

**Change Major Name:** Biological Sciences (BA - 201405)  
**Degree:** BA  
**Effective Catalog Year:** 2014  
 .. **Change Major Name to:**  
 .. **Change Degree to:** (CHE approval required)  
 X **Change Curriculum Requirements**  
 (Submit or upload Curriculum map in catalog format. CHE approval required for > 18 hours of changes)  
 .. **Change General Education Requirements**  
 (Must also submit a General Education Checklist)  
 .. **Add, Change or Delete Concentration(s)**  
 (Submit or upload Curriculum map in catalog format. CHE approval required)  
 .. **Add, Change or Delete Emphasis Area(s)**

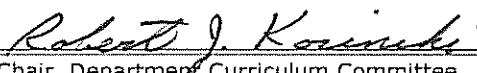
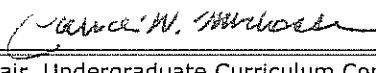
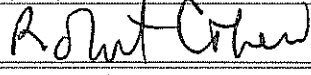
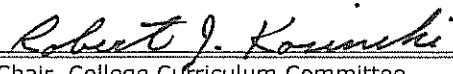
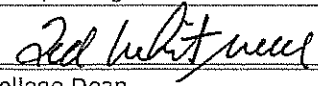
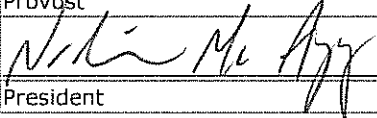
**Explanation:** We wish to make changes to respond to the expiration of blanket substitutions, plus other changes that will facilitate double majors in Biological Sciences and Science Teaching-Biological Sciences. We wish to allow:  
 1. students to take either BIOL 1010 or the very similar MICR 1010 in freshman year.  
 2. students to take either BIOL 4930 or the very similar MICR 4930 as their senior seminar.  
 3. Science Teaching-Biological Sciences students to use EDSC 4470 (Teaching Internship) to satisfy our Major Requirement (footnote 8).  
 4. Science Teaching-Biological Sciences students to use EDSC 4570 (Secondary Science Capstone Seminar) to satisfy our Senior Seminar requirement, BIOL or MICR 4930 (footnote 13).  
 5. We are making a change to our footnote 2 that will allow students who took 8 credits of BIOL 1030/1050 and 1040/1060 instead of 10 credits of BIOL 1100 and 1110 to use 2000-level credits to satisfy the shortfall. This makes that footnote consistent with the our BS, and corrects a past error.

All these changes are underlined on the accompanying curriculum map.

We wish to apply changes 1 and 2 to all Biological Sciences and Microbiology degrees:

- Biological Sciences BA
- Biological Sciences BA, Prerehabilitation Sciences Emphasis Area
- Biological Sciences BS
- Biological Sciences BS, Entomology Emphasis Area
- Biological Sciences BS, Prepharmacy Emphasis Area
- Biological Sciences BS, Quantitative Biology Emphasis Area
- Biological Sciences BS, Toxicology Emphasis Area
- Microbiology BS
- Microbiology BS, Biomedicine Concentration

**Form Originator:** , **Date Form Created:** 10/28/2013  
**Form Last Updated by:** RJKSN, Kosinski, Robert J **Date Form Last Updated:** 10/28/2013  
**Form Number:** 6736

Approval			
	10/28/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
	11/26/13		1/18/14
College Dean	Date	President	Date

## B.A. BIOLOGICAL SCIENCES 2014-2015

000002

### FRESHMAN YEAR

<u>First Semester</u>	<u>Second Semester</u>
BIOL 1010 Frontiers in Biol. I <b>or</b> ..... 1(1,0)	BIOL 1110 Prin. of Biol. II <sup>2</sup> ..... 5(4,3)
MICR 1010 Microbes and Human Affairs. 1(1,0)	CH 1020 General Chemistry ..... 4(3,3)
BIOL 1100 Prin. of Biol. II ..... 5(4,3)	ENGL 1030 Accelerated Composition ..... 3(3,1)
CH 1010 General Chemistry ..... 4(3,3)	Mathematical Sciences Requirement <sup>3</sup> ..... 3-4
COMM 1500 Intro. to Human Comm. or .... 3(2,2)	15-16
COMM 2500 Public Speaking ..... 3(3,1)	
MTHS 1060 Calculus of One Var. I ..... 4(4,0)	
17	

### SOPHOMORE YEAR

CH 2230 Organic Chemistry <sup>4</sup> <b>and</b> ..... 3(3,0)	BCHM 3010 Molecular Biochemistry <b>or</b> ..... 3(3,0)
CH 2270 Organic Chemistry Lab <b>or</b> ..... 1(0,3)	BCHM 3050 Essential Elements of Bioch. <sup>5</sup> ... 3(3,0)
CH 2010 Survey of Organic Chemistry ..... 4(3,3)	Major Requirement <sup>4,8</sup> ..... 4
GEN 3000 Fundamental Genetics <sup>5</sup> ..... 3(3,0)	Foreign Language Requirement <sup>7</sup> ..... 4
Arts and Humanities (Literature) Req. <sup>6</sup> ..... 3	Organismal Diversity Requirement <sup>9</sup> ..... 4
Foreign Language Requirement <sup>7</sup> ..... 4	15
Social Science Requirement <sup>6</sup> ..... 3	
17	

### JUNIOR YEAR

BIOL 3350 Evolutionary Biology ..... 3(3,0)	Arts and Humanities (Non-Lit) Req. <sup>6</sup> ..... 3
BIOL 4610 Cell Biology ..... 3(3,0)	Foreign Language Requirement <sup>7</sup> ..... 3
BIOL 4620 Cell Biology Laboratory <sup>10</sup> ..... 2(1,2)	Ecology <sup>12</sup> ..... 3
ENGL 3150 Scientific Writing and Comm. ... 3(3,0)	Minor Requirement <sup>11</sup> ..... 6
Foreign Language Requirement <sup>7</sup> ..... 3	15
Minor Requirement <sup>11</sup> ..... 3	
17	

### SENIOR YEAR

BIOL 4930 Senior Seminar <sup>13</sup> <b>or</b> ..... 2(2,0)	PHYS 2080 General Physics II ..... 3(3,0)
MICR 4930 Senior Seminar <sup>13</sup> ..... 2(2,0)	
PHYS 2070 General Physics I ..... 3(3,0)	PHYS 2100 General Physics II Lab ..... 1(0,2)
PHYS 2090 General Physics I Lab ..... 1(0,2)	Minor Requirement <sup>11</sup> ..... 6
Functional Biol. Req. <sup>14</sup> ..... 3	Elective ..... 3
Social Science Requirement <sup>6</sup> ..... 3	13
12	

**Total Semester Hours = 121 - 122**

- <sup>1</sup> Students seeking a double major in Science Teaching/Biological Sciences should substitute ED 1050 for BIOL 1010.
- <sup>2</sup> BIOL 1100 and 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100 and BIOL 1040/1060 may substitute for BIOL 1110. The remaining 1-2 credits required must be satisfied by completing 1-2 extra credits from departmental course offerings at the 2000-level or higher.
- <sup>3</sup> EXST 3010, MTHS 2030 or 1110, or other approved coursework. See advisor. Medical/dental schools have different mathematics requirements.
- <sup>4</sup> Most professional health sciences schools require two semesters of organic chemistry with laboratory.
- <sup>5</sup> Or other approved coursework at the 2000 level or higher.
- <sup>6</sup> See General Education Requirements. Six of these credit hours must also satisfy the Cross-Cultural Awareness and the Science and Technology in Society Requirements.
- <sup>7</sup> Four semesters (through 2020) in the same modern foreign language are required.
- <sup>8</sup> Four credit hours must be selected from BIOL or MICR courses at the 3000-level or above, CH 2240/2280, or from the department-approved list. Students seeking a double major in Science Teaching/Biological Sciences should substitute EDSC 4470 for Major Requirement.
- <sup>9</sup> At least one lecture and associated laboratory selected from BIOL 3010, 3020/3060, 3030/3070, 3040/3080, 3200, 4060/4070, 4250/4260 or other approved coursework at the 2000 level or higher.
- <sup>10</sup> Students seeking a double major in Science Teaching/Biological Sciences should substitute BIOL 4820 for BIOL 4620.
- <sup>11</sup> See page 63 in the Undergraduate Announcements for approved minors.
- <sup>12</sup> At least one course selected from BIOL 4410, 4420, 4430, 4460, 4700, or MICR 4010.
- <sup>13</sup> Students seeking a double major in Science Teaching/Biological Sciences should substitute EDSC 4570 for BIOL 4930 or MICR 4930.
- <sup>14</sup> At least one course selected from selected from BIOL 3160, 4010, 4080, 4590, 4750, or 4800.



## Curriculum and Course Change System - Print Change/Delete Course Form

**X Change a Course - Abbrev & Number: PKSC- 4990**

Corresponding Lab Course: PKSC--4991

Corresponding Honors course: --

.. **Add Honors course:** --

Corresponding Graduate course: --

.. **Add Graduate course:** --**Course Title: Creative Inquiry**

000003

**Brief Statement of Change:**

We wish to change PKSC 4990 (4991 as co-requisite lab) from lecture/lab to seminar only with intent of creating new course as lab only. This change is being made based on student comments from exit interviews and curriculum assessment.

Last Term taught: 201305

Effective Term: 08/2014

.. **Change Abbrev to:**.. **Change Number to:****X Change Catalog Title:**

from: Creative Inquiry - Packaging Science

to: Creative Inquiry - Packaging Science Seminar

.. **Change Transcript Title:**

from: Creative Inquiry

X From: Fixed Credit: (,0) To: Fixed Credit: (,)

**Change of Credit:** Variable Credit: 1-8 (-), (-) Variable Credit: - (1-3),(-).. **Add cross-listing with the following child course(s):**.. **Delete cross-listing with the following child course(s):**.. **Reverse Parent/Child relationship with:**

X Change Method of Instruction		X Change Course Modifier		.. Change General Education Designation	
from:	to:	from:	to:	from:	to:
.. A-Lecture Only	..	.. Pass/Fail Only	..	.. Creative Inquiry	..
.. B-Lab (w/fee)	..	X Graded	X	.. English Composition	..
.. D-Seminar	X	.. Variable Title	X	.. Oral Communication	..
.. E-Independent Study	..	.. Creative Inquiry	..	.. Mathematics	..
.. F-Tutorial (w/fee)	..	.. Repeatable	X	.. Natural Science w/Lab	..
.. G-Studio	..	maximum credits		.. Natural Science w/Lab	..
.. H-Field course	..	from:		.. Math or Science	..
.. I-Study Abroad	..	to:8		.. A&H (Literature)	..
.. L-Lab (no/fee)	..			.. A&H (Non-Literature)	..
.. N/B-Lecture/Lab(w/fee)	..			.. Social Science	..
X N/L-Lecture/Lab(no fee)	..			.. CCA	..
				.. STS	..

**X Change Catalog Description:**

**from:** In consultation with and under direction of a faculty member, students pursue scholarly activities individually or in teams. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. May be repeated for up to eight credits. Coreq: PKSC 4991

**to:** This course is for projects that are seminar only and does not require a lab for their projects such as surveys or literature research. Projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. The credits earned by 4990 and 4980 may be no greater than 8 credits.

**X Change Prerequisite(s):****from:** Coreq: PKSC 4991**to:** none**Learning Objectives:** • Independent project skills

- Communication with industry professionals in the medical packaging field
- Team work and cooperation
- Development of reporting and data interpretation

**Topical Outline:** Week 1: Overview of Potential Projects

Week 2: Develop list of possible research topics

Week 3: Research Topic Selection and Create Teams

Week 4: Discussion on Experimental and Literature Search Methods

Week 5: Begin Drafts of papers and outline of seminar

Week 6-10 Consultation on paper and seminar

Week 10-15- Organize Topic into Poster Presentation and/or Paper and Deliver Seminar

**Evaluation:** Drafts of Paper (two drafts @ 15% each) 30%

Final Paper or Poster 20%

Drafts of Seminar (two drafts @ 15%) 30%

Final Seminar 20%

Students will be graded as follows

A 90-100%

B 80-89.9%

C 70-79.9%

D 60-69.9%  
F Below 60.0%

**Form Originator:** KCOOKSE, Cooksey, Kay D **Date Form Created:** 10/18/2013  
**Form Last Updated by:** , **Date Form Last Updated:** 11/22/2013  
**Form Number:** 6675

000004

**Approval**

<i>Kay Cooksey</i>	11-22-13	<i>Patricia W. Whitman</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>E. Jeffrey Kroll</i>	11/22/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kosinski</i>	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Red Whitman</i>	11/26/13	<i>John Mc Agy</i>	1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



## Curriculum and Course Change System - Print New Course Form

**Course Abbreviation & Number:**

X New Undergraduate Course: PKSC- 4980

.. New Honors Course: --

.. New Graduate Course: -

000005

**Effective Term:** 08/2014**Catalog Title:** Creative Inquiry Laboratory**Transcript Title:** Creative Inquiry Laboratory**Fixed Credit Course:** (,)**Variable Credit Course:** 1-3 (0-0), (3-9)

Method of Instruction	Course Modifier	General Education Designation
.. A-Lecture Only	.. Pass/Fail Only	.. Creative Inquiry
.. B-Lab (w/fee)	X Graded	.. English Composition
.. D-Seminar	X Variable Title	.. Oral Communication
.. E-Independent Study	.. Creative Inquiry	.. Mathematics
.. F-Tutorial (w/fee)	X Repeatable	Natural Science No
.. G-Studio	maximum credits: 8	.. Lab
.. H-Field course		.. Natural Science w/Lab
.. I-Study Abroad		.. Math or Science
X L-Lab (no/fee)		.. A&H (Literature)
.. N/B-Lecture/Lab(w/fee)		.. A&H (Non-Literature)
.. N/L-Lecture/Lab(no fee)		.. Social Science
		.. CCA
		.. STS

**Add cross-listing with the following child course(s):**

**Catalog Description:** In consultation with and under direction of a faculty member, students pursue scholarly activities individually or in teams based on laboratory experimentation. These creative inquiry projects may be interdisciplinary. Arrangements with mentors must be established prior to registration. The credits earned by 4990 and 4980 may be no greater than 8. *combined*

**Prerequisite(s):** none**Projected Enrollment:**

Year 1 - 10 Year 2 - 12 Year 3 - 15 Year 4 - 20

**Required course for students in:**

**Statement of need and justification based on assessment results of student learning outcomes:** Assessment results along with graduating senior student exit interviews strongly indicate that two different types of Creative Inquiry experiences are needed. One which addresses a seminar topic that allows in-depth research into a topic relevant to packaging science or packaging science related field and another that allows hands-on experimentation. Since the existing course PKSC 4990 is being changed to seminar only, PKSC 4980 is necessary to offer students a broader offering within the Creative Inquiry experience.

**Textbook(s):****Learning Objectives:** • Independent project skills

- Communication with industry professionals in the field
- Team work and cooperation
- Development of reporting and data interpretation
- Development of experimental design skills
- Interpretation of data and support literature

**Topical Outline:** Week 1 - Create groups - Select research topics

Week 2 - Work on research outline

Week 3 - Development of Experimental Procedure

Week 4 - Refine Experimental Procedure

Week 5 - Begin Experimentation

Week 6-14 - Continue Experimentation

Week 15 - Present paper/poster

**Evaluation:** Justification of research topic 10%

Drafts of Experimental Design (two drafts @ 10%) 20%

Draft of Paper with literature support (two drafts @ 10%) 20%

Final Paper and Presentation 50%

Students will be graded as follows

A 90-100%

B 80-89.9%

C 70-79.9%

D 60-69.9%

F Below 60.0%

**Form Originator:** KCOOKSE, Cooksey, Kay D **Date Form Created:** 11/7/2013**Form Last Updated by:** , **Date Form Last Updated:** 11/22/2013**Form Number:** 6827

**Approval**

<i>Kay Coohsey</i>	11-22-13	<i>Carice W. Moore</i> 000006	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>E. Jeffrey Rhoads</i>	11/22/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kasinski</i>	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Ed Whitwell</i>	11/26/13	<i>John M. Ayers</i>	1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



**Curriculum and Course Change System - Print Major Form**

**Change Major Name:** Packaging Science (BS - 201401)

**Degree:** BS

000007

**Effective Catalog Year:** 2014

**.. Change Major Name to:**

**.. Change Degree to:** (CHE approval required)

**X Change Curriculum Requirements**

(Submit or upload Curriculum map in catalog format. CHE approval required for > 18 hours of changes)

**.. Change General Education Requirements**

(Must also submit a General Education Checklist)

**.. Add, Change or Delete Concentration(s)**

(Submit or upload Curriculum map in catalog format. CHE approval required)

**.. Add, Change or Delete Emphasis Area(s)**

**Explanation:** Due to Mathematical Sciences changes to EXST 3010, we wish to change our curriculum to reflect these changes. We wish to delete EXST 3010 as the course no longer exists as of Fall 2014 and replace it with STAT 2300 Statistical Methods I, to be added to second semester Junior year and STAT 3300 Statistical Methods II to be added to first semester Senior Year. This change requires a change in total credit hours from 124 to 127. PKSC 4010 was moved to first semester Junior year to allow for addition of the STAT courses, thus changing the credit hours for first semester Junior year from 14 to 17 hours. The statement regarding change of majors has been altered from "a minimum GPR of 2.0" to "an overall GPR of 2.0 and Complete four (4) of the following courses with an average GPR of 2.7 in the selected four (4) courses: BIOL 1030, BIOL 1040, CH 1010, CH 1020, PHYS 2070, PHYS 1220, PHYS 2080, PHYS 2210, MTHSC 1060 (or 1040, 1070) and Complete PKSC 1020 with a grade of B or better". Changes were also made to the footnote shown as \*1. Previously the footnote indicated that a C or better was required for graduation in PKSC 1010, 1020, 2020, 2040 and 2060. Now, footnote 1 reads that the grade of C or better is now required in PKSC 1020, 2020 and 2040 before registration for PKSC 4010, 4040, 4160, 4300, 4400, 4540, 4640; and a C or better is required in all PKSC courses in order to graduate. Since the courses build upon one another, we wish to include all core PKSC courses in the curriculum to ensure mastery of the concepts in each of the courses before moving to the next level of courses. The reason for this change is two fold. First, we wish to maintain high quality students in the major and secondly, the program has grown considerably beyond the University desired 1:17 student to faculty ratio. By raising the minimum GPA for transfer students, we hope to somewhat control growth in the major while maintaining high quality graduates.

**Form Originator:** KCOOKSE, Cooksey, Kay D **Date Form Created:** 10/18/2013

**Form Last Updated by:** KCOOKSE, Cooksey, Kay D **Date Form Last Updated:** 11/22/2013

**Form Number:** 6678

**Approval**

	11-22-13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	11/22/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
	11/26/13		1/18/14
College Dean	Date	President	Date

000003

## PACKAGING SCIENCE CURRICULUM 2014-2015

### FRESHMAN YEAR

<u>First Semester</u>	<u>Second Semester</u>
PKSC 1010 Packaging Orientation* <sup>1</sup> .....	PKSC 1020 Intro to Packaging Science* <sup>1</sup> .....
BIOL1030 General Biology I.....	BIOL 1040 General Biology II.....
BIOL1050 General Biology Lab I .....	BIOL 1060 General Biology Lab II .....
CH 1010 General Chemistry .....	CH 1020 General Chemistry .....
MTHS 1060 Calculus of One Variable I.....	ENGL 1030 Accelerated Composition.....
Social Science Requirement* <sup>2</sup> .....	COMM 2500 Public Speaking .....
1	2
3	3
1	1
4	4
4	3
3	3
	16

### SOPHOMORE YEAR

<u>First Semester*<sup>3</sup></u>	<u>Second Semester*<sup>3</sup></u>
PKSC 2020 Packaging Materials & Manuf* <sup>1</sup> .....	PKSC 2010 Packaging Perishable Products* <sup>1</sup> .....
PKSC 2200 Product/Pkg Design and Prototyping .....	PKSC 2040 Container Systems* <sup>1</sup> .....
CH 2010 Survey Organic Chemistry <i>or</i> .....	PKSC 2060 Container Systems Lab* <sup>1</sup> .....
CH 2230 Organic Chemistry <i>and</i> .....	PHYS 2080 General Physics II <i>and</i> .....
CH 2270 Organic Chemistry Lab .....	PHYS 2100 General Physics II Lab <i>or</i> .....
PHYS 2070 General Physics I <i>and</i> .....	PHYS 2210 Physics w/Calculus II <i>and</i> .....
PHYS 2090 General Physics I Lab <i>or</i> .....	PHYS 2230 Physics Lab II.....
PHYS 1220 Physics w/Calculus I <i>and</i> .....	Arts & Humanities (Literature) Requirement* <sup>2</sup> .....
PHYS 1240 Physics Lab II .....	
4	3
4	3
4	1
3	3
1	1
3	3
1	1
3	3
1	3
16	14
CO-OP 1010 Cooperative Education* <sup>4</sup> .....	
0	

### JUNIOR YEAR

<u>First Semester</u>	<u>Second Semester</u>
ENGL 3140 Technical Writing.....	PKSC 3200 Package Design Fundamentals* <sup>1</sup> .....
PKSC 4010 Packaging Machinery* <sup>1</sup> .....	PKSC 3680 Packaging & Society* <sup>1</sup> .....
PKSC 4040 Mechanical Properties of Packages	PKSC 4300 Converting for Flexible Packaging* <sup>1</sup> .....
& Principles of Protective Packaging* <sup>1,5</sup> .....	PKSC 4400 Packaging for Distribution .....
PKSC 4540 Product and Package Eval Lab* <sup>1,5</sup> .....	STAT 2300 Statistical Methods I.....
GC 1030 Graphic Comm I for Packaging Sci .....	Emphasis Area Requirement* <sup>6</sup> .....
Emphasis Area Requirement* <sup>6</sup> .....	
3	3
3	3
3	3
1	3
4	3
3	18
17	

### SENIOR YEAR

<u>First Semester</u>	<u>Second Semester</u>
PKSC 4160 Appl of Polymers in Packaging* <sup>1</sup> .....	PKSC 4030 Packaging Career Preparation* <sup>1</sup> .....
PKSC 4640 Food & Health Care Pkg Syst* <sup>1</sup> .....	PKSC 4200 Package Design & Development* <sup>1</sup> .....
STAT 3300 Statistical Methods .....	APEC 2020 Agricultural Economics <i>or</i> .....
Emphasis Area Requirement* <sup>6</sup> .....	ECON 2110 Principles of Microeconomics .....
4	1
4	3
3	3
3	3
14	3
	6
	16

**Total Semester Hours – 127**



\*1 Undergraduates in the BS Packaging Science program are required:

000009

1. to complete PKSC 1020, 2020, 2040 and 2060 with a grade of C or better before being allowed to register for PKSC 4010, 4040, 4160, 4300, 4400, 4540, 4640.
  - These courses are restricted to PKSC majors and minors except with consent of instructor, so instructor could also waive PKSC prerequisites for non-majors or non-minors
2. to earn a C or better in **all** PKSC courses in order to graduate

\*2 See General Education Requirements. Three of these credit hours must also satisfy the Cross-Cultural Awareness Requirement. *Note:* Social Science Requirement must be in an area other than economics or applied economics. A 2000-level or higher foreign language course is recommended to satisfy the Arts and Humanities (Non-literature) Requirement

\*3 Students interested in minors or emphasis areas should take any prerequisites in the sophomore year.

\*4 At least one 15-week period of 40 hr weeks of Cooperative Education is required. A six month period is preferred. Two 10-week summer periods of 40 hr weeks with the same company is an option.

\*5 PKGSC 4040 and 4540 must be taken concurrently.

\*6 Completion of a University-approved minor or Department-approved Emphasis Area is required.

**Emphasis areas** consist of 15 credit hours selected from one of the following areas (additional emphasis area courses may be approved by emphasis area coordinator):

- *Distribution, Transportation and Engineering Technology* – See Advisor for approved emphasis area courses. G. Batt
- *Materials* – See Advisor for approved emphasis area courses. D. Darby
- *Food and Health Care Packaging* – See Advisor for approved emphasis area courses. K. Cooksey
- *Package Design and Graphics* – See Advisor for approved emphasis area courses. A. Hurley

### **Introductory Catalog Description**

The Bachelor of Science degree in Packaging Science prepares students for careers in industries producing and utilizing packages for all types of products. Packaging is an essential part of industrialized economies, protecting, preserving, and helping to market products. The field of packaging is highly competitive and highly innovative, requiring an ever-increasing number of professional positions.

Opportunities for employment include a wide variety of career paths such as manufacturing, marketing, sales, design, purchasing, quality assurance, and customer services. Most career opportunities are in positions requiring technical knowledge combined with marketing and management skills.

The core curriculum assures graduates of having the skills and knowledge required by most entry-level packaging positions. Emphasis area choices or minors allow students to select courses to improve career preparation for specific industry segments, including: Distribution, Transportation and Engineering Technology; Food and Health Care Packaging; Materials; Package Design and Graphics. Alternatively, any University-approved minor may be completed.

### **Statement for Change of Major:**

Requirements for change of majors for a BS in Packaging Science are:

1. An overall minimum GPR of 2.0, and
2. Complete four (4) of the following courses with an average GPR of 2.7:
  - o BIOL 1030, BIOL 1040, CH 1010, CH 1020, PHYS 2070, PHYS 1220, PHYS 2080, PHYS 2210, MTHSC 1060 (or 1040,1070)

and
3. Complete PKSC 1020 with a grade of B or better.



Curriculum and Course Change System - Print Change/Delete Course Form

000010

X Delete a Course - Abbrev & Number: CRD- 2350

Corresponding Graduate Course: --

.. Corresponding Honors course: --

Course Title: INTRO LEADERSHIP

**Brief Statement of Change:**

The CRD program was effectively dissolved with the dissolution of the former Department of Applied Economics and Statistics. The emerging new Agribusiness Program has no faculty to teach the course. The rural sociologist that previously taught the course was relocated into the Department of Sociology in August 2011 when the Department of Applied Economics and Statistics dissolved. Moreover, the course was last taught in January 2006. The course is cross-listed under the SOC 2350 rubric and may be taught as SOC 2350 in the future.

Last Term taught: 0601

Effective Term: 08/2014

Form Originator: WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: WILLIS9, Willis,David Brian Date Form Last Updated: 10/24/2013

Form Number: 6570

**Approval**

<i>Alan R. Joh</i>	10/25/13	<i>Patricia W. Anderson</i>	12/16/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia A. Bayton</i>	10/08/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kuzinski</i>	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Jed Whitmore</i>	11/26/13	<i>Nick M. Ayer</i>	1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



Curriculum and Course Change System - Print Change/Delete Course Form

000011

XChange a Course - Abbrev & Number: C R D- 3350

Corresponding Lab Course: --

Corresponding Honors course: --

..Add Honors course: --

Corresponding Graduate course: --

..Add Graduate course: --

Course Title: LEADERSHIP IN ORG

**Brief Statement of Change:**

This course will no longer be taught under the CRD rubric. Instead, Sociology will now offer the course under the SOC rubric. The former Applied Economics and Statistics faculty member that taught the course is now housed in the Sociology Department. Dr. Ellen Granberg, Chair of the Sociology Department, has agreed to the housing of the course in the Sociology Department.

Last Term taught: 0808 XChange Abbrev to: SOC

Effective Term: 08/2014 ..Change Number to:

..Change Catalog Title: ..Change Transcript Title:

from: from: LEADERSHIP IN ORG

to: to:

.. From: Fixed Credit: 3 (3,) To: Fixed Credit: (,)

Change of Credit: Variable Credit: - (-), (-) Variable Credit: - (-),(-)

.. Add cross-listing with the following child course(s):

.. Delete cross-listing with the following child course(s):

.. Reverse Parent/Child relationship with:

..Change Method of Instruction	..Change Course Modifier	..Change General Education Designation
from: to:	from: to:	from: to:
XA-Lecture Only	..Pass/Fail Only	..Creative Inquiry
..B-Lab (w/fee)	..XGraded	..English Composition
..D-Seminar	..Variable Title	..Oral Communication
..E-Independent Study	..Creative Inquiry	..Mathematics
..F-Tutorial (w/fee)	..Repeatable	..Natural Science w/Lab
..G-Studio	..maximum credits	..Natural Science w/Lab
..H-Field course	from:	..Math or Science
..I-Study Abroad	to:	..A&H (Literature)
..L-Lab (no/fee)		..A&H (Non-Literature)
..N/B-Lecture/Lab(w/fee)		..Social Science
..N/L-Lecture/Lab(no fee)		..CCA
		..STS

..Change Catalog Description:

from:

to:

..Change Prerequisite(s):

from:

to:

Learning Objectives:

Topical Outline:

Evaluation:

Form Originator: WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: WILLIS9, David Willis Date Form Last Updated: 10/8/2013

Form Number: 6571

**Approval**

	10/25/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/22/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
	11/26/13		1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

000013



Curriculum and Course Change System - Print Change/Delete Course Form

XChange a Course - Abbrev & Number: C R D- 3360

Corresponding Lab Course: --

Corresponding Honors course: --

..Add Honors course: --

Corresponding Graduate course: --

..Add Graduate course: --

Course Title: COMM DEVELOP METHODS

**Brief Statement of Change:**

This course will no longer be taught under the CRD rubric. Instead, Sociology will now offer the course under the SOC rubric. The former Applied Economics and Statistics faculty member that taught the course is now housed in the Sociology Department. Dr. Ellen Granberg, Chair of the Sociology Department, has agreed to the housing of the course in the Sociology Department.

Last Term taught: 0408

XChange Abbrev to: SOC

Effective Term: 08/2014

..Change Number to:

..Change Catalog Title: ..Change Transcript Title:

from: from: COMM DEVELOP METHODS

to:

From: Fixed Credit: 3 (3,) To: Fixed Credit: (,)

Change of Credit: Variable Credit: - (-), (-) Variable Credit: - (-),(-)

.. Add cross-listing with the following child course(s):

.. Delete cross-listing with the following child course(s):

.. Reverse Parent/Child relationship with:

..Change Method of Instruction ..Change Course Modifier ..Change General Education Designation

from:	to:	from:	to:	from:	to:
XA-Lecture Only	..	..Pass/Fail Only	..	..Creative Inquiry	..
..B-Lab (w/fee)	..	XGraded	..	..English Composition	..
..D-Seminar	..	..Variable Title	..	..Oral Communication	..
..E-Independent Study	..	..Creative Inquiry	..	..Mathematics	..
..F-Tutorial (w/fee)	..	..Repeatable	..	..Natural Science w/Lab	..
..G-Studio	..	maximum credits	..	..Natural Science w/Lab	..
..H-Field course	..	from:	..	..Math or Science	..
..I-Study Abroad	..	to:	..	..A&H (Literature)	..
..L-Lab (no/fee)	..		..	..A&H (Non-Literature)	..
..N/B-Lecture/Lab(w/fee)	..		..	..Social Science	..
..N/L-Lecture/Lab(no fee)	..		..	..CCA	..
				..STS	..

..Change Catalog Description:

from:

to:

..Change Prerequisite(s):

from:

to:

Learning Objectives:

Topical Outline:

Evaluation:

Form Originator: WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: WILLIS9, David Willis Date Form Last Updated: 10/8/2013

Form Number: 6578

Approval

	10/25/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
	11/26/13		1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



Curriculum and Course Change System - Print Change/Delete Course Form

000013

XDelete a Course - Abbrev & Number: C R D- 3570

Corresponding Graduate Course: --

..Corresponding Honors course: --

Course Title: NAT RESOURCE ECON

**Brief Statement of Change:**

The CRD program was effectively dissolved with the dissolution of the former Department of Applied Economics and Statistics. CRD 3570 is cross-listed as APEC 3570 and will now be exclusively taught under the APEC rubric as APEC 3570.

Last Term taught:1301

Effective Term:08/2014

Form Originator:WILLIS9, David WillisDate Form Created: 10/8/2013

Form Last Updated by: WILLIS9, David WillisDate Form Last Updated: 10/8/2013

Form Number: 6581

**Approval**

<i>Alan R. Joh</i>	10/26/13	<i>Patricia W. ...</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia W. ...</i>	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Keimicki</i>	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Lee Whitman</i>	11/26/13	<i>N. K. M. ...</i>	1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



Curriculum and Course Change System - Print Change/Delete Course Form

000014

XDelete a Course - Abbrev & Number: CRD- 3610

Corresponding Graduate Course: --

..Corresponding Honors course: --

Course Title: Int Health Care Econ

**Brief Statement of Change:**

The CRD program was effectively dissolved with the dissolution of the former Department of Applied Economics and Statistics. CRD 3610 is cross-listed as APEC 3610 and will now be exclusively taught as APEC 3610.

Last Term taught: 201301

Effective Term: 08/2014

Form Originator: WILLIS9, Willis, David Brian Date Form Created: 10/9/2013

Form Last Updated by: WILLIS9, Willis, David Brian Date Form Last Updated: 10/9/2013

Form Number: 6634

**Approval**

<i>Alan R. Joh</i>	10/25/13	<i>Janice W. Johnson</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia Bayton</i>	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kosinski</i>	11/23/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Red Whitener</i>	11/26/13	<i>Nolan M. Ayers</i>	1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



000015

Curriculum and Course Change System - Print Change/Delete Course Form

XDelete a Course - Abbrev & Number: C R D- 4110

Corresponding Graduate Course: C R D- -6110

..Corresponding Honors course: --

Course Title: REG IMPACT ANALYSIS

**Brief Statement of Change:**

The CRD program was effectively dissolved with the dissolution of the former Department of Applied Economics and Statistics. CRD 4110 and CRD 6110 are now respectively cross-listed as APEC 4110 and APEC 6110. In the future these two courses will be exclusively taught under the APEC rubric.

Last Term taught:1008

Effective Term:08/2014

Form Originator:WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: , Date Form Last Updated: 10/8/2013

Form Number: 6582

**Approval**

<i>Alan R. Job</i>	10/25/13	<i>Janice W. Anderson</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia A. Bayton</i>	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Korinuki</i>	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Zed Whitman</i>	11/26/13	<i>N. K. M. Agy</i>	1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



Curriculum and Course Change System - Print Change/Delete Course Form

000018

XDelete a Course - Abbrev & Number: C R D- 4120

Corresponding Graduate Course: C R D- -6120

..Corresponding Honors course: --

Course Title: REG ECONOMIC DEVEL

**Brief Statement of Change:**

The CRD program was effectively dissolved with the dissolution of the former Department of Applied Economics and Statistics. CRD 4120 and CRD 6120 are now respectively cross-listed as APEC 4120 and APEC 6120. In the future these two courses will be exclusively taught under the APEC rubric.

Last Term taught: 1301

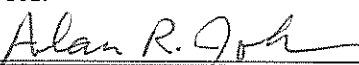

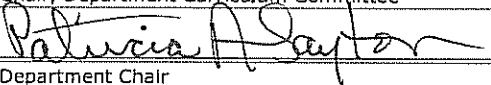

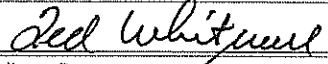
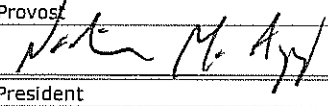
Effective Term: 08/2014

Form Originator: WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: WILLIS9, David Willis Date Form Last Updated: 10/8/2013

Form Number: 6583

**Approval**

	10/25/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
	11/26/13		1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		





Curriculum and Course Change System - Print Change/Delete Course Form

000017

XDelete a Course - Abbrev & Number: C R D- 4910

Corresponding Graduate Course: --

..Corresponding Honors course: --

Course Title: INTERNSHIP

**Brief Statement of Change:**

The CRD program was effectively dissolved with the dissolution of the former Department of Applied Economics and Statistics. CRD 4910 is cross-listed as APEC 4910 and in the future will be exclusively taught as APEC 4910.

Last Term taught: 1301


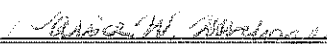
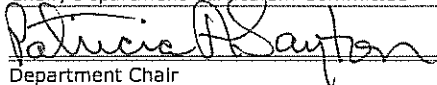

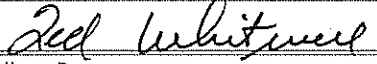
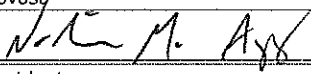
Effective Term: 08/2014

Form Originator: WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: WILLIS9, David Willis Date Form Last Updated: 10/8/2013

Form Number: 6585

**Approval**

	10/25/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
	11/26/13		1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



Curriculum and Course Change System - Print Change/Delete Course Form

000018

X Change a Course - Abbrev & Number: C R D- 4920

Corresponding Lab Course: --

Corresponding Honors course: --

.. Add Honors course: --

Corresponding Graduate course: C R D- -6920

.. Add Graduate course: --

Course Title: CASE STUDY PROJECT

**Brief Statement of Change:**

These courses will no longer be taught under the CRD rubric. Instead, Sociology will now offer the two courses under the SOC rubric. The former Applied Economics and Statistics faculty member that taught the course is now housed in the Sociology Department. Dr. Ellen Granberg, Chair of the Sociology Department, has agreed to the housing of these courses in the Sociology Department.

Last Term taught: 0901 X Change Abbrev to: SOC

Effective Term: 08/2014 .. Change Number to:

.. Change Catalog Title: .. Change Transcript Title:

from: from: CASE STUDY PROJECT

to:

to:

.. From: Fixed Credit: 3 (3,) To: Fixed Credit: (,)

Change of Credit: Variable Credit: - (-), (-) Variable Credit: - (-),(-)

.. Add cross-listing with the following child course(s):

.. Delete cross-listing with the following child course(s):

.. Reverse Parent/Child relationship with:

.. Change Method of Instruction		.. Change Course Modifier		.. Change General Education Designation	
from:	to:	from:	to:	from:	to:
.. A-Lecture Only	.. Pass/Fail Only	..	..	.. Creative Inquiry	..
.. B-Lab (w/fee)	.. X Graded	..	..	.. English Composition	..
.. D-Seminar	.. Variable Title	..	..	.. Oral Communication	..
X E-Independent Study	.. Creative Inquiry	..	..	.. Mathematics	..
.. F-Tutorial (w/fee)	.. Repeatable	..	..	.. Natural Science w/Lab	..
.. G-Studio	.. maximum credits	..	..	.. Natural Science w/Lab	..
.. H-Field course	.. from:	..	..	.. Math or Science	..
.. I-Study Abroad	.. to:	..	..	.. A&H (Literature)	..
.. L-Lab (no/fee)	..	..	..	.. A&H (Non-Literature)	..
.. N/B-Lecture/Lab(w/fee)	..	..	..	.. Social Science	..
.. N/L-Lecture/Lab(no fee)	..	..	..	.. CCA	..
		..	..	.. STS	..

.. Change Catalog Description:

from:

to:

.. Change Prerequisite(s):

from:

to:

Learning Objectives:

Topical Outline:

Evaluation:

Form Originator: WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: WILLIS9, Willis, David Brian Date Form Last Updated: 11/6/2013

Form Number: 6580

Approval

<i>Alan R. Joh</i>	11/7/13	<i>Janice W. Ambrose</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia Rayton</i>	11/7/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kasinski</i>	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Zed Whitman</i>	11/26/13	<i>Nathaniel M. Apy</i>	1/18/14

11/6/13

Curriculum and Course Change System

000020

College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



Curriculum and Course Change System - Print Change/Delete Course Form

000021

XDelete a Course - Abbrev & Number: C R D- 4940

Corresponding Graduate Course: --

..Corresponding Honors course: --

Course Title: CREATIVE INQUIRY

**Brief Statement of Change:**

The CRD program was effectively dissolved with the dissolution of the former Department of Applied Economics and Statistics. CRD 4940 is cross-listed as APEC 4940 and in the future will be exclusively taught as APEC 4940.

Last Term taught: 1301

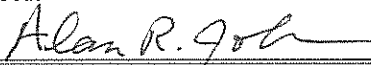

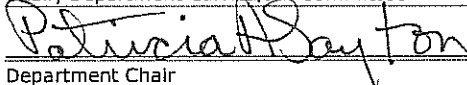


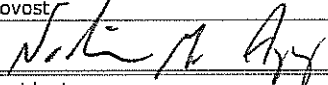
Effective Term: 08/2014

Form Originator: WILLIS9, David Willis Date Form Created: 10/8/2013

Form Last Updated by: WILLIS9, Willis, David Brian Date Form Last Updated: 10/9/2013

Form Number: 6586

**Approval**

	10/25/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
	11/26/13		1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



## Curriculum and Course Change System - Print Change/Delete Course Form

000023

X Change a Course - Abbrev &amp; Number: AP EC- 3080

Corresponding Lab Course: --

Corresponding Honors course: --

.. Add Honors course: --

Corresponding Graduate course: --

.. Add Graduate course: --

Course Title: QUANT AG ECON

**Brief Statement of Change:**

The course renumbering serves two purposes. First, it provides the student sufficient time to satisfy the basic statistic prerequisite (STAT 2300), and secondly it reflects the expectation that student in this course will demonstrate mastery of foundational quantitative agribusiness management skills. The class project requires Agribusiness students to use one or more quantitative skill to address an applied agribusiness management issue and then summarize their findings in an executive summary that could be submitted to upper management. We do not wish to create a 600 level course at this time.

Last Term taught: 1108

.. Change Abbrev to:

Effective Term: 08/2014

X Change Number to: 4080

.. Change Catalog Title:

.. Change Transcript Title:

from:

from: QUANT AG ECON

to:

to:

.. From: Fixed Credit: 3 (3,) To: Fixed Credit: (,)

Change of Credit: Variable Credit: - (-), (-) Variable Credit: - (-),(-)

.. Add cross-listing with the following child course(s):

.. Delete cross-listing with the following child course(s):

.. Reverse Parent/Child relationship with:

.. Change Method of Instruction		.. Change Course Modifier		.. Change General Education Designation	
from:	to:	from:	to:	from:	to:
X A-Lecture Only	.. .. Pass/Fail Only	..	..	.. Creative Inquiry	..
.. B-Lab (w/fee)	.. X Graded	..	..	.. English Composition	..
.. D-Seminar	.. .. Variable Title	..	..	.. Oral Communication	..
.. E-Independent Study	.. .. Creative Inquiry	..	..	.. Mathematics	..
.. F-Tutorial (w/fee)	.. .. Repeatable	..	..	.. Natural Science w/Lab	..
.. G-Studio	.. maximum credits	..	..	.. Natural Science w/Lab	..
.. H-Field course	.. from:	..	..	.. Math or Science	..
.. I-Study Abroad	.. to:	..	..	.. A&H (Literature)	..
.. L-Lab (no/fee)	..	..	..	.. A&H (Non-Literature)	..
.. N/B-Lecture/Lab(w/fee)	..	..	..	.. Social Science	..
.. N/L-Lecture/Lab(no fee)	..	..	..	.. CCA	..
		..	..	.. STS	..

**X Change Catalog Description:**

**from:** Basic quantitative relationships in applied economics are examined and interpreted. Emphasizes the mathematical aspects of applied economics. Microcomputer software is utilized for problem solving.

**to:** Regression analysis, linear programming, and risk efficiency analysis techniques are presented, and then applied to agribusiness firms to improve firm economic efficiency. Microcomputer optimization and statistical software packages are utilized to develop firm level strategic plans to achieve efficient agribusiness outcomes in uncertain economic environments.

**X Change Prerequisite(s):****from:****to:** STAT 2300**Learning Objectives:** By the conclusion of this course students are expected to:

- 1) Be conversant with the quantitative analytic tools commonly used in agribusiness management. Specifically, students will understand how product selection, output levels, and pricing decisions are made.
- 2) Demonstrate competency with the concepts and tools developed in class to analyze problems in the agribusiness industry. Upon successful completion of the course students will be able to formulate a linear programming model to determine optimal production activities, and perform sensitivity analysis of the optimal solution with respect to input costs, output prices, and resource supply constraints. Students will also be able to use basic regression techniques to estimate product demand curves, cost curves, and demand and supply elasticities.
- 3) Interpret firm-level agribusiness behavior from an economic perspective.

**Topical Outline:** 1 Class Roll, Discussion of course and syllabus

2 Algebra review

3 Algebra review

4 Statistics review

11/6/13

Curriculum and Course Change System

000023

- 5 Statistics review
- 6 Statistics review
- 7 Demand analysis
- 8 Demand analysis
- 9 Demand analysis
- 10 Review for exam 1
- 11 Exam 1
- 12 Discussion of exam 1
- 13 Risk analysis
- 14 Risk analysis
- 15 Risk analysis
- 16 Regression estimation
- 17 Regression estimation
- 18 Regression estimation
- 19 Regression inference
- 20 Regression inference
- 21 Regression inference
- 22 Optimization
- 23 Optimization
- 24 Review for exam 2
- 25 Exam 2
- 26 Discussion of exam 2
- 27 Cost analysis
- 28 Short run cost curves
- 29 Long run cost curves
- 30 Economies of scope
- 31 Linear programming setting up the problem
- 32 Linear programming setting up the problem
- 33 Linear programming setting up the problem
- 34 Linear programming interpretation
- 35 Linear programming interpretation
- 36 Linear programming interpretation
- 37 Review exam 3
- 38 Exam 3
- 39 Discussion of exam 3
- 40 Competitive markets
- 41 Competitive markets
- 42 Strategies in competitive markets
- 43 Monopoly
- 44 Oligopoly
- 45 Review for final exam

Total Lecture Hours = 45

Each topical outline number corresponds to one hour of lecture time.

- Evaluation:** (1) Midterm 1 (15%)  
 (2) Midterm 2 (15%)  
 (3) Midterm 3 (15%)  
 (4) Class Project (25%)  
 (5) Class Participation (5%)  
 (6) Final Exam (25%)

The class project is intended to provide students the opportunity to demonstrate their ability to solve an agribusiness problem using at least one appropriate quantitative technique and then carefully write an executive summary of the analysis that would be useful to upper management decision makers. A student can choose to work on a real economic decision analysis project for a company that he or she has worked for or is working for.

- Grading:**  
 A = 90 - 100  
 B = 80 - < 90  
 C = 70 - < 80  
 D = 60 - <70  
 F = < 60

**Duplication (if applicable):** Not applicable

**Add course requirements for honors and/or 600-level courses (if applicable):** Not applicable

**Learning Activities associated with General Education competencies (if applicable):** Not applicable

**Form Originator:** WILLIS9, David Willis **Date Form Created:** 10/8/2013

**Form Last Updated by:** WILLIS9, Willis, David Brian **Date Form Last Updated:** 11/6/2013

**Form Number:** 6572

**Approval**

*Alan R. John*

11/7/13

*Carica W. Anderson*

12/6/2013

11/6/13

Curriculum and Course Change System

Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia A. Sawyer</i>	<i>11/7/13</i>		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kosinski</i>	<i>11/25/13</i>		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Ed Whitwell</i>	<i>11/26/13</i>	<i>Northern M. App</i>	<i>1/18/14</i>
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

000024

**X Change a Course - Abbrev & Number: W F B- 476**  
 Corresponding Lab Course: W F B-L-476  
 Corresponding Honors course: --  
 .. **Add Honors course:** --  
 Corresponding Graduate course: W F B- -676  
 .. **Add Graduate course:** --  
**Course Title: AVIAN FIELD METHODS**

**Brief Statement of Change:**  
 The current name of the course "Avian Field Methods" does not fully or accurately describe the course. The course content and objectives will be best served by a name change that reflects the focus on bird identification, ecology and conservation

Last Term taught: 1301	.. <b>Change Abbrev to:</b>
Effective Term: 01/2014	.. <b>Change Number to:</b>
<b>X Change Catalog Title:</b>	<b>X Change Transcript Title:</b>
from: Avian Field Methods	from: AVIAN FIELD METHODS
to: Bird Conservation and Ecology	to: BIRD CONSERVATION
..	From: Fixed Credit: 3 (1,4) To: Fixed Credit: (,)
<b>Change of Credit:</b>	Variable Credit: - (-), (-) Variable Credit: - (-),(-)

.. **Add cross-listing with the following child course(s):**  
 .. **Delete cross-listing with the following child course(s):**  
 .. **Reverse Parent/Child relationship with:**

<b>Change Method of Instruction</b>		<b>Change Course Modifier</b>		<b>Change General Education Designation</b>	
from:	to:	from:	to:	from:	to:
.. A-Lecture Only	..	.. Pass/Fail Only	..	.. Creative Inquiry	..
.. B-Lab (w/fee)	..	X Graded	..	.. English Composition	..
.. D-Seminar	..	.. Variable Title	..	.. Oral Communication	..
.. E-Independent Study	..	.. Creative Inquiry	..	.. Mathematics	..
.. F-Tutorial (w/fee)	..	.. Repeatable	..	.. Natural Science w/Lab	..
.. G-Studio	..	maximum credits		.. Natural Science w/Lab	..
.. H-Field course	..	from:		.. Math or Science	..
.. I-Study Abroad	..	to:		.. A&H (Literature)	..
.. L-Lab (no/fee)	..			.. A&H (Non-Literature)	..
X N/B-Lecture/Lab(w/fee)	..			.. Social Science	..
.. N/L-Lecture/Lab(no fee)	..			.. CCA	..
				.. STS	..

**X Change Catalog Description:**  
**from:** Field-intensive introduction to the identification, ecology, and conservation of North American birds and their habitats with an emphasis on southeastern species. Includes avian survey and census techniques. A weekend (Friday-Sunday) field trip is required.  
**to:** A field-intensive introduction to the identification, ecology, and conservation of North American birds and their habitats with an emphasis on management and applied field ornithology. Includes bird/habitat survey and census techniques. At least one weekend (Friday-Sunday) field trip is required.

.. **Change Prerequisite(s):**  
**from:**  
**to:**

**Learning Objectives:** Identify key species of southeastern avifauna by sight, sound and gestalt;  
 Assess the impacts of land uses and natural disturbances on birds, bird habitats and their conservation;  
 Explore and understand the history of North American wildlife conservation and the laws regulating and protecting wildlife as they pertain to birds;  
 Understand implications and impacts of Citizen Science on the conservation and management of avifauna.

**Topical Outline:** 1. Introduction to Field Ornithology -Basics of binoculars, field guide selection, etc.  
 2. The science of bird identification/ topography/taxonomy etc...  
 3. Avian species diversity (global to regional)  
 4. Habitats: Survey of North American Bird Conservation Regions  
 5. Status and Distribution of Southeastern Avifauna -Focus on SC  
 Exam I (late February )  
 6. Biodiversity and Bird Conservation  
 7. National/ Regional Bird Conservation  
 8. SC Conservation Concerns  
 9. Citizen Science and Survey Techniques  
 10.The Culture of Birds  
 Exam II (late March)  
 11. Student Conservation Reports  
 12. Student Conservation Reports and wrap up

**Evaluation:** Undergraduate || Graduate/Honors



000026

Journal = 1 x 200 points each = 200 points || 200 points  
 Lecture Exams = 2 x 100 points each = 200 points || 200 points  
 Field Quizzes = 10 x 20 points each = 200 points || 200 points  
 Final Exam = 1 x 200 points each = 200 points || 200 points  
 Conservation Strategy Report  
 written component = 200 points || 200 points  
 multimedia/oral component = ----- || 200 points  
 Total possible points 1,000 points || 1,200 points

Undergraduate Grading Scale (% of total): >= 90% = A ; 80-89% = B; 70-79% = C; 60-69% = D; < 60% = F  
 .....Final exam exemptions at > 95%

Graduate Grading Scale (% of total): >= 90% = A ; 80-89% = B; 70-79% = C; < 70% = F  
 .....Final exam exemptions at > 95%

**Add course requirements for honors and/or 600-level courses (if applicable):** Both undergraduate and graduate students must complete a written habitat assessment report on a natural area in South Carolina for submission to the SCDNR Comprehensive Conservation Strategy or other suitable outlet as determined by the instructor. Graduate students must prepare a Powerpoint or web-based presentation and an oral presentation on the habitat assessment. This is in addition to all of the requirements listed for undergraduate students. This multimedia/oral report will be worth a 200 additional points (see Evaluation).

**Form Originator:** LANHAMJ, Joseph Lanham **Date Form Created:** 10/7/2013

**Form Last Updated by:** RJKSN, Kosinski, Robert J **Date Form Last Updated:** 11/25/2013

**Form Number:** 6558

**Approval**

<i>Alan R. Joh</i>	11/26/13	<i>Patricia M. Anderson</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia A. Saylor</i>	11/26/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kosinski</i>	11/26/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Zed Whitmer</i>	11/26/13	<i>Mark M. Ayf</i>	1/18/14
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		



Curriculum and Course Change System - Print Major Form

000027

**Change Major Name:** Horticulture (BS - 201401)

**Degree:** BS

**Effective Catalog Year:** 2014

**.. Change Major Name to:**

**.. Change Degree to:** (CHE approval required)

**X Change Curriculum Requirements**

(Submit or upload Curriculum map in catalog format. CHE approval required for > 18 hours of changes)

**.. Change General Education Requirements**

(Must also submit a General Education Checklist)

**.. Add, Change or Delete Concentration(s)**

(Submit or upload Curriculum map in catalog format. CHE approval required)

**.. Add, Change or Delete Emphasis Area(s)**

**Explanation:** SSCS 4450 added as a Related Science option

Correction of an error in the footnote requiring HORT majors to achieve a C or better in all courses. The footnote should say that HORT majors must achieve a C or better in all courses with the HORT rubric.

**Form Originator:** JFAUST, Faust, James Emerson **Date Form Created:** 10/29/2013

**Form Last Updated by:** RJKSN, Kosinski, Robert J **Date Form Last Updated:** 11/6/2013

**Form Number:** 6737

**Approval**

<i>Alan R. John</i>	11/7/13	<i>Carica W. Anderson</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia A. Bayton</i>	11/7/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kosinski</i>	11/25/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Jed Whitman</i>	11/26/13	<i>Mark M. Ayk</i>	1/18/14
College Dean	Date	President	Date

**Horticulture 2014-15****Freshman Year**

First Semester			Second Semester		
BIOL 1030	Gen. Biology I	3	BIOL 1040	General Biology II	3
BIOL 1050	Gen. Bio. Lab I	1	BIOL 1060	General Biology Lab II	1
CH 1010	Gen. Chem. I	4	CH 1020	General Chemistry	4
HORT 1010	Intro. to Hort.	3	ENGL 1030	Accelerated Composition	3
Spanish Language Requirement <sup>1</sup>		4	MTHS 1020	Intro. to Math Analysis	3
Semester Hours: 15			Business Requirement <sup>1</sup>		
			Semester Hours: 17		

**Sophomore Year**

First Semester			Second Semester		
HORT 2100	Growing Garden Plants in the Fall	3	CSEN 2020	Soils	4
HORT 3030	Landscape Plants	3	HORT 2110	Growing Garden Plants in the Spring	3
MTHS 1010	Essential Math	3	Arts and Humanities (Lit) Requirement <sup>2</sup>		
Plant Biology Requirement <sup>1</sup>		4	Social Science Requirement <sup>2</sup>		
Arts & Humanities (Non-Lit) Requirement <sup>2</sup>		3	Semester Hours: 13		
Semester Hours: 16					

**Summer**

HORT 2710	Internship <sup>3</sup>	3	or	HORT 4710	Advanced Internship <sup>3</sup>	3
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**Junior Year**

First Semester			Second Semester		
HORT 3080	Sustainable Landscape Garden. Design	3	BIOL 4010	Plant Physiology	3
HORT Specialization Requirement <sup>1</sup>		3	BIOL 4020	Plant Physiology Lab	1
Oral Communications Requirement <sup>2</sup>		3	HORT 4040	Plant Propagation	3
Related Science Requirement <sup>1</sup>		3	HORT 4050	Plant Propagation Tech. Lab	1
Business Requirement <sup>1</sup>		3	HORT Specialization Requirement <sup>1</sup>		
Semester Hours: 15			Social Science Requirement <sup>2</sup>		
			Elective		
			Semester Hours: 15		

**Senior Year**

First Semester			Second Semester		
HORT 4090	Capstone	3	HORT Specialization Requirement <sup>1</sup>		
HORT Specialization Requirement <sup>1</sup>		3	Related Science Requirement <sup>1</sup>		
Business Requirement <sup>1</sup>		3	Elective		
Related Science Requirement <sup>1</sup>		3	Semester Hours: 11		
Elective		3			
Semester Hours: 15					

**Total – 120 hrs**

<sup>1</sup> See advisor. Select from approved departmental list.

<sup>2</sup> See General Education Requirements. The Cross-Cultural Awareness and Science and Technology in Society General Education requirements must also be satisfied through these courses.

<sup>3</sup> Internship must be completed in one or two semesters. Internship may be done fall or spring or summer after completing HORT 3030. Prior approval is required for internships and a 2.0 is required for registration.

\* Horticulture majors must make a C or better in all classes with a HORT rubric.

## Horticulture (Continued)

Related Science Courses (choose at least 4 courses – 12 credits, at least one lab course must be taken)					
AGM 3010	Soil and Water Conservation	3	<i>Advanced Science Options for Graduate School Tract</i>		
AGM 4020	Drainage Irrigation & Waste Mgmt.	3	BCHM 3050	Essential Elements of Biochemistry	3
BIOL 3200	Field Botany	4	CH 3010	Survey of Organic Chemistry	4
BIOL 4060/4071	Introductory Plant Taxonomy	4	CH 2230/2271	Organic Chemistry & Lab	4
BIOL 4410/4450	Ecology	5	GEN 3000/3010	Fundamental Genetics	4
BIOL 4460/4470	Plant Ecology	5	MICR 3050	General Microbiology	4
CSEN 4050	Plant Breeding	3	PHYS 1220/1240	Physics with Calculus I	4
CSEN 4520/4530	Soil Fertility and Management	3/1	PHYS 2000	Introductory Physics	4
ENSP 2000	Intro to Environmental Science	3	PHYS 2070/2090	General Physics I	4
ENT 3000	Environmental Entomology	3			
ENT 3010	Insect Biology and Diversity	4			
ENT 3080	Apiculture	3			
IPM 4010	Principles of Integrated Pest Mgmt.	3			
PLPA 3100	Principles of Plant Pathology	3			
PLPA 4060/4080	Diseases and Insects of Turfgrass	2/1			
SSCS 4450	Regulatory Issues	2			
WFB 3130	Conservation Biology	3			
WFB 4620	Wetland Wildlife Biology	3			
Business, Communication & Leadership Courses (choose at least 3 courses – 9 credits)					
ACCT 2010	Financial Accounting Concepts	3	All COMM, ECON, FIN, LAW, MGT, MKT courses 300 and higher		
ACCT 2020	Managerial Accounting Concepts	3	All MGT courses 2000 and higher		
All AP EC courses 3000 and higher			ELE 3010, 4010, 4990 Executive Leadership & Entrepreneurship I, II, III		
Horticulture Specialization Courses (choose at least 4 courses – 12 credits)					
HORT 2020	Selected Topics	3	HORT 4270	Urban Tree Care	3
HORT 2080	Landscape Appreciation	3	HORT 4330	Landscape & Turf Weed Mgmt.	3
HORT 2120	Introduction to Turfgrass Culture	3	HORT 4550	Just Fruits	3
HORT 2130	Turfgrass Culture Laboratory	1	HORT 4560	Organic Vegetable Crops	3
HORT 3090	Sustainable Landscape Design Lab	1	HORT 4610	Advanced Landscape Garden Design	4
HORT 4000	Special Topics (maximum 3 credits)	1-3	HORT 4710	Advanced Internship	3
HORT 4080	Horticulture Discovery and Inquiry	Variable	HORT 4720	Landscapes and Health	3
HORT 4120	Advanced Turfgrass Management	3	FOR 4500	Woody Plant Stress Physiology	3
HORT 4200	Applied Turfgrass Physiology	3	FOR 4800	Selected Topics in Urban Forestry	1-3
Spanish Courses (choose at least 1 course – 4 credits)					
SPAN 1010	Elementary Spanish	4	SPAN 1040	Basic Spanish	4
SPAN 1020	Elementary Spanish	4	SPAN 2020	Intermediate Spanish	4
Plant Biology Requirement – 4 credits					
BIOL 3040	Biology of Plants	3	BIOL 3080	Biology of Plants Practicum	1

**Change Major Name:** Turfgrass (BS - 201308)  
**Degree:** BS  
**Effective Catalog Year:** 2014  
**.. Change Major Name to:**  
**.. Change Degree to:** (CHE approval required)  
**X Change Curriculum Requirements**  
 (Submit or upload Curriculum map in catalog format. CHE approval required for > 18 hours of changes)  
**.. Change General Education Requirements**  
 (Must also submit a General Education Checklist)  
**.. Add, Change or Delete Concentration(s)**  
 (Submit or upload Curriculum map in catalog format. CHE approval required)  
**.. Add, Change or Delete Emphasis Area(s)**

**Explanation:** Freshman year: We are deleting the Spanish requirement because of low demand for Spanish language skills in turf major graduates. In order to make a more common freshman year across several majors in SAFES, we are requiring both BIOL 1030/1050 and 1040/1060.  
 Sophomore year: Because of a change from 9 to 6 credits of HORT Specialization courses, HORT 4270 (Urban Tree Care) is being required in the sophomore year and both social science courses are taken then as well.  
 Junior and Senior year: Related science courses were reduced from 12 credits to 9 credits. In order to enhance the pest management expertise of our students, we are requiring ENT 3010 (Insect Biology and Diversity) and PES 3100 (Plant Disease and People). Two soil courses in addition to CSEN 2020 will now be required: CSEN 4460 (Soil Management) and CSEN 4520/4530 (Soil Fertility).  
 In general, students are encouraged to take HORT 4080 (Creative Inquiry) with individual faculty members. A second internship (HORT 4710) is recommended by not required. Internship credits cannot be used to replace HORT Specialization credits.

**Form Originator:** RJKSN, Kosinski, Robert J **Date Form Created:** 11/25/2013  
**Form Last Updated by:** RJKSN, Kosinski, Robert J **Date Form Last Updated:** 11/25/2013  
**Form Number:** 6888

Approval			
<i>Alan R. John</i>	11/26/13	<i>Patricia W. Ambrose</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia A. Saylor</i>	11/26/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kosinski</i>	11/26/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Red Whitwell</i>	11/26/13	<i>Nicki M. Ayg</i>	1/18/14
College Dean	Date	President	Date

## Proposed Turfgrass 2014-15 Curriculum *(New changes as bold italic fonts)*

Freshman Year					
First Semester			Second Semester		
BIOL 1030	General Biology I	3	BIOL 1040	General Biology II	3
BIOL 1050	General Biology Lab I	1	BIOL 1060	General Biology Lab II	1
Arts and Humanities (Non-Lit) Requirement <sup>1</sup>		3	CH 1020	General Chemistry	4
CH 1010	Gen. Chem. I	4	ENGL 1030	Accelerated Composition	3
HORT 1010	Horticulture	3	MTHS 1010	Essential Math	3
MTHS 1020	Intro to Math Analysis	3			
Semester Hours: 17			Semester Hours: 14		
Sophomore Year					
First Semester			Second Semester		
HORT 2120	Introduction to Turfgrass Culture	3	Arts and Humanities (Lit) Requirement <sup>1</sup>		
HORT 2130	Turfgrass Culture Lab	1	CSEN 2020	Introduction to Soils	4
HORT 3030	Landscape Plants	3	Social Science Requirement <sup>1</sup>		
Social Science Requirement <sup>1</sup>		3	Oral Communications Requirement <sup>1</sup>		
<b>BIOL 3040</b>	<b>Biology of Plants</b>	<b>3</b>	<b>HORT 4270</b>	<b>Urban Tree Care</b>	<b>3</b>
<b>BIOL 3080</b>	<b>Biology of Plants Lab</b>	<b>1</b>			
Semester Hours: 14			Semester Hours: 16		
Summer					
HORT 2710	Internship <sup>2</sup>	3	or	HORT 4710	Advanced Internship <sup>2</sup>
					3
Junior Year					
First Semester			Second Semester		
Soil Science Requirement <sup>3</sup>		3	BIOL 4010	Plant Physiology	3
Business Requirement <sup>4</sup>		3	BIOL 4020	Plant Physiology Lab	1
HORT Specialization Requirement <sup>5</sup>		3	HORT Specialization Requirement <sup>5</sup>		
<b>ENT 3010</b>	<b>Insect Biology &amp; Diversity</b>	<b>4</b>	HORT 4200	Applied Turfgrass Physiology	3
<b>PES 3100</b>	<b>Plant Disease and People</b>	<b>3</b>	PLPA 4060	Diseases & Insects of Turfgrasses	2
			AGM 4020	Landscape Drainage and Irrigation	3
Semester Hours: 16			Semester Hours: 15		
Summer					
PLPA 4080	Disease & Insects of Turfgrasses Lab (May semester)	1			
Senior Year					
First Semester			Second Semester		
HORT 4090	Senior Capstone	3	<b>CSEN 4520</b>	<b>Soil Fertility</b>	<b>3</b>
HORT 4120	Advanced Turfgrass Management	3	<b>CSEN 4530</b>	<b>Soil Fertility Lab</b>	<b>1</b>
Business Requirement <sup>4</sup>		3	HORT 4330	Landscape and Turf Weed Management	3
<b>CSEN 4460</b>	<b>Soil Management</b>	<b>3</b>	Related Science Requirement <sup>6</sup>		
Related Science Requirement <sup>6</sup>		3	Business Requirement <sup>4</sup>		
Semester Hours: 15			Semester Hours: 16		
<b>Total – 123 hrs</b>					

<sup>1</sup> See General Education Requirements. Six of these credit hours must also satisfy the Cross-Cultural Awareness Requirement and the Science and Technology in Society Requirement.

<sup>2</sup> Internship must be completed in one or two semesters. First internship must be completed within one year after successfully passing HORT 2120/2130. Prior approval is required for internships and a GPA of 2.0 is required for registration. Students are strongly encouraged to take multiple internships.

<sup>3</sup> In addition to CSEN 2020, 4460, 4520, and 4530, one more 3 credit hour soil course is required.

<sup>4</sup> See advisor. Select from approved departmental list and the total required business courses are 9 hours.

<sup>5</sup> Turfgrass majors are required to take 6 hours of HORT specialization courses. Turfgrass internship courses do not count as HORT specialization courses.

<sup>6</sup> Choose 9 hours from the recommend list of courses.

\* Turfgrass majors must make a C or better in all HORT courses. Courses may be repeated as often as necessary to achieve the minimum grade.

### Recommended Course Lists for Selections

Related Science Courses (9 credits)						
AGM 3010	Soil and Water Conservation	3		ENSP 2000	Intro to Environmental Science	3
BIOL 3200	Field Botany	4		GEN 3000/3010	Fundamental Genetics	4
BIOL 4060/4070	Introductory Plant Taxonomy	4		GEOL 1010/1030	Physical Geology	4
BIOL 4410/4450	Ecology & Lab	5		GEOL 3000	Environmental Geology	3
BIOL 4460/4470	Plant Ecology	5		IPM 4010	Principles of Integrated Pest Mgmt.	3
CH 3010	Survey of Organic Chemistry	4		MICRO 3050	General Microbiology	4
CSEN 4010	Soil Genesis and Classification	2		PHYS 2000	Introductory Physics	4
CSEN 4050	Plant Breeding	3		PHYS 2070/2090	General Physics I	4
CSEN 4080	Land Treatment of Wastewater & Sludge	3		PHYS 2400	Physics of Weather	3
CSEN 4090	Biology of Invasive Plants	3		PHYS 2450	Physics of Global Climate Change	3
CSEN 4900	Beneficial Soil Organisms in Plant Growth	3		WFB 4120	Wildlife Management	3
Hort Specialization Courses (6 credits)						
HORT 2020 or 4000	Selected Topics	1-3		HORT 4080	Horticulture Discovery and Inquiry	Variable
HORT 4050	Plant Propagation Techniques	3		HORT 4500	Woody Plant Stress Physiology	3
HORT 4060	Plant Propagation Techniques Laboratory	1		HORT 4610	Problems in Landscape Design	4
HORT 3080	Sustainable Landscape Design, Installation, and Maintenance	3				
HORT 3090	Sustainable Landscape Design, Installation, and Maintenance Lab	1				
Business, Communication & Leadership Courses (9 credits)						
ACCT 2010	Financial Accounting Concepts	3		MGT 2010	Principles of Management	3
ACCT 2020	Managerial Accounting Concepts	3		Any MGT 2000 or higher		
APEC 2570	Natural Res., Environ. & Economics	3		Any MRKT 2000 or higher		
LAW 3220	Business Law	3		ELE 3010, 4010, 4990 Executive Leadership & Entrepreneurship I, II, III		
<b>PRTM 4830</b>	<b>Golf Club Management and Operations</b>	<b>3</b>				

000033



**Curriculum and Course Change System - Print Major Form**

**Change Major Name:** Sscs (Sustainable Crop Production) SCS (Sustainable Crop Production)  
**Degree:** BS

**Effective Catalog Year:** 2014

**X Change Major Name to:** PES (Agronomy) Plant and Environmental Sciences (Agronomy)

**.. Change Degree to:** (CHE approval required)

**X Change Curriculum Requirements**

(Submit or upload Curriculum map in catalog format. CHE approval required for > 18 hours of changes)

**.. Change General Education Requirements**

(Must also submit a General Education Checklist)

**.. Add, Change or Delete Concentration(s)**

(Submit or upload Curriculum map in catalog format. CHE approval required)

**.. Add, Change or Delete Emphasis Area(s)**

**Explanation:** The name of the major will be changed to Plant and Environmental Sciences (PES), and the name of the concentration to Agronomy.

Freshman year: General Biology requirements were changed from recommending BIOL 1100/1110 and accepting BIOL 1030/1050 to the reverse. The options for EXST 3010 were eliminated from the second semester. SCS 1010, the introductory course, will be replaced with AGRI 1040 Introduction to Plant Sciences, which is also a requirement for the CSEN minor. AGRI 1040 will better prepare the students for required plant science courses.

Sophomore year: CH 2010 Survey of Organic Chemistry will be required, and the options CH 2230/2270 will be deleted. BCHM 3050 Essential Elements of Biochemistry along with BIOL 4340 Biol. Chem. Lab. Techniques will be required, and the options of CH 2240/2280 will be eliminated. MICR 3050 General Microbiology will be added as a requirement as it is deemed highly relevant to this major and is a pre-requisite for several department-approved courses accepted as concentration requirements. SCS 3330 Agricultural Genetics will be deleted, as the course content overlaps considerably with GEN 3000 Fundamental Genetics and CSEN 4050 Plant Breeding.

Junior and Senior year: The Plant Science Requirement was simplified by identifying specific required courses rather than providing a suite from which students select two options. CSEN 4220 Major World Crops and SCS 4450 Regulatory Issues and Policies are now required for this major as the Plant Science Requirement. Students still have an opportunity to select from an enhanced list of options to meet their 15 credits of concentration requirements. ENGL 3140 was eliminated as an option and now ENGL 3150 is required.

Course requirements, when the same for the three concentrations, were aligned to appear in the same semester to increase enrollment for those courses. This caused the need for rearranging of courses throughout the curriculum.

We would like to update the list of department-approved courses that fulfill the credits indicated in the curriculum as Concentration Requirements. The current list includes 21 courses, and we propose to add the following 18:


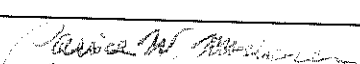
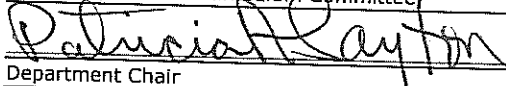
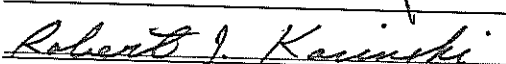
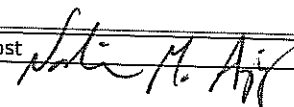
- AGM 4100/4101 Precision Agricultural Technology/Laboratory
- APEC 3090 Economics of Agricultural Marketing
- APEC 3190 Agribusiness Management
- APEC 4520 Agricultural Policy
- WFB 3130 Conservation Biology
- BIOL 3200/3201 Field Botany/Laboratory
- BIOL 4410 Ecology
- CSEN 4210 Principles of Field Crop Production
- CSEN 4230 Field Crops-Forages
- CSEN 4460 Soil Management
- ENR 3020/3021 Natural Resource Management
- ENT 4000 Insect Morphology
- ENT 4150 Insect Taxonomy
- ENT 4360 Insect Behavior
- HORT 4040 Plant Propagation
- HORT 4050 Plant Propagation Laboratory
- MICR 4010 Microbial Diversity and Ecology
- MICR 4020 Environmental Microbiology
- MICR 4100 Soil Microbiology

**Form Originator:** PAGUDEL, Paula Agudelo **Date Form Created:** 8/17/2013

**Form Last Updated by:** PAGUDEL, Agudelo,Paula **Date Form Last Updated:** 10/10/2013

**Form Number:** 6318

**Approval**

	10/10/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/10/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	10/11/13		
Chair, College Curriculum Committee	Date	Provost 	Date 11/18/14



*Deed Whitfield*  
College Dean

10/11/13  
Date

President

000034

Date

**Soils and Sustainable Crop Systems****Plant and Environmental Sciences****FRESHMAN YEAR**

~~strike through~~: course eliminated from curriculum  
 red: course added to curriculum  
 blue: course changed from one semester to another  
 green: course options reversed

First Semester: current	First Semester: proposed
5 - BIOL 1100 Principles of Biology I <sup>1</sup> 4 - CH 1010 General Chemistry 3 - MTHS 1020 Intro. to Math. Analysis <sup>2</sup> or 4 - MTHS 1060 Calculus of One Variable I <sup>2</sup> <del>1 - SCS 1010 Survey of Soils &amp; Sust. Crop Systems</del> 3 - Arts and Humanities (Non-Lit.) Requirement <sup>3</sup>	3 - BIOL 1030 General Biology I <sup>1</sup> 1 - BIOL 1050 General Biology Lab. I <sup>1</sup> 4 - CH 1010 General Chemistry 3 - MTHS 1020 Intro. to Math. Analysis 4 - MTHS 1060 Calculus of One Variable I 3 - AGR 1040 Introduction to Plant Science
16-17	14-15
<sup>1</sup> BIOL 1100 and 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100, and BIOL 1040/1060 may substitute for BIOL 1110. <sup>2</sup> MTHS 1060 is recommended for students in the Agricultural Biotechnology Concentration. <sup>3</sup> See General Education Requirements. PHIL 1030 is recommended for students in the Agricultural Biotechnology Concentration.	<sup>1</sup> BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060; BIOL 1100 and 1110 are recommended for Agricultural Biotechnology Concentration.

Second Semester: current	Second Semester: proposed
5 - BIOL 1110 Principles of Biology II <sup>1</sup> 4 - CH 1020 General Chemistry 3 - ENGL 1030 Accelerated Composition 3 - EXST 3010 Introductory Statistics or <del>4 - MTHS 1080 Calculus of One Variable II or</del> <del>4 - MTHS 2070 Multivariable Calculus</del>	3 - BIOL 1040 General Biology II <sup>1</sup> 1 - BIOL 1060 General Biology Lab. II <sup>1</sup> 4 - CH 1020 General Chemistry 3 - ENGL 1030 Accelerated Composition 3 - EXST 3010 Introductory Statistics 3 - Arts and Humanities (Non-Lit.) Requirement <sup>2</sup>
15-16	17
<sup>1</sup> BIOL 1100 and 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100, and BIOL 1040/1060 may substitute for BIOL 1110.	<sup>1</sup> BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060; BIOL 1100 and 1110 are recommended for Agricultural Biotechnology Concentration. <sup>2</sup> See General Education Requirements. PHIL 1030 is recommended for Agricultural Biotechnology Concentration.

~~Soils and Sustainable Crop Systems – Sustainable Crop Production~~

## Plant and Environmental Sciences – Agronomy Concentration

## SOPHOMORE YEAR

First Semester: current	First Semester: proposed
3 - APEC 2020 Agricultural Economics or 3 - ECON 2110 Principles of Microeconomics <del>3 - CH 2230 Organic Chemistry<sup>1</sup> and</del> <del>1 - CH 2270 Organic Chemistry Lab.<sup>1</sup> or</del> 4 - CH 2010 Survey of Organic Chemistry 4 - CSEN 2020 Soils 3 - PLPA 3100 Principles of Plant Pathology	4 - CH 2010 Survey of Organic Chemistry 4 - ENT 3010 Insect Biology and Diversity 4 - CSEN 2020 Soils 3 - PLPA 3100 Principles of Plant Pathology
14	15
<sup>1</sup> CH 2230/2270, and 2240/2280 are strongly recommended.	

Second Semester: current	Second Semester: proposed
3 - APEC 2050 Agriculture and Society <del>3 - CH 2240 Organic Chemistry<sup>1</sup> and</del> <del>1 - CH 2280 Organic Chemistry Lab.<sup>1</sup> or</del> 2 - BCHM 3050 Essential Elements Bioch. and 2 - BIOL 4340 Biol. Chem. Lab Techniques 3 - COMM 1500 Intro. to Human Comm. or 3 - COMM 2500 Public Speaking <del>3 - SSCS 3330 Agricultural Genetics</del> <del>3 - Plant Science Requirement<sup>2</sup></del>	3 - APEC 2050 Agriculture and Society 3 - COMM 2500 Public Speaking <sup>1</sup> 3 - GEN 3000 Fundamental Genetics 4 - MICR 3050 General Microbiology
14	13
<sup>1</sup> CH 2230/2270, and 2240/2280 are strongly recommended. <sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	<sup>1</sup> COMM1500 Intro. to Human Comm. may substitute for COMM2500 Public Speaking

SUMMER: current	SUMMER: proposed
3 - PLPA 4110 Plant Disease Diagnosis I	3 - PLPA 4110 Plant Disease Diagnosis I 3 - ENT 4070 Applied Agricultural Entomology
3	6

~~Soils and Sustainable Crop Systems – Sustainable Crop Production~~  
**Plant and Environmental Sciences – Agronomy Concentration**

**JUNIOR YEAR**

First Semester: current	First Semester: proposed
4 - ENT 3010 Insect Biology and Diversity 3 - IPM 4010 Principles of Integrated Pest Mgt. 3 - Plant Science Requirement <sup>2</sup> 3 - Concentration Requirement <sup>3</sup> 3 - Social Science Requirement <sup>4</sup>	3 - BCHM 3050 Essential Elements of Biochem. 2 - BIOL 4340 Biological Chem. Lab. Tech 3 - APEC 2020 Agricultural Economics or 3 - ECON 2110 Principles of Microeconomics 3 - IPM 4010 Principles of Integrated Pest Mgt. 3 - CSEN 4220 Major World Crops 3 - Concentration Requirement <sup>2</sup>
16	17
<sup>2</sup> BIOL 3040, CSEN 4220, 4230, HORT 3100, 4550, 4560, or other department-approved course. <sup>3</sup> Select from department-approved list. <sup>4</sup> See General Education Requirements.	<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.

Second Semester: current	Second Semester: proposed
3 - BIOL 4010 Plant Physiology 1 - BIOL 4020 Plant Physiology Lab. 3 - CSEN 4050 Plant Breeding 3 - CSEN 4090 Biology of Invasive Plants <del>3 - ENGL 3140 Technical Writing or</del> 3 - ENGL 3150 Scientific Writing and Comm. 1 - SCS 4010 Academic and Professional Dev.	3 - BIOL 4010 Plant Physiology 1 - BIOL 4020 Plant Physiology Lab. 3 - CSEN 4050 Plant Breeding 3 - CSEN 4090 Biology of Invasive Plants 3 - ENGL 3150 Scientific Writing and Comm. 1 - SCS 4010 Academic and Professional Dev. 1 - CSEN 4550 Seminar
14	15
<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	

~~Soils and Sustainable Crop Systems – Sustainable Crop Production~~  
**Plant and Environmental Sciences – Agronomy Concentration**

**SENIOR YEAR**

First Semester: current	First Semester: proposed
3 - CSEN 4900 Benef. Soil Organ. in Plant Growth 4 - ENT 4070 Applied Agricultural Entomology <sup>5</sup> 6 - Concentration Requirement <sup>3</sup>	3 - CSEN 4900 Benef. Soil Organ. in Plant Growth 2 - SSCS 4450 Regulatory Issues and Policies 3 - Arts and Humanities (Literature) Requirement <sup>1</sup> 3 - Concentration Requirement <sup>2</sup> 3 - Social Science Requirement <sup>1</sup>
13	14
	<sup>1</sup> See General Education Requirements. <sup>2</sup> Select from department-approved list.

Second Semester: current	Second Semester: proposed
3 - CSEN (SSCS) 3500 Practicum 3 - CSEN 4520 Soil Fertility and Management 1 - CSEN 4530 Soil Fertility Lab. 1 - CSEN 4550 Seminar 3 - Arts and Humanities (Literature) Requirement <sup>4</sup> 6 - Concentration Requirement <sup>3</sup>	3 - CSEN (SSCS) 3500 Practicum 3 - CSEN 4520 Soil Fertility and Management 1 - CSEN 4530 Soil Fertility Lab. 6 - Concentration Requirement <sup>3</sup>
17	13
<sup>3</sup> Select from department-approved list.	<sup>3</sup> Select from department-approved list.

<b>124-126 Total hours</b>	<b>124-125 Total hours</b>
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**B. S. IN SOILS AND SUSTAINABLE CROP SYSTEMS** Concentration: Sustainable Crop Production**Proposed List of Program-Approved Courses: (Concentration Requirements)**

AGM 2050/2051	Principles of Fabrication/Laboratory	3(2,3)
AGM 2060/2061	Machinery Management/Laboratory	3(2,3)
AGM 3010	Soil and Water Conservation	2(2,0)
APEC 3020	Economics of Farm Management	3(3,0)
AGM 4020	Landscape, Drainage, and Irrigation	3(2,3)
AGM 4100/4101	Precision Agricultural Technology/Laboratory	3(2,3)
AGR 3150	Environment and Agriculture	3(3,0)
APEC 3090	Economics of Agricultural Marketing	3(3,0)
APEC 3190	Agribusiness Management	3(3,0)
APEC 4520	Agricultural Policy	3(3,0)
WFB 3130	Conservation Biology	3(3,0)
BIOL 3200/3201	Field Botany/Laboratory	4(2,4)
ENR 4130	Restoration Ecology (prerequisite WFB 3130)	3(3,0)
BIOL 4410	Ecology	3(3,0)
BIOL 4460	Plant Ecology	3(3,0)
BIOL 4470	Plant Ecology Lab	2(1,2)
CSEN 4210	Principles of Field Crop Production	3(3,0)
CSEN 4230	Field Crops-Forages	3(3,0)
CSEN 4260	Cropping Systems Analysis	3(2,2)
CSEN 4330	Landscape and Turf Weed Management	3(2,2)
CSEN 4460	Soil Management	3(3,0)
ENR 3020/3021	Natural Resource Management	3(2,3)
ENT 3000	Environmental Entomology	3(3,0)
ENT 3080	Apiculture	3(2,3)
ENT 4000	Insect Morphology	4(3,3)
ENT 4150	Insect Taxonomy	4(1,6)
ENT 4360	Insect Behavior	3(2,3)
HORT 2100/2101	Growing Garden Plants in the Fall	3(2,3)
HORT 2110/2111	Growing Garden Plants in the Spring	3(2,3)
HORT 4040	Plant Propagation	3(3,0)
HORT 4050	Plant Propagation Laboratory (prerequisite or co-requisite HORT 4040)	1(0,3)
HORT 4550	Just Fruits	3(2,3)
HORT 4560	Organic Vegetable Production	3(3,0)
MICR 4010	Microbial Diversity and Ecology	3(3,0)
MICR 4020	Environmental Microbiology (prerequisite MICR 4010)	3(3,0)

MICR 4100	Soil Microbiology (prerequisite MICR 4010)	3(3,0)
PLPA 4250	Introductory Mycology	3(3,0)
PLPA 4260	Mycology Practicum	2(1,2)
PLPA 4540	Plant Virology	4(3,3)
PLPA 4590	Plant Nematology	3(2,3)

**Other courses may be applied as concentration requirements with advisor approval.**

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## Curriculum and Course Change System - Print Major Form

**Change Major Name:** Sscs (Agricultural Biotechnology) SSCS (Agricultural Biotechnology)

**Degree:** BS

**Effective Catalog Year:** 2014

**X Change Major Name to:** PES (Agricultural Biotechnology) Plant and Environmental Sciences

**.. Change Degree to:** (CHE approval required)

**X Change Curriculum Requirements**

(Submit or upload Curriculum map in catalog format. CHE approval required for > 18 hours of changes)

**.. Change General Education Requirements**

(Must also submit a General Education Checklist)

**.. Add, Change or Delete Concentration(s)**

(Submit or upload Curriculum map in catalog format. CHE approval required)

**.. Add, Change or Delete Emphasis Area(s)**

**Explanation:** The name of the major will be changed to Plant and Environmental Sciences. The name of the concentration will remain the same.

Freshman year: For this concentration, we still recommend BIOL 1100/1110 and accept BIOL 1030/1050, but the options were reversed for the other two concentrations. The options for EXST 3010 were eliminated from the second semester. SSCS 1010, the introductory course, will be replaced with AGRI 1040 Introduction to Plant Sciences, which is also a requirement for the CSEN minor. AGRI 1040 will better prepare the students for required plant science courses.

Sophomore year: CH 2010 Survey of Organic Chemistry will be required, and the options CH 2230/2270 will be deleted. BCHM 3050 Essential Elements of Biochemistry along with BIOL 4340 Biol. Chem. Lab. Techniques will be required, and the options of CH 2240/2280 will be eliminated. MICR 3050 General Microbiology will be added as a requirement as it is deemed highly relevant to this major and is a pre-requisite for several department-approved courses accepted as concentration requirements.

Junior and Senior year: The Concentration Requirements were simplified by identifying two specific required courses: CSEN 4050 Plant Breeding and CSEN 4900 Beneficial Soil Organisms in Plant Growth are now required for this major. There is the added benefit that these courses will have better enrollment. Students still have an opportunity to select from an enhanced list of options to meet their 15 credits of concentration requirements. ENGL 3140 was eliminated as an option and now ENGL 3150 is required.

Course requirements, when the same for the three concentrations, were aligned to appear in the same semester to increase enrollment for those courses. This caused the need for rearranging of courses throughout the curriculum.

We would like to update the list of department-approved courses that fulfill the credits indicated in the curriculum as Concentration Requirements. The current list includes 32 courses. We propose to delete 16 of them and add 14 others, as follows:

Delete the following courses from the list because they no longer exist in the Catalog:

BIOL 4520 Plant Anatomy and Physiology, BIOL 4530 Plant Anatomy and Physiology Lab, BIOL 465 Molecular Biology of Plants, GEN 4160 Recombinant DNA, GEN 4180 Biotechnology: Nucleic Acids Techniques

Delete the following courses from the list because they are now required in the curriculum (effective 2014):

BIOL 3040 Biology of Plants, CSEN 4050 Plant Breeding, CSEN 4900 Beneficial Soil Organisms in Plant Growth, MICR 3050 General Microbiology

Delete the following courses from the list because their scope and content are not a good fit for the major:

BIOL 4140 Basic Immunology, BIOL 4320 Animal Histology, BIOL 4330 Animal Histology Laboratory, BIOL 4750 Comparative Physiology, ECON 3140 Intermediate Economics, ECON 321 Economics of Innovation, ECON 350 Moral and Ethical Aspects of a Market Economy

Add the following courses:

APEC 4520 Agricultural Policy

BIOL 3200/3201 Field Biology/Laboratory

BIOL 4410 Ecology

BIOL 4580 Cell Physiology

BIOL 4610 Cell Biology

CSEN 4210 Principles of Field Crop Production

CSEN 4230 Field Crops-Forages

GEN 4050 Molecular Genetics of Eukaryotes

GEN 4100 Population and Quantitative Genetics

MICR 4010 Microbial Diversity and Ecology

MICR 4020 Environmental Microbiology

MICR 4100 Soil Microbiology

MICR 4130/4131 Industrial Microbiology/Laboratory

PLPA 4110 Plant Disease Diagnosis I

The proposed complete updated list of courses is included in the uploaded curriculum map.

**Form Originator:** PAGUDEL, Paula Agudelo **Date Form Created:** 8/17/2013

**Form Last Updated by:** PAGUDEL, Agudelo, Paula **Date Form Last Updated:** 10/9/2013

**Form Number:** 6319

**Approval**



<i>Alan R. John</i>	10/9/13	<i>Carice W. Harwood</i>	12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
<i>Patricia Hayton</i>	10/10/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
<i>Robert J. Kasinski</i>	10/11/13		
Chair, College Curriculum Committee	Date	Provost	Date
<i>Zed Whitener</i>	10/11/13	<i>Mark M. Hoff</i>	1/18/14
College Dean	Date	President	Date

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~~Soils and Sustainable Crop Systems~~  
**Plant and Environmental Sciences**  
**FRESHMAN YEAR**

~~strike through~~: course eliminated from curriculum  
 red: course added to curriculum  
 blue: course changed from one semester to another  
 green: course options reversed

First Semester: current	First Semester: proposed
5 - BIOL 1100 Principles of Biology I <sup>1</sup> 4 - CH 1010 General Chemistry 3 - MTHS 1020 Intro. to Math. Analysis <sup>2</sup> or 4 - MTHS 1060 Calculus of One Variable I <sup>2</sup> <del>1 - SSCS 1010 Survey of Soils &amp; Sust. Crop Systems</del> 3 - Arts and Humanities (Non-Lit.) Requirement <sup>3</sup>	3 - BIOL 1030 General Biology I <sup>1</sup> 1 - BIOL 1050 General Biology Lab. I <sup>1</sup> 4 - CH 1010 General Chemistry 3 - MTHS 1020 Intro. to Math. Analysis or 4 - MTHS 1060 Calculus of One Variable I 3 - AGR 1040 Introduction to Plant Science
16-17	14-15
<sup>1</sup> BIOL 1100 and 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100, and BIOL 1040/1060 may substitute for BIOL 1110. <sup>2</sup> MTHS 1060 is recommended for students in the Agricultural Biotechnology Concentration. <sup>3</sup> See General Education Requirements. PHIL 1030 is recommended for students in the Agricultural Biotechnology Concentration.	<sup>1</sup> BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060; BIOL 1100 and 1110 are recommended for Agricultural Biotechnology Concentration.

Second Semester: current	Second Semester: proposed
5 - BIOL 1110 Principles of Biology II <sup>1</sup> 4 - CH 1020 General Chemistry 3 - ENGL 1030 Accelerated Composition 3 - EXST 3010 Introductory Statistics or 4 - <del>MTHS 1080 Calculus of One Variable II</del> or 4 - <del>MTHS 2070 Multivariable Calculus</del>	3 - BIOL 1040 General Biology II <sup>1</sup> 1 - BIOL 1060 General Biology Lab. II <sup>1</sup> 4 - CH 1020 General Chemistry 3 - ENGL 1030 Accelerated Composition 3 - EXST 3010 Introductory Statistics 3 - Arts and Humanities (Non-Lit.) Requirement <sup>2</sup>
15-16	17
<sup>1</sup> BIOL 1100 and 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100, and BIOL 1040/1060 may substitute for BIOL 1110.	<sup>1</sup> BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060; BIOL 1100 and 1110 are recommended for Agricultural Biotechnology Concentration. <sup>2</sup> See General Education Requirements. PHIL 1030 is recommended for Agricultural Biotechnology Concentration.

~~Soils and Sustainable Crop Systems – Agricultural Biotechnology Concentration~~

## Plant and Environmental Sciences – Agricultural Biotechnology Concentration

## SOPHOMORE YEAR

First Semester: current	First Semester: proposed
<del>3 - CH 2230 Organic Chemistry</del> <del>1 - CH 2270 Organic Chemistry Lab.</del> 3 - COMM 1500 Intro. to Human Comm. or 3 - COMM 2500 Public Speaking 3 - ECON 2000 Economic Concepts or 3 - ECON 2110 Principles of Microeconomics 3 - GEN 3000 Fundamental Genetics 3 - Arts and Humanities (Literature) Requirement <sup>1</sup>	4 - CH 2010 Survey of Organic Chemistry 4 - ENT (BIOL) 3010 Insect Biology and Diversity 3 - BIOL 304 Biology of Plants 3 - PLPA 3100 Principles of Plant Pathology
16	14
<sup>1</sup> See General Education Requirements.	

Second Semester: current	Second Semester: proposed
3 - APEC 2050 Agriculture and Society 3 - BIOL 3350 Evolutionary Biology <del>3 - CH 2240 Organic Chemistry</del> <del>1 - CH 2280 Organic Chemistry Lab.</del> 1 - CSEN 4550 Seminar 3 - Concentration Requirement <sup>2</sup>	3 - APEC 2050 Agriculture and Society 3 - BIOL 3350 Evolutionary Biology 3 - COMM 2500 Public Speaking <sup>1</sup> 3 - GEN 3000 Fundamental Genetics 1 - CSEN 4550 Seminar 4 - MICR 3050 General Microbiology
14	17
<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	<sup>1</sup> COMM1500 Intro. to Human Comm. may substitute for COMM2500 Public Speaking

**Soils and Sustainable Crop Systems – Agricultural Biotechnology Concentration****Plant and Environmental Sciences – Agricultural Biotechnology Concentration****JUNIOR YEAR**

First Semester: current	First Semester: proposed
3 - BCHM 3050 Essential Elements of Biochem. 3 - BIOL 3040 Biology of Plants 2 - BIOL 4340 Biological Chem. Lab. Tech 3 - CSEN 4220 Major World Crops 3 - SCS 3350 Agricultural Biotechnology 3 - Social Science Requirement <sup>1</sup>	3 - BCHM 3050 Essential Elements of Biochem. 2 - BIOL 4340 Biological Chem. Lab. Tech 3 - ECON 2000 Economic Concepts or 3 - ECON 2110 Principles of Microeconomics 3 - CSEN 4220 Major World Crops 3 - SCS 3350 Agricultural Biotechnology 3 - Social Science Requirement <sup>1</sup>
17	17
<sup>1</sup> See General Education Requirements.	<sup>1</sup> See General Education Requirements.

Second Semester: current	Second Semester: proposed
1 - CSEN (SSCS) 3500 Practicum <del>3 - ENGL 3140 Technical Writing or</del> 3 - ENGL 3150 Scientific Writing and Comm. 3 - PLPA 3100 Principles of Plant Pathology 3 - PLPH 3400 Plant Med. and Magic 1 - SCS 4010 Academic and Professional Dev. 3 - Concentration Requirement <sup>2</sup>	3 - BIOL 4010 Plant Physiology 1 - BIOL 4020 Plant Physiology Lab. 3 - CSEN 4050 Plant Breeding 3 - CSEN 4090 Biology of Invasive Plants 3 - ENGL 3150 Scientific Writing and Comm. 1 - SCS 4010 Academic and Professional Dev.
14	14
<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	

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**Soils and Sustainable Crop Systems – Agricultural Biotechnology Concentration**

**Plant and Environmental Sciences – Agricultural Biotechnology Concentration**

**SENIOR YEAR**

First Semester: current	First Semester: proposed
3 - BIOL 4010 Plant Physiology 1 - BIOL 4020 Plant Physiology Lab. 4 - ENT 3010 Insect Biology and Diversity 1 - SSCS 4450 Regulatory Issues and Policies <del>1 - SSCS 4500 Agric. Biosystems and Risk Assess.</del> 3 - Concentration Requirement <sup>2</sup>	3 - CSEN 4900 Benef. Soil Organ. in Plant Growth 2 - SSCS 4450 Regulatory Issues and Policies 3 - Arts and Humanities (Literature) Requirement <sup>1</sup> 6 - Concentration Requirement <sup>2</sup>
13	14
<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	<sup>1</sup> See General Education Requirements. <sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.

Second Semester: current	Second Semester: proposed
2 - CSEN (SSCS) 3500 Practicum 3 - CSEN 4090 Biology of Invasive Plants 9 - Concentration Requirement <sup>2</sup>	3 - PLPH 3400 Plant Med. and Magic 3 - CSEN (SSCS) 3500 Practicum 9 - Concentration Requirement <sup>2</sup>
14	15
<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.

<b>122-124 Total hours</b>	<b>122-123 Total hours</b>
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000017

**B. S. IN SOILS AND SUSTAINABLE CROP SYSTEMS**

Concentration: **Agricultural Biotechnology**

**Proposed List of Program-Approved Courses: (Concentration Requirements)**

APEC 4520	Agricultural Policy	3(3,0)
BIOL 3020	Invertebrate Biology	3(3,0)
BIOL 3060	Invertebrate Biology Lab	1(0,3)
BIOL 3080	Biology of Plants Practicum	1(0,3)
WFB 3130	Conservation Biology	3(3,0)
BIOL 3200/3201	Field Biology/Laboratory	4(2,4)
BIOL 4060/4070	Introductory Plant Taxonomy/Lab	4(3,3)
BIOL 4410	Ecology	3(3,0)
BIOL 4460	Plant Ecology	3(3,0)
BIOL 4580	Cell Physiology	3(3,0)
BIOL 4610	Cell Biology	3(3,0)
CSEN 4210	Principles of Field Crop Production	3(3,0)
CSEN 4230	Field Crops-Forages	3(3,0)
ECON 3100	International Economy	3(3,0)
ENR 4290	Environmental Law and Policy	3(3,0)
ENT 4000	Insect Morphology	4(3,3)
ENT 4070	Applied Agricultural Entomology	3(2,3)
ENT 4150	Insect Taxonomy	4(1,6)
ENT 4360	Insect Behavior	3(2,3)
ENT 4950	Insect Biotechnology	3(3,3)
	(prerequisite or with consent of instructor)	
GEN 4050	Molecular Genetics of Eukaryotes	3(3,0)
GEN 4100	Population and Quantitative Genetics	3(3,0)
	(prerequisite or with consent of instructor)	
GEN 4400	Bioinformatics	3(3,0)
	(prerequisite or with consent of instructor)	
MICR 4010	Microbial Diversity and Ecology	3(3,0)
MICR 4020	Environmental Microbiology	3(3,0)
	(prerequisite MICR 4010)	
MICR 4100	Soil Microbiology	3(3,0)
	(prerequisite MICR 4010)	
MICR 4130/4131	Industrial Microbiology/Laboratory	3(2,3)
PLPA 4110	Plant Disease Diagnosis I	3(2,3)
PLPA 4250	Introductory Mycology	3(3,0)
PLPA 4260	Mycology Practicum	2(1,2)
PLPA 4590	Plant Nematology	3(3,3)
PLPA 4540	Plant Virology	4(3,3)

**Other courses may be applied as concentration requirements with advisor approval**

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## Curriculum and Course Change System - Print Major Form

**Change Major Name:** Sscs (Soil/Water Environmental Sci) SSCS (Soil and Water Environmental Science)  
**Degree:** BS

**Effective Catalog Year:** 2014

**X Change Major Name to:** PES (Soil and Water Science) Plant and Environmental Sciences

**.. Change Degree to:** (CHE approval required)

**X Change Curriculum Requirements**

(Submit or upload Curriculum map in catalog format. CHE approval required for > 18 hours of changes)

**.. Change General Education Requirements**

(Must also submit a General Education Checklist)

**.. Add, Change or Delete Concentration(s)**

(Submit or upload Curriculum map in catalog format. CHE approval required)

**.. Add, Change or Delete Emphasis Area(s)**

**Explanation:** The name of the major will change to Plant and Environmental Sciences. The name of the concentration will change to Soil and Water Science.

Freshman year: General Biology requirements were changed from recommending BIOL 1100/1110 and accepting BIOL 1030/1050 to the reverse. The options for EXST 3010 were eliminated from the second semester. SSCS 1010, the introductory course, will be replaced with AGR 1040 Introduction to Plant Sciences, which is also a requirement for the CSEN minor. AGR 1040 will better prepare the students for required plant science courses.

Sophomore year: CH 2010 Survey of Organic Chemistry will be required, and the options CH 2230/2270 will be deleted. PHYS 2090 General Physics I Lab will be required, and the options PHYS 1220/12240 will be deleted. PHYS 2080/2100 will be required, and options PHYS 2210/2230 will be deleted. APEC 2050 will be required and makes the Cross-cultural awareness requirement the same for all three concentrations.

Junior and Senior year: The Plant Science Requirement was simplified by identifying specific required courses rather than providing a suite from which students select one option: CSEN 4220 Major World Crops is now required for this concentration. AGM 3010 Soil and Water Conservation was optional and is now required. Students still have an opportunity to select from an enhanced list of options to meet their 15 credits of concentration requirements. ENGL 3140 was eliminated as an option and now ENGL 3150 is required. GEOL 4210/4211 was added an option for the Applied Spatial Technology Requirement (footnote). GEOL 4090/4091 was added as an option for the Field Scale Environmental Mgt. Requirement (footnote).

Course requirements, when the same for the three concentrations, were aligned to appear in the same semester to increase enrollment for those courses. This caused the need for rearranging of courses throughout the curriculum.

We would like to update the list of department-approved courses that fulfill the credits indicated in the curriculum as Concentration Requirements. The current list includes 13 courses. We propose to delete 4 of them and add 12 others, as follows:

Delete the following courses from the list because their prerequisites or co-requisites are no longer in line with the major:

BCHM 3010 Molecular Biochemistry, CH 2240 Organic Chemistry, CH 2280 Organic Chemistry Lab

Delete the following course from the list because it is now required in the curriculum (effective 2014):

AGM 3010 Soil and Water Conservation

Add the following courses:

APEC 2570 Natural Resources, Environment, and Economics

APEC 3570 Natural Resource Economics

APEC 4520 Agricultural Policy

WFB 3130 Conservation Biology

ENR 4130 Restoration Ecology

BE 4240 Ecological Engineering

CH 4130 Chemistry of Aqueous Systems

CSEN 4210 Principles of Field Crop Production

CSEN 4230 Field Crops-Forages

CSEN4260/4261 Cropping Systems Analysis/Laboratory

CSEN 4850 Environmental Soil Chemistry


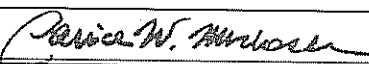
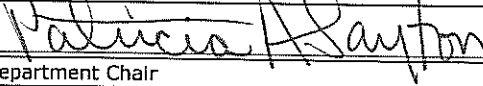
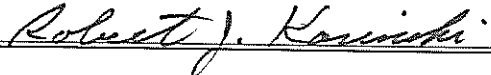
FNR 4660/4661 Stream Ecology/Laboratory

**Form Originator:** PAGUDEL, Paula Agudelo **Date Form Created:** 8/17/2013

**Form Last Updated by:** PAGUDEL, Agudelo, Paula **Date Form Last Updated:** 10/10/2013

**Form Number:** 6320

## Approval

	10/10/13		12/6/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	10/10/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	10/11/13		

Chair, College Curriculum Committee	Date	Provost	Date
<i>Zed Whitman</i>	<i>10/11/13</i>	<i>[Signature]</i>	<i>1/18/14</i>
College Dean	Date	President	Date



~~Soils and Sustainable Crop Systems~~  
**Plant and Environmental Sciences**  
**FRESHMAN YEAR**

~~strike through~~: course eliminated from curriculum  
 red: course added to curriculum  
 blue: course changed from one semester to another  
 green: course options reversed

First Semester: current	First Semester: proposed
5 - BIOL 1100 Principles of Biology I <sup>1</sup> 4 - CH 1010 General Chemistry 3 - MTHS 1020 Intro. to Math. Analysis <sup>2</sup> or 4 - MTHS 1060 Calculus of One Variable I <sup>2</sup> <del>1 - SSCS 1010 Survey of Soils &amp; Sust. Crop Systems</del> 3 - Arts and Humanities (Non-Lit.) Requirement <sup>3</sup>	3 - BIOL 1030 General Biology I <sup>1</sup> 1 - BIOL 1050 General Biology Lab. I <sup>1</sup> 4 - CH 1010 General Chemistry 3 - MTHS 1020 Intro. to Math. Analysis or 4 - MTHS 1060 Calculus of One Variable I 3 - AGR 1040 Introduction to Plant Science
16-17	14-15
<sup>1</sup> BIOL 1100 and 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100, and BIOL 1040/1060 may substitute for BIOL 1110. <sup>2</sup> MTHS 1060 is recommended for students in the Agricultural Biotechnology Concentration. <sup>3</sup> See General Education Requirements. PHIL 1030 is recommended for students in the Agricultural Biotechnology Concentration.	<sup>1</sup> BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060; BIOL 1100 and 1110 are recommended for Agricultural Biotechnology Concentration.

Second Semester: current	Second Semester: proposed
5 - BIOL 1110 Principles of Biology II <sup>1</sup> 4 - CH 1020 General Chemistry 3 - ENGL 1030 Accelerated Composition 3 - EXST 3010 Introductory Statistics or <del>4 - MTHS 1080 Calculus of One Variable II or</del> <del>4 - MTHS 2070 Multivariable Calculus</del>	3 - BIOL 1040 General Biology II <sup>1</sup> 1 - BIOL 1060 General Biology Lab. II <sup>1</sup> 4 - CH 1020 General Chemistry 3 - ENGL 1030 Accelerated Composition 3 - EXST 3010 Introductory Statistics 3 - Arts and Humanities (Non-Lit.) Requirement <sup>2</sup>
15-16	17
<sup>1</sup> BIOL 1100 and 1110 are strongly recommended; however, BIOL 1030/1050 may substitute for BIOL 1100, and BIOL 1040/1060 may substitute for BIOL 1110.	<sup>1</sup> BIOL 1100 may substitute for BIOL 1030/1050 and BIOL 1110 may substitute for BIOL 1040/1060; BIOL 1100 and 1110 are recommended for Agricultural Biotechnology Concentration. <sup>2</sup> See General Education Requirements. PHIL 1030 is recommended for Agricultural Biotechnology Concentration.

~~Soils and Sustainable Crop Systems~~ – Soil and Water ~~Environmental~~ Science Concentration

Plant and Environmental Sciences – Soil and Water Science Concentration

SOPHOMORE YEAR

First Semester: current	First Semester: proposed
<del>3 - CH 2230 Organic Chemistry and</del> <del>1 - CH 2270 Organic Chemistry Lab. or</del> 4 - CH 2010 Survey of Organic Chemistry 4 - CSEN 2020 Soils 3 - GEOL 1010 Physical Geology 1 - GEOL 1030 Physical Geology Lab. 3 - PHYS 2070 General Physics I and 1 - PHYS 2090 General Physics I Lab. or <del>3 - PHYS 1220 Physics with Calculus I and</del> <del>1 - PHYS 1240 Physics Lab. I</del>	4 - CH 2010 Survey of Organic Chemistry 4 - CSEN 2020 Soils 3 - GEOL 1010 Physical Geology 1 - GEOL 1030 Physical Geology Lab. 3 - PHYS 2070 General Physics I and 1 - PHYS 2090 General Physics I Lab.
16	16

Second Semester: current	Second Semester: proposed
3 - PHYS 2080 General Physics II and 1 - PHYS 2100 General Physics II Lab. or <del>3 - PHYS 2210 Physics with Calculus II and</del> <del>1 - PHYS 2230 Physics Lab. II</del> 3 - Arts and Humanities (Literature) Requirement <sup>1</sup> <del>3 - Cross-Cultural Awareness Requirement<sup>2</sup></del> 4 - Concentration Requirement <sup>2</sup>	3 - APEC 2050 Agriculture and Society 3 - PHYS 2080 General Physics II and 1 - PHYS 2100 General Physics II Lab. 4 - MICR 3050 General Microbiology 3 - COMM 2500 Public Speaking <sup>1</sup>
14	14
<sup>1</sup> See General Education Requirements. <sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	<sup>1</sup> COMM1500 Intro. to Human Comm. may substitute for COMM2500 Public Speaking

~~Soils and Sustainable Crop Systems~~ – Soil and Water Environmental Science Concentration

Plant and Environmental Sciences – Soil and Water Science Concentration

SENIOR YEAR

First Semester: current	First Semester: proposed
3 - CSEN (SSCS) 3500 Practicum 2 - CSEN 4030 Soil Genesis and Classification 1 - CSEN 4550 Seminar 3 - Concentration Requirement <sup>2</sup> 3 - Applied Spatial Technology Requirement <sup>4</sup> 3 - Field Scale Environmental Mgt. Requirement <sup>5</sup>	3 - CSEN (SSCS) 3500 Practicum 2 - CSEN 4030 Soil Genesis and Classification 1 - CSEN 4550 Seminar 3 - Applied Spatial Technology Requirement <sup>3</sup> 3 - Field Scale Environmental Mgt. Requirement <sup>4</sup> 3 - Arts and Humanities (Literature) Requirement <sup>1</sup>
17	15
<sup>2</sup> Selected from department-approved list. <sup>4</sup> AGM 4100, FOR 4330, or other course approved by advisor. <sup>5</sup> AGM 4020, <del>ETOX 4210</del> , or other course approved by advisor.	<sup>1</sup> See General Education Requirements. <sup>3</sup> AGM 4100, FOR 4330, or GEOL 4210/4211, or other course approved by advisor. <sup>4</sup> AGM 4020, GEOL 4090/4091, or other course approved by advisor.

Second Semester: current	Second Semester: proposed
3 - AGR 3150 Environment and Agric. 3 - BIOL 4010 Plant Physiology and 1 - BIOL 4020 Plant Physiology Lab. 3 - CSEN 4080 Land Treat. Wastewater and Sludges 3 - Social Science Requirement <sup>1</sup> 3 - Concentration Requirement <sup>2</sup>	3 - CSEN 4900 Beneficial Soil Org. in Plant Growth 3 - CSEN 4080 Land Treat. Wastewater and Sludges 3 - Social Science Requirement <sup>1</sup> 6 - Concentration Requirement <sup>2</sup>
14	15
<sup>1</sup> See General Education Requirements. <sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	<sup>1</sup> See General Education Requirements. <sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.

<b>123-125 Total hours</b>	<b>123-124 Total hours</b>
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~~Soils and Sustainable Crop Systems~~ – Soil and Water Environmental Science Concentration

Plant and Environmental Sciences – Soil and Water Science Concentration

JUNIOR YEAR

First Semester: current	First Semester: proposed
3 - COMM 1500 Intro. to Human Comm. or 3 - COMM 2500 Public Speaking 4 - MICR 3050 General Microbiology 5 - Concentration Requirement <sup>2</sup> <del>3 - Plant Science Requirement<sup>3</sup></del>	3 - AGM 3010 Soil and Water Conservation 9 - Concentration Requirement <sup>2</sup> 3 - CSEN 4220 Major World Crops
15	15
<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged. <sup>3</sup> BIOL 4410, CSEN 4210, 4220, 4230, (APEC) 4260, or HORT 4560.	<sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.

Second Semester: current	Second Semester: proposed
3 - CSEN 4900 Beneficial Soil Org. in Plant Growth <del>3 - ENGL 3140 Technical Writing or</del> 3 - ENGL 3150 Scientific Writing and Comm. 3 - GEOL 4080 Geohydrology 1 - SSCS 4010 Academic and Professional Dev. 3 - Social Science Requirement <sup>1</sup> 3 - Concentration Requirement <sup>2</sup>	3 - BIOL 4010 Plant Physiology 1 - BIOL 4020 Plant Physiology Lab. 3 - ENGL 3150 Scientific Writing and Comm. 3 - GEOL 4080 Geohydrology 1 - SSCS 4010 Academic and Professional Dev. 3 - Social Science Requirement <sup>1</sup> 3 - AGR 3150 Environment and Agriculture
14	17
<sup>1</sup> See General Education Requirements. <sup>2</sup> Select from a department approved list. Courses to support proficiency in a foreign language also are encouraged.	<sup>1</sup> See General Education Requirements.

**B. S. IN SOILS AND SUSTAINABLE CROP SYSTEMS**Concentration: **Soil and Water Environmental Science****Proposed List of Program-Approved Courses: (Concentration Requirements)**

APEC 2570	Natural Resources, Environment, and Economics	3(3,0)
APEC 3570	Natural Resource Economics	3(3,0)
APEC 4520	Agricultural Policy	3(3,0)
BCHM 3050	Essential Elements of Biochemistry	3(3,0)
WFB 3130	Conservation Biology	3(3,0)
ENR 4130	Restoration Ecology (prerequisite WFB 3130)	3(3,0)
BIOL 4340/4341	Biological Chemistry Lab Techniques	2(1,3)
BE 4240	Ecological Engineering	3(3,0)
CH 3130	Quantitative Analysis	3(3,0)
CH 3170	Quantitative Analysis Laboratory	3(3,0)
CH 4130	Chemistry of Aqueous Systems	1(0,3)
CSEN 4210	Principles of Field Crop Production	3(3,0)
CSEN 4230	Field Crops-Forages	3(3,0)
CSEN4260/4261	Cropping Systems Analysis/Laboratory	3(2,2)
CSEN 4460	Soil Management	3(3,0)
CSEN 4520	Soil Fertility and Management	3(3,0)
CSEN 4530	Soil Fertility Laboratory	1(0,2)
CSEN 4850	Environmental Soil Chemistry	3(3,0)
ETOX 4460	Soil & Water Qual.:Fund. (prerequisite or with consent of instructor)	3(3,0)
ETOX 4470	Soil & Water Qual.: Appl. (prerequisite or with consent of instructor)	3(3,0)
FNR 4660/4661	Stream Ecology/Laboratory	3(2,3)

**Other courses may be applied as concentration requirements with advisor approval**