PLPA 3100	Principles of Plant Pathology	3	MICR 3050	General Microbiology	4
			Cross-cultural Awareness Requirement ²		
Semester Hours: 15			Semester Hours: 13		

Summer

ENT 4070	Applied Agricultural Entomology	3
PLPA 4110	Plant Disease Diagnosis	3

Semester Hours: 6

Junior Year

First Semester			Second Semester		
AGRB 2020	Agricultural Economics OR	3	BIOL 4010	Plant Physiology	3
	ECON 2110 Ppls. of Microeconomics		BIOL 4020	Plant Physiology Lab.	1
BCHM 3050	Essential Elements of Biochemistry	3	ENGL 3150	Scientific Writing and Comm.	3
IPM 4010	Principles of Integrated Pest Mgt.	3	PES 4050	Plant Breeding	3
PES 4220	Major World Crops OR	3	PES 4090	Biology of Invasive Plants	3
	HORT 4560 Vegetable Crops		PES 4550	Seminar	1
Concentration Requirement ¹		3	PES 3150	Environment and Agriculture	3
Semester Hours: 15			Semester Hours: 14 16		

Senior Year

First Semester			Second Semester		
PES 4450	Regulatory Issues and Policies	3	PES 3500	Practicum	3
PES 4900	Beneficial Soil Org. in Plant Growth	3	PES 4520	Soil Fertility and Management	3
Arts and Humanities (Literature) Requirement ²		3	PES 4530	Soil Fertility Lab.	1
Concentration Requirement ¹		3	Concentration Requirement ¹		
Social Science Requirement ²		3	PES 4550	Seminar	1
Semester Hours: 15 12			Semester Hours: 15 12		

Total ~~122-123~~ 120-121 Total Semester Hours

¹ Select from AGM 2050/2051, 2060/2061, 3010, 4020, 4100/4101, AGRB 3020, 3090, 3190, 4520, BIOL 3130, 3200/3201, 4130, 4410, 4460, 4470, ENR 4130, ENT 3000, 3080, 4000, 4150, 4360, HORT 3100, 4040, 4050, 4550, 4560, MICR 4010, 4020, 4100, PES 3150, 4210, 4230, 4260, 4330, 4460, PLPA 4250, 4260, 4540, 4590, 4960/4970.

² See General Education Requirements.

Plant & Environmental Sciences – Agricultural Biotechnology Concentration 2018-19

Freshman Year

First Semester			Second Semester		
BIOL 1030	General Biology ¹	3	BIOL 1040	General Biology II ¹	3
BIOL 1050	General Biology Lab. I ¹	1	BIOL 1060	General Biology Lab II ¹	1
CH 1010	General Chemistry	4	CH 1020	General Chemistry	4
MATH 1020	Business Calculus OR	3	ENGL 1030	Accelerated Composition	3
	MATH 1060 Calculus One Variable (4)		STAT 2300	Statistical Methods I	3
PES 1040	Introduction to Plant Sciences	3	Arts and Humanities (Non-Lit.) Requirement ²		
Semester Hours: 14-15			Semester Hours: 17		

¹BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060.

²See General Education Requirements.

Sophomore Year

First Semester			Second Semester		
BIOL 3040	Biology of Plants	3	AGR-2050	Agriculture and Society	3
BIOL 3080	Biology of Plants Practicum	1	BIOL 3350	Evolutionary Biology	3
CH 2010	Survey of Organic Chemistry	3	COMM 2500	Public Speaking OR	3
CH 2020	Survey of Organic Chemistry Lab.	1		COMM 2500 Intro. Human Comm.	
ENT 3010	Insect Biology and Diversity	4	GEN 3000	Fundamental Genetics	3
PLPA 3100	Principles of Plant Pathology	3	MICR 3050	General Microbiology	4
			PES 4550	Seminar	1
			Cross-cultural Awareness Requirement		
Semester Hours: 14 15			Semester Hours: 17 16		

Junior Year

First Semester			Second Semester		
BCHM 3050	Essential Elements of Biochem.	3	BIOL 4010	Plant Physiology	3
ECON 2000	Economic Concepts OR	3	BIOL 4020	Plant Physiology Lab.	1
	ECON 2110 Ppls. of Microeconomics		ENGL 3150	Scientific Writing and Comm.	3
PES 3350	Agricultural Biotechnology	3	PES 4050	Plant Breeding	3
PES 4220	Major World Crops OR	3	PES 4090	Biology of Invasive Plants	3
	HORT 4560 Vegetable Crops				
Social Science Requirement ¹					
Semester Hours: 15			Semester Hours: 12 13		

Summer

PES 3400	Medical Botany	3
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Semester Hours: 3

Senior Year

First Semester			Second Semester		
PES 4450	Regulatory Issues and Policies	3	PES 3500	Practicum	3
PES 4900	Beneficial Soil Org. in Plant Growth	3	PES 4550	Seminar	1
Arts and Humanities (Literature) Requirement ¹			Concentration Requirement ²		
			9-5		
Concentration Requirement ²			PES 3150	Environment and Agriculture	3
Semester Hours: 15			Semester Hours: 15 12		

Total – 120-121 Total Semester Hours

¹ See General Education Requirements.

²Select from AGRB 4520, BIOL 3020/3060, 3130, 3200, 4060/4070, 4410, 4460, 4580, 4610, ECON 3100, ENR 4290, ENT 4000, 4070, 4150, 4360, 4950, GEN 4050, 4100, 4400, MICR 4010, 4020, 4100, 4130, PES 4210, 4230, PLPA 4110, 4250, 4260, 4540, 4590, 4960/4970.

Plant and Environmental Sciences – Soil and Water Science Concentration 2018-19

Freshman Year

First Semester			Second Semester		
BIOL 1030	General Biology ¹	3	BIOL 1040	General Biology II ¹	3
BIOL 1050	General Biology Lab. I ¹	1	BIOL 1060	General Biology Lab II ¹	1
CH 1010	General Chemistry	4	CH 1020	General Chemistry	4
MATH 1020	Business Calculus OR	3	ENGL 1030	Accelerated Composition	3
	MATH 1060 Calculus One Variable (4)		STAT 2300	Statistical Methods I	3
PES 1040	Introduction to Plant Sciences	3	Arts and Humanities (Non-Lit.) Requirement ²		
Semester Hours: 14-15			Semester Hours: 17		

¹BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060.

²See General Education Requirements.

Sophomore Year

First Semester			Second Semester		
CH 2010	Survey of Organic Chemistry	3	AGBR-2050	Agriculture and Society	3
CH 2020	Survey of Organic Chemistry Lab.	1	COMM 2500	Public Speaking OR	3
GEOL 1010	Physical Geology	3		COMM 1500 Intro. Human Comm.	
GEOL 1030	Physical Geology Lab.	1	MICR 3050	General Microbiology	4
PES 2020	Soils	4	PHYS 2080	General Physics II	3
PHYS 2070	General Physics I	3	PHYS 2100	General Physics II Lab.	1
PHYS 2090	General Physics I Lab.	1	Cross-cultural Awareness Requirement ²		
Semester Hours: 16			Semester Hours: 14		

Junior Year

First Semester			Second Semester		
AGM 3010	Soil and Water Conservation	3	BIOL 4010	Plant Physiology	3
PES 4220	Major World Crops OR	3	BIOL 4020	Plant Physiology Lab.	1
	HORT 4560 Vegetable Crops (3)		PES 3150	Environment and Agriculture	3
Social Science Requirement ²		3	ENGL 3150	Scientific Writing and Comm.	3
Concentration Requirement ¹		96	Concentration Requirement ¹		
			Social Science Requirement ²		
			Semester Hours: 16		
Semester Hours: 15					

Senior Year

First Semester			Second Semester		
PES-3500	Practicum	3	PES-4080	Land Treatment of Wastewater	3
PES 4030	Soil Genesis and Classification	2	PES 4900	Beneficial Soil Org. in Plant Growth	3
PES-4550	Seminar	1	PES 4550	Seminar	1
Applied Spatial Technology Requirement ³		3	PES 3500	Practicum	3
Arts and Humanities (Literature) Requirement ²		3	Social Science Requirement ²		
Field Scale Environmental Mgt. Requirement ⁴		3-6	Concentration Requirement ¹		
Semester Hours: 15 14			Semester Hours: 15 14		

Total –~~122-123~~ 120-121 Total Semester Hours

¹ Select from AGRB 3570, 4520, BCHM 3050, BE 4240, BIOL 4340, CH 3130, 3170, 4130, ENR 4130, ETOX 4460, 4470, FNR 4660, PES 4210, 4230, 4260, 4261, 4460, 4520, 4530, 4850, 4960/4970, WFB 3130.

² See General Education Requirements.

³AGM 4100, FOR 4330, or GEOL 4210.

⁴AGM 4020, GEOL 3000, 4090, **4820**, EES 4140, PES **4080**, **4450**, 4460.

Add Undergraduate Course

Course Attributes

Subject Abbreviation: PES-Plant and Env Sci **Catalog Title:** Junior Honors Research
Course Number: 3910 **Transcript Title:** Junior Honors Research
Effective Term: Fall 2018 **Cross-reference(s):**
College: Agric, Forestry and Life Sci **Grade Mode:** Standard Letter
Department: Plant & Environmental Sciences **Additional Fee?**

Justification

PES 3910 is designed to be taken in conjunction with plant and environmental sciences courses at the 3000 or 4000-level, and leads to the senior honors thesis.

Form

User ID: pagudel **Name:** Paula Agudelo
Date: 09/13/2017 **Number:** 33328

Hours

Fixed Credit Course
Credit Hrs Contact Hrs

1 1

Variable Credit Course
Credit Hrs Contact Hrs
Min Max Min Max

Honors

- Honors Students Only?**
 Honors sections allowed to be offered?

Rationale for Add Course

- Strengthen Program Requirement(s)**
 Alignment of Student Learning Outcomes
 Alternative Delivery of Content
 Improve Time to Degree
 Evolution of the Discipline
 Changing Prerequisites
 Address DWF Rates
 General Education Modifications
 Other (Please specify.)

Schedule Types

- Field Course**
 Independent Study
 Internship
 Lab No Fee
 Lab With Fee
 Lecture
 Other
 Seminar
 Studio
 Tutorial

Projected Enrollment

Year 1: 3
Year 2: 5
Year 3: 10
Year 4: 10

Evaluation

Undergraduate

A 90 - 100
B 80 - 89
C 70 - 79
D 60 - 69
F < 60

Prospectus 10%
 Rough Draft 30%
 Full Research Design Paper: 60%

Catalog Description

Readings and research in conjunction with a plant and environmental sciences course at the 3000 or 4000 level.

Prerequisite(s) **Corequisite(s)**

Junior standing and membership in Calhoun Honors College.

Statement of need and justification based on assessment of student learning outcomes

Honors students would benefit from some preparation and planning before they start their Honors thesis.

Textbook(s)

none

Learning Objectives

- Students will learn how to identify a research question in plant and environmental sciences
- Students will synthesize plant and environmental sciences research to develop a literature review
- Students will develop a research design that they can use to test their research question

Topical Outline

PES 3910 is designed to be taken in conjunction with plant and environmental sciences courses at the 3000 or 4000-level. It leads to the senior honors thesis and involves the completion of a junior honors paper. PES 3910 involves the completion of a prospectus for the senior honors thesis. The Junior Honors Research Paper and the Prospectus for the Senior Honors Thesis are to be written under the guidance and direction of one or more members of the plant and environmental sciences faculty. In appropriate cases, the junior honors advisor or co-advisor may be a faculty member from outside the Department of Plant and Environmental Sciences.

In developing and completing the research design, it is the student's responsibility to find a faculty advisor who will work with them throughout the fall and spring semesters. The research design should consist of (a) a statement of the question to be examined and why it is important, (b) a comprehensive review of the relevant literature, (c) a proposed method for approaching and answering this question, and (d) a discussion of what you expect to find once you carry out the senior thesis. In other words, the research design contains an introduction, a literature review, and a research design/methodology section including hypotheses.

Add course requirements for honors courses (if applicable)

The Junior Honors Research Paper and the Prospectus for the Senior Honors Thesis are to be written under the guidance and direction of one or more members of the plant and environmental sciences faculty

Syllabus

Upload File: [PES 3910-20170913064845.pdf](#)

Description: syllabus PES 3910

Paula Gudelski

September 20, 2017

Chair, Department Curriculum Committee

Date

Gregory Righard

September 26, 2017

Department Chair

Date

Kim Dancy

10/23/17

Chair, College Curriculum Committee

Date

Jean A. Bertrand

10-23-17

College Dean

Date

Director, Calhoun Honors College

Date

John D. Hill

11/3/2017

Chair, Undergraduate Curriculum Committee

Date

Chair, Graduate Curriculum Committee

Date

Robert S. Jones

1/12/18

Provost

Date

President

Date

PES 3910: Junior Honors Research

Spring 2019

Meeting times: To Be Arranged

Location: To Be Arranged

Office: 210 Biosystems Research Complex

Office Phone: 656-5741

Office Hours: 2-5 p.m. M, W, F

Email: pagudel@clemson.edu

Student Learning Objectives:

- Students will learn how to identify a research question in plant and environmental sciences
- Students will synthesize plant and environmental sciences research to develop a literature review
- Students will develop a research design that they can use to test their research question

Introduction: PES 3910 is designed to be taken in conjunction with plant and environmental sciences courses at the 3000 or 4000-level. It leads to the senior honors thesis and involves the completion of a junior honors paper. PES 3910 involves the completion of a prospectus for the senior honors thesis. The Junior Honors Research Paper and the Prospectus for the Senior Honors Thesis are to be written under the guidance and direction of one or more members of the plant and environmental sciences faculty. In appropriate cases, the junior honors advisor or co-advisor may be a faculty member from outside the Department of Plant and Environmental Sciences.

In developing and completing the research design, it is the student's responsibility to find a faculty advisor who will work with them throughout the fall and spring semesters.

The research design should consist of (a) a statement of the question to be examined and why it is important, (b) a comprehensive review of the relevant literature, (c) a proposed method for approaching and answering this question, and (d) a discussion of what you expect to find once you carry out the senior thesis. In other words, the research design contains an introduction, a literature review, and a research design/methodology section including hypotheses.

Grading:

- Prospectus: 10%
- Rough Draft: 30%
- Full Research Design Paper: 60%
- Prospectus: (a) a short summary of the research question and the contribution the paper will make, and (b) a brief sketch of the method that will be used in the research.
- Rough Draft: full rough draft of the paper, including the introduction, literature review, and the methodology sections. The draft should also include proper citations and a list of references.
- Full Research Design Paper: The student will revise the paper based on the feedback provided. The student grade on this assignment will be based both on the final product and on the level of improvement between the draft and the final version.

The student's responsibilities: Although the faculty is committed to helping each student in the research and writing of his/her senior paper, it is the student's responsibility to complete the required work, to initiate and maintain contact with his/her advisor, and meet all deadlines set by the advisor, and to abide by these guidelines.

000198

Add Undergraduate Course

Course Attributes

Subject Abbreviation: AFLS-Ag, For and Life Sciences **Catalog Title:** Agriculture and Forestry Domestic Study Tour **Additional Fee?**
Course Number: 2000 **Transcript Title:** Ag For Dom Study Tour **Justification**
Effective Term: Spring 2018 **Cross-reference(s):**
College: Agric, Forestry and Life Sci **Grade Mode:** Pass/No Pass
Department: CAFLS Asso Dean for Aca Affair

Form

User ID: jbrtrnd **Name:** Jean Bertrand
Date: 10/31/2017 **Number:** 33390

Hours

Fixed Credit Course
 Credit Hrs Contact Hrs

Variable Credit Course
 Credit Hrs Contact Hrs

Min	Max	Min	Max
1	3	15	45

Rationale for Add Course

- Strengthen Program Requirement(s)
- Alignment of Student Learning Outcomes
- Alternative Delivery of Content
- Improve Time to Degree
- Evolution of the Discipline
- Changing Prerequisites
- Address DWF Rates
- General Education Modifications
- Other (Please specify.)
Offers experiential learning opportunities

Schedule Types

- Field Course
- Independent Study
- Internship
- Lab No Fee
- Lab With Fee
- Lecture
- Other
- Seminar
- Studio
- Tutorial

Course Modifier

- Variable Title
 - Creative Inquiry
 - Repeatable
- Max Credits: 6

Projected Enrollment

Year 1: 30
 Year 2: 34
 Year 3: 38
 Year 4: 40

Evaluation

Undergraduate

A	90	-	100
B	80	-	89
C	70	-	79
D	60	-	69
F	<		60

A score of 80% will be a passing grade.

Catalog Description

Course will provide the opportunity for students to travel domestically to learn about the agricultural and/or forestry industries.

Statement of need and justification based on assessment of student learning outcomes

The Clemson Forward Strategic Plan calls for "enhanced engagement opportunities across academic affairs." It goes on to say "Some of the most profound learning happens outside the classroom." This course will provide experiential learning opportunities to students in all CAFLS majors, as well as those considering these majors, by studying and visiting various agricultural and/or forestry enterprises. Engagement with the owners and operators of these businesses will shed fresh perspectives on career opportunities. The tour stops will first be studied and discussed in the classroom, and the travel component will bring this information to life.

Textbook(s)

Information available on internet.

Learning Objectives

1. Students will visit agriculture and/or forestry-related businesses and will be able to describe the significance of their business models and management plans.
2. Students will evaluate the potential for career opportunities related to each business.
3. Students will be able to assess the sustainability of each business and its relevance within the broad context of the agriculture and forestry industries.

4. Upon completion of the study tour, students will identify the three most impactful stops and write reflections of those stops.
5. Students will determine if the economic potential of these businesses, combined with their personal interests, will affect their choice of career paths.

Topical Outline

TBD

[revised AFLS 2000 syllabus for 2018 Spring Break Trip-20170929140446.docx](#)

500199

Syllabus

Upload File: [revised AFLS 2000 generic syllabus -20170929140558.docx](#)

Description: Generic syllabus for ag for domestic study tour

000200

Ken Donzyro
Chair, Department Curriculum Committee

10/23/17
Date

Department Chair

Date

Ken Donzyro
Chair, College Curriculum Committee

10/23/17
Date

College Dean

Date

Jean A. Bertrand
Director, Calhoun Honors College

10/31/17
Date

John D. Stiff
Chair, Undergraduate Curriculum Committee

11/3/2017
Date

Chair, Graduate Curriculum Committee

Date

Robert S. Jones
Provost

1/12/18
Date

President

Date

SOCIOLOGY CURRICULUM

Bachelor of Science

Freshman Year

First Semester

3 - SOC 2010 Introduction to Sociology *or*
3 - SOC 2020 Social Problems

3 or 4 - Mathematics Requirement ¹

4 - Natural Science Requirement ²

3 - Social Science Requirement ²

3 - Elective

16/17

Second Semester

3 - ENGL 1030 Composition and Rhetoric

3 - STAT 2300 Statistical Methods I

3 - Oral Communication Requirement ³

3 - Departmental Math. or Science Requirement ⁴

3 - Elective

15

Sophomore Year

First Semester

3 - Arts and Humanities (Literature) Requirement ²

3 - Cross-Cultural Awareness Requirement ²

3 - Departmental Math. or Science Requirement ⁴

3 - Minor Requirement ⁵

3 - Elective

15

Second Semester

2 - SOC 2040 - Prof. Dev. for Sociology Majors

3 - Arts and Humanities (Non-Lit.) Requirement ²

3 - Departmental Math. or Science Requirement ⁴

3 - Science and Tech. in Society Requirement ²

6 - Minor Requirement ⁵

17

Junior Year

First Semester

3 - SOC 3020 Social Research Methods I

3 - SOC Stratification Requirement ⁶

3 - SOC Emphasis Area Requirement ⁷

3 - Advanced Writing Requirement ⁸

3 - Advanced Humanities Requirement ⁹

15

43-B

Second Semester

- 4 - SOC 3040 Social Research Methods II
 - 3 - SOC Emphasis Area Requirement ⁷
 - 3 - Departmental Math. or Science Requirement ⁴
 - 3 - Advanced Humanities Requirement ⁹
 - 3 - Minor Requirement ⁵
- 16

Senior Year

First Semester

- 3 - SOC Stratification Requirement ⁶
 - 3 - SOC Emphasis Area Requirement ⁷
 - 6 - Departmental Math. or Science Requirement ⁴
 - 3 - Elective
- 15

Second Semester

- 3 - SOC 4040 Sociological Theory
 - 6 - SOC Emphasis Area Requirement ⁷
 - 3 - Minor Requirement ⁵
- 12

121-122 Total Semester Hours

¹ MATH 1010 (3), MATH 1020(3) or MATH 1060(4)

² See General Education Requirements. (*Note:* Social Science Requirement must be in an area other than sociology.)

³ COMM 1500 or COMM 2500

⁴ Select from ANTH 3310, 3510, 3530, 4510, 4530, 4660, or any course in AGM, AST, AVS, BCHM, BE, BIOE, BIOL, BMOL, BT, CE, CES, CH, CHE, CPSC, CSM, CVT, ECE, EES, EM, ENGR, ENR, ENSP, ENT, ETOX, FDSC, FNR, FOR, GEN, GEOL, HCG, HLTH, HORT, IE, MATH, ME, MICR, MSE, NURS, NUTR, PES, PHSC, PHYS, PKSC, PLPA, STAT, or WFB. At least nine of the 18 hours must be at the 3000 level or above.

⁵ See page *** for approved minors.

⁶ SOC 3600, SOC 4600 or SOC 4610

⁷ See Emphasis Area Requirements in program description above.

⁸ ENGL 3040, 3120, or 3140

⁹ Select from ART 2100, MUSC 2100, THEA 2100, or any 3000- or 4000-level courses in AAH, ARAB, ASL, CHIN, COMM (except 3640 and 3680), ENGL (except 3040, 3120, 3140, 3330, 4850, 4900, and 4950), FR, GER, HUM, ITAL, JAPN, LANG, LATN, MUSC, PHIL, PORT, REL, RUSS, SPAN, THEA (except 3770, 4870, and 4970), and WS.

45-A

SOCIOLOGY CURRICULUM

Bachelor of Arts

Freshman Year

First Semester

3 - SOC 2010 Introduction Sociology *or*
3 - SOC 2020 Social Problems

3 or 4 - Mathematics Requirement ¹

3 - Modern Language Requirement ²

4 - Natural Science Requirement ³

3 - Elective

16/17

Second Semester

3 - ENGL 1030 Composition and Rhetoric

3 - STAT 2300 Statistical Methods I

3 - Modern Language Requirement ²

3 - Social Science Requirement ³

3 - Elective

15

Sophomore Year

First Semester

3 - Oral Communication Requirement ⁴

3 - Arts and Humanities (Literature) Requirement ³

3 - Cross-Cultural Awareness Requirement ³

6 - Elective

15

Second Semester

2 - SOC 2040 - Prof. Dev. for Sociology Majors

3 - Arts and Humanities (Non-Lit.) Requirement ³

3 - Science and Tech. in Society Requirement ³

6 - Minor Requirement ⁵

3 - Elective

17

Junior Year

First Semester

3 - SOC 3020 Social Research Methods I

3 - SOC Stratification Requirement ⁶

3 - SOC Emphasis Area Requirement ⁷

3 - Advanced Writing Requirement ⁸

3 - Advanced Humanities Requirement ⁹

15

HS-B

Second Semester

- 4 - SOC 3040 Social Research Methods II
 - 3 - SOC Emphasis Area Requirement ⁷
 - 3 - Advanced Humanities Requirement ⁹
 - 6 - Minor Requirement ⁵
- 16

Senior Year

First Semester

- 3 - SOC Stratification Requirement ⁶
 - 6 - SOC Emphasis Area Requirement ⁷
 - 3 - Advanced Humanities Requirement ⁹
 - 3 - Elective
- 15

Second Semester

- 3 - SOC 4040 Sociological Theory
 - 3 - SOC Emphasis Area Requirement ⁷
 - 3 - Advanced Humanities Requirement ⁹
 - 3 - Minor Requirement ⁵
- 12

121-122 Total Semester Hours

¹ MATH 1010 (3), MATH 1020(3) or MATH 1060(4)

² Students must complete through 2020 in a modern language. See Modern Languages Requirement at Clemson University statement on page ***.

³ See General Education Requirements. (*Note*: Social Science Requirement must be in an area other than sociology.)

⁴ COMM 1500 or COMM 2500

⁵ See page *** for approved minors.

⁶ SOC 3600, SOC 4600 or SOC 4610

⁷ See Emphasis Area Requirements in program description above.

⁸ ENGL 3040, 3120, or 3140

⁹ Select from ART 2100, MUSC 2100, THEA 2100, or any 3000- or 4000-level courses in AAH, ARAB, ASL, CHIN, COMM (except 3640 and 3680), ENGL (except 3040, 3120, 3140, 3330, 4850, 4900, and 4950), FR, GER, HUM, ITAL, JAPN, LANG, LATN, MUSC, PHIL, PORT, REL, RUSS, SPAN, THEA (except 3770, 4870, and 4970), and WS.