000013

CLEMSON UNIVERSITY

MEMO

TO: University Undergraduate Curriculum Committee
University Graduate Curriculum Committee

THROUGH: Dr. Kendall Kirk, Chair Curriculum Committee School of Agric. (SAFES)

FROM: Dr. Paula Agudelo, SSCS Curriculum representative Paula Agudelo

SUBJECT: Proposed Curriculum changes to Soils and Sustainable Crop Systems

DATE: January 10, 2012

School of Agricultural, Forest, and Environmental Sciences

College of AGRICULTURE, FORESTRY & LIFE SCIENCES

114 Long Hall
Box 340315
Clemson, SC
29634-0315

(864) 656-3111

Please find attached a request for unification of undergraduate courses currently being taught under AGRIC, CSENV, PLPH, and SSCS. We propose that these courses (Table enclosed) be listed in the catalog and offered as PES (Plant and Environmental Sciences). These changes are proposed to take effect in January 2014.

This proposal was developed in response to a request by Dr. Thomas Dobbins, Chair of the Division of Agriculture in the School of Agricultural, Forest, and Environmental Sciences, to streamline and organize our undergraduate course offerings to show strength and synergism in the rubrics. The request was discussed by the Soils and Sustainable Crop Systems (SSCS) faculty, who are responsible for the rubrics being unified, and there was unanimous support. The change will facilitate a more efficient scheduling of offerings and will help identify teaching needs.

2/11/13
Chair, School Curriculum Committee

Patricia Clayton 2/11/13
School Director

Robert J. Kaminski, 2/11/13
Chair, College Curriculum Committee

2/11/13
College Dean

3/1/2013
Chair, Undergraduate Curriculum Committee

Chair, Graduate Curriculum Committee

5/8/13
Provost

5/8/13
President

Proposed Listing of Course Offerings to be unified under PES (Plant and Environmental Sciences)

Proposed		*Current*
PES 101	Survey of Soils and Sustainable Crop Systems	SSCS 101 and SSCS 102
PES 104, H104	Introduction to Plant Sciences	AGRIC 104, H104
PES 202	Soils	CSENV 202
PES 315, H315 (EN SP)	Environment and Agriculture	AGRIC 315, H315 (EN SP)
PES 333	Agricultural Genetics	SSCS 333
PES 335	Agricultural Biotechnology	SSCS 335
PES 340 (BIOSC)	Plant Medicine and Magic	PLPH 340 (BIOSC)
PES 350	Practicum	CSENV 350 (SSCS)
PES 401	Academic and Professional Development	SSCS 401
PES 403, 603	Soil Genesis and Classification	CSENV 403, 603
PES 405, 605	Plant Breeding	CSENV 405, 605
PES 406	Special Problems	CSENV 406
PES 408, 608 (B E)	Land Treatment of Wastewater and Sludges	CSENV 408 (B E)
PES 409, 609	Biology of Invasive Plants	CSENV 409, 609
PES 421, 621	Principles of Field Crop Production	CSENV 421, 621
PES 422, 622	Major World Crops	CSENV 422, 622
PES 423, H423, 623	Field Crop Forages	CSENV 423, H423, 623
PES 426 (AP EC)	Cropping Systems Analysis	CSENV 426, 626 (AP EC)
HORT 433, 633 (PES)	Landscape and Turf Weed Management	HORT 433, 633 (CSENV)
PES 445, 645	Regulatory Issues and Policies	SSCS 445, 645
PES 446, 646	Soil Management	CSENV 446, 646
PES 450, 650	Agricultural Biosystems and Risk Assessment	SSCS 450
PES 451, 651	Agricultural Biotechnology and Global Society	SSCS 451
PES 452, 652	Soil Fertility and Management	CSENV 452, 652
PES 453, 653	Soil Fertility Laboratory	CSENV 453, 653
PES 455	Seminar	CSENV 455
PES 485, 685	Environmental Soil Chemistry	CSENV 485, 685
PES 490, 690	Beneficial Soil Organisms in Plant Growth	CSENV 490, 690
PES H491	Senior Honors Research	AGRIC H491
PES H492	Senior Honors Research	AGRIC H492
PES 496 (ENT)	Selected Topics in Creative Inquiry	SSCS 496 (ENT)
PES 497 (ENT)	Selected Topics in Creative Inquiry Laboratory	SSCS 497 (ENT)

Note:

1. The requirements for a minor in Crop and Soil Environmental Science will remain the same, but will now read "A minor in in Crop and Soil Environmental Science requires PES 104, PES 202, and nine or more credits at the 300 level or higher"

2. SSCS 101 and SSCS 102 have been approved to be combined into SSCS 101 Survey of Sustainable Crop Systems (SSCS 102 eliminated in 2013-2014 catalog).

CLEMSON UNIVERSITY **Curriculum and Course Change System - Print New Course Form** 000015

Course Abbreviation & Number:
X **New Undergraduate Course:** MICRO- 405
X **New Honors Course:** MICRO-H-405
X **New Graduate Course:** MICRO- 605

Effective Term: 08/2013

Catalog Title: Advanced Microbial Ecology of Humans
Transcript Title: ADV MICR ECOL HUM

Fixed Credit Course: 3 (3,0)
Variable Credit Course: - (-), (-)

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

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

Catalog Description: Investigation of the complex ecological relationships between microbes and their human hosts, including investigation of the normal microbial community in various body systems, factors that change the microbiota, and the role of the microbiota in normal development, health, and disease of the host.

Prerequisite(s): Grade of C or better in Micro 401 (Microbial Diversity and Ecology)

Projected Enrollment:
Year 1 - 10 Year 2 - 15 Year 3 - 20 Year 4 - 20

Required course for students in: None. This course is an option for the Environmental portion of the Microbiology requirement of the Microbiology BS.

Statement of need and justification based on assessment results of student learning outcomes: Although there is an enormous amount of novel information being published right now on the interactions between humans and microbes, this information has not been emphasized in basic Microbiology offerings at most universities, including Clemson. In Micro 401 (Microbial Diversity and Ecology), I am only able to spend 2 to 3 lectures on the topic each term, and I do not see the topic being covered in any other microbiology offerings. Surveys of students enrolled in Micro 401 in the Fall of 2011 and 2012 revealed that microbe-human interactions is overwhelmingly regarded as one of the most interesting topics in the course, and students suggest (without prompting) that they would like to see a course on the topic. I believe that this course offering reflects current trends in microbiology, that there is sufficient student interest, and that it will modernize the Microbiology curriculum at Clemson.

Textbook(s): None. This course will use primary scientific literature as a source of information.

Learning Objectives: 1. Students will be able to describe the complex interactions of humans and their normal microbiota.
2. Students will describe the members, roles, and functions of the microbial communities associated with various human body systems.
3. Students will explain how shifts in these various microbial communities are proposed to be associated with particular human diseases such as diabetes, obesity, allergies, etc.
4. Students will analyze the most recent primary scientific literature relevant to the human microbiota.

Topical Outline: Each lecture and each journal discussion listed will take one hour.

Section 1 (6 lectures; 1 journal discussion): Introduction, Review, and Relevance (includes basic ecological techniques, relevant microbial diversity, the Human Microbiome Project, and history and ethics of human microbiome research).
Section 2 (7 lectures; 2 journal discussions): Normal Human Microbiota (includes the nasal, lung, skin, oral, gastrointestinal, and urogenital microbiota, as well as an analysis of microbial colonization from birth to death).
Section 3 (5 lectures; 1 journal discussion): Factors that Change the Microbiota (includes environmental factors, host genotype and gender, antibiotic usage, and the Hygiene Hypothesis).
Midterm exam.
Section 4 (8 lectures; 2 journal discussions):Roles of the Microbiota (includes colonization resistance, bile acid metabolism, carbohydrate digestion, immune system, and GI tract development, and the gut-brain axis).
Section 5 (9 lectures; 3 journal discussions): When the Community is Shifted (includes obesity, diabetes, IBS, IBD, asthma, allergies, autism, bacterial vaginosis, and the use of prebiotics and probiotics)

Total: 35 lectures, 9 journal discussions, and 1 midterm exam = 45 hours.

Evaluation: All exams will be short answer/essay exams. Evaluation for MICRO 405 will be:

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Class participation for journal discussions = 90 points (10 points on each of 9 discussion days)
Quizzes on articles used for journal discussions = 160 points (20 points per quiz; best 8 out of 9 counted)
Midterm exam = 100 points
Final exam = 100 points

Total of 450 points possible.

Graduate students and Honors students will have additional assignments

Duplication (if applicable): As indicated above, no other Microbiology course has an in-depth treatment of human microbiomes.

Add course requirements for honors and/or 600-level courses (if applicable): In addition to the MICRO 405 requirements, MICRO H405 students will be assigned:
Part One (50 points): A detailed 3 to 4 page summary and discussion of a peer-reviewed journal article relevant to human microbial ecology.
Part Two (50 points): Honors students will also be responsible for staying up to date on the most recent research pertaining to human-microbial ecology throughout the course of the term. Each student will select a course topic (obesity, diabetes, nasal microbiota, etc) and perform monthly literature searches (using NCBI's PubMed, Google Scholar, or other approved search tools) on this topic to find the newest relevant articles. Search results will be turned in to the instructor on the last class day of each month. At the end of the term, each Honors student will give a 10 to 15 minute presentation highlighting the overall trend of research pertaining to that particular topic, as well as a short summary of three of the selected journal articles to the class.

In addition to the MICRO 405 requirements, MICRO 605 students will be assigned:
Part One (100 points): Graduate students will select a topic from the lecture schedule (at which point the instructor will notify them of the date) OR a date from the lecture schedule (at which point the instructor will notify them of the topic) on which they will present a 40 to 50 minute PowerPoint lecture.
Part Two (50 points): Graduate students must summarize, compare, and contrast TWO peer-reviewed journal articles relevant to their lecture topic.

Percentage (course)
Class participation (90 points)
20% (405) 16.4% (H405) 15% (605)

Quizzes on journal articles (160 points)
35.5% (405) 29% (H405) 26.7% (605)

Midterm exam (100 points)
22.25% (405) 18.2% (H405) 16.65% (605)

Final exam (100 points)
22.25% (405) 18.2% (H405) 16.65% (605)

Honors Projects (100 points)
N/A (405) 18.2% (H405) N/A (605)

Graduate Projects (150 points)
N/A (405) N/A (H405) 25% (605)

Total grade percentage
100% (405) 100% (H405) 100% (605)
Total points
450 (405) 550 (H405) 600 (605)

Form Originator: KWHITEH,Kristi Whitehead **Date Form Created:** 1/14/2013
Form Last Updated by: RJKSN, Robert Kosinski **Date Form Last Updated:** 1/23/2013
Form Number: 5799

Approval

Robert J. Kosinski	1/23/13	Bruce W. Brunson	3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	1/25/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
Robert J. Kosinski	2/7/13	Doris R. Helms	5/8/13
Chair, College Curriculum Committee	Date	Provost	Date

Joel Curlette	2/11/13		5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

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CLEMSON UNIVERSITY **Curriculum and Course Change System - Print Change/Delete Course Form**

X **Delete a Course - Abbrev & Number: BIOL- 121**
Corresponding Graduate Course: --
.. **Corresponding Honors course:** --

Course Title: KEY TO HUMAN IDNTITY

Brief Statement of Change:
The faculty member teaching this course has retired, and BIOL 122 and 123 can accommodate students seeking a non-majors introductory biology lecture course.

Last Term taught: 1201
Effective Term: 05/2013

Form Originator: RJKSN, Robert Kosinski **Date Form Created:** 1/25/2013
Form Last Updated by: RJKSN, Robert Kosinski **Date Form Last Updated:** 1/25/2013
Form Number: 5844

Approval

Robert J. Kosinski	1/25/13	Patricia W. Marrone	3/01/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	1/25/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
Robert J. Kosinski	2/7/13	Doris R. Helms	5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
Ted Whitwell	2/11/13	James O. Barker	5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

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CLEMSON UNIVERSITY **Curriculum and Course Change System - Print Change/Delete Course Form**

X **Delete a Course - Abbrev & Number: BIOL- 124**
Corresponding Graduate Course: --
.. **Corresponding Honors course:** --

Course Title: KEYS TO REPRODUCTION

Brief Statement of Change:
The faculty member teaching this course has retired, and BIOL 122 and 123 can accommodate students seeking a non-majors introductory biology course.

Last Term taught: 0808
Effective Term: 05/2013

Form Originator: RJKSN, Robert Kosinski **Date Form Created:** 1/25/2013
Form Last Updated by: RJKSN, Robert Kosinski **Date Form Last Updated:** 1/25/2013
Form Number: 5845

Approval

Robert J. Kosinski	1/25/13	Carrie W. Brunson	3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	1/25/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
Robert J. Kosinski	2/7/13	Doris R. Helms	5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
Leel Whitmire	2/11/13		5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

000020

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

Change Major Name: Agricultural Education
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: To improve the seamless transitions for the 2 + 2 transfer students, we propose adding MTHSC 203 Elem. Statistical Inference as an alternative/option to EX ST 301 Introductory Statistics. This change will apply to all three emphasis areas- teaching, leadership, and communications.
Form Originator: FRAVEL, Philip Fravel **Date Form Created:** 1/8/2013
Form Last Updated by: FRAVEL, Philip Fravel **Date Form Last Updated:** 1/8/2013
Form Number: 5749

Approval

	1/29/13		3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Dat
Patricia Hayton	1-28-13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Dat
Robert J. Kaminski	2/7/13	Doris R. Helms	5/8/13
Chair, College Curriculum Committee	Date	Provost	Dat
Jed Whittemore	2/11/13		5/8/13
College Dean	Date	Presiden	Dat

Agricultural Education Curriculum
Proposed for 2014-15 Catalog (last update 1/8/13 by krk)

Freshman Year

1 - AG ED 102 Agric. Education Freshman Seminar
3 - AG ED 103 Multiculturalism in Agric. Ed.
3 - AVS 150 Introduction to Animal Science
1 - AVS 151 Introduction to Animal Science Lab.
3 - BIOL 103 General Biology I
1 - BIOL 105 General Biology Lab. I
3 - HORT 101 Horticulture
3 - Mathematics Requirement[1]
18

1 - AG ED 100 Orientation and Field Experience
3 - AG M 205 Principles of Fabrication
3 - BIOL 104 General Biology II
1 - BIOL 106 General Biology Lab. II
3 - ENGL 103 Accelerated Composition
6 - Social Science Requirement[2]
17

Sophomore Year

3 - AG ED 201 Intro. to Agricultural Education
3 - AG ED 204 Applied Agriculture Calculations
3 - B T 220 Biosystems Technology I
4 - CH 101 General Chemistry
3 - HORT 212 Introduction to Turfgrass Culture
1 - HORT 213 Turfgrass Culture Lab.
17

4 - CH 102 General Chemistry
1 - COMM 101 Communication Acad. and Prof. Development I[3]
3 - ED SP 370 Introduction to Special Education
3 - EX ST 301 Introductory Statistics[4] ***or***
3 - MTHSC 203 Elem. Statistical Inference[4]
3 - PHYS 207 General Physics I
3 - Technical Requirement[5]
16-17

[1]MTHSC 101, 102, 106, 108, 203, or 207
[2]See General Education Requirements. Three of these credit hours must also satisfy the Cross-Cultural Awareness Requirement. Note: ANTH 201, GEOG 103 or HIST 173 is recommended to satisfy the Social Science Requirement.
[3]Required of students in Communications Emphasis Area only.
[4]**Students pursuing a minor in Business Administration must take EX ST 301.**
[5]See advisor.

COMMUNICATIONS EMPHASIS AREA

Junior Year

3 - AG ED 303 Mech. Technology for Agric. Ed.
3 - AG M 221 Surveying
4 - COMM 201 Intro. to Communication Studies
4 - CSENV 202 Soils
3 - Arts and Humanities (Non-Lit.) and STS Requirement[1]
17

3 - ED F 302 Educational Psychology
3 - E N R 302 Natural Resources Measurements
3 - HORT 404 Plant Propagation
1 - HORT 405 Plant Propagation Techniques Lab.
3 - Advanced Writing Requirement[2]
3 - Departmental Communication Requirement[3]
3 - Oral Communication Requirement[4]
19

Senior Year

3 - ENGL 231 Introduction to Journalism
3 - HORT 303 Landscape Plants
3 - Arts and Humanities (Literature) Requirement[1]
6 - Departmental Communication Requirement[3]
3 - Technical Requirement[3]
18

12 - AG ED 407 Internship in Extension and Leadership Educ.[5]
12

135 Total Semester Hours

[1]See General Education Requirements. This course must also satisfy the Science and Technology in Society Requirement.
[2]ENGL 304 or 314 is recommended.
[3]See advisor.
[4]See General Education Requirements. COMM 150 or 250 is recommended.
[5]Internship must meet departmental requirements for Communications Emphasis Area. See advisor.

LEADERSHIP EMPHASIS AREA

Junior Year

3 - AG ED 303 Mech. Technology for Agric. Ed.
3 - AG M 221 Surveying
4 - CSENV 202 Soils
3 - HORT 303 Landscape Plants
3 - Advanced Writing Requirement[1]
3 - Arts and Humanities (Non-Lit.) and STS Requirement[2]
19

3 - ED F 302 Educational Psychology
3 - E N R 302 Natural Resources Measurements
3 - HORT 404 Plant Propagation
1 - HORT 405 Plant Propagation Techniques Lab.
3 - Oral Communication Requirement[3]
3 - Technical Requirement[4]
16

Senior Year

3 - AG ED 403 Principles of Adult/Ext. Educ.
3 - AG ED 415 Leadership of Volunteers
3 - AG ED 416 Ethics/Issues in Agric. & the Food/Fiber Sys.
3 - MGT 201 Principles of Management
3 - Arts and Humanities (Literature) Requirement[2]
3 - Technical Requirement[4]
18

12 - AG ED 407 Internship in Extension and Leadership Educ.
12

134 Total Semester Hours

[1]ENGL 304 or 314 is recommended.
[2]See General Education Requirements. Three of these credit hours must also satisfy the Science and Technology in Society Requirement.
[3]See General Education Requirements. COMM 150 or 250 is recommended.
[4]See advisor.

TEACHING EMPHASIS AREA

Junior Year

3 - AG ED 303 Mech. Technology for Ag. Ed.
3 - AG M 221 Surveying
4 - CSENV 202 Soils
3 - HORT 303 Landscape Plants
3 - Advanced Writing Requirement[1]
16

3 - AG ED 416 Ethics/Issues in Agric. & the Food/Fiber Sys.
3 - ED F 302 Educational Psychology
3 - E N R 302 Natural Resources Measurements
3 - HORT 305 Plant Propagation
1 - HORT 306 Plant Propagation Techniques Lab.
3 - Oral Communication Requirement[2]
16

Senior Year

1 - AG ED 400 Supervised Field Experience II
3 - AG ED 401 Instructional Methods in Ag. Ed.
3 - AG ED 403 Principles of Adult/Ext. Education
3 - AG ED 423 Curriculum
3 - Arts and Humanities (Literature) Requirement[3]
3 - Arts and Humanities (Non-Lit.) and STS Requirement[3]
16

12 - AG ED 406 Directed Teaching
2 - AG ED 425 Teaching Agricultural Mechanics
14

130 Total Semester Hours

[1]ENGL 304 or 314 is recommended.
[2]See General Education Requirements. COMM 150 or 250 is recommended.
[3]See General Education Requirements.

CLEMSON UNIVERSITY

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Curriculum and Course Change System - Print Major Form

Change Major Name: Forest Resource Management
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)
X **Add, Change or Delete Emphasis Area(s)**
Explanation: MTHSC 203 is being provided as an alternative to the EX ST 301 requirement in the curriculum in order to accommodate students who already have credit for MTHSC 203 through AP credit or through another institution. Based on course descriptions, there would be some redundancy in taking EX ST 301 for a student who has already received credit for MTHSC 203. A footnote has been added indicating that students minoring in Business Administration must take EX ST 301 because it is a prerequisite for FIN 306.

This change applies to the BS in Forest Resource Management AND to the BS in Forest Resource Management - Land Surveying Emphasis Area
Form Originator: LGERING, Lawrence Gering **Date Form Created:** 1/8/2013
Form Last Updated by: LGERING, Lawrence Gering **Date Form Last Updated:** 1/8/2013
Form Number: 5747

Approval

	1/28/13		3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	1/28/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	2/7/13		5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
	2/11/13		5/8/13
College Dean	Date	President	Date

Forest Resource Management Curriculum
Proposed for 2014-15 Catalog (last update 1/8/13 by krk)

0006

Freshman Year

3 - BIOL 103 General Biology I
1 - BIOL 105 General Biology Lab. I
4 - CH 101 General Chemistry
1 - E N R 101 Intro. to Environ. and Natural Res. I
3 - MTHSC 102 Intro. to Mathematical Analysis
3 - Oral Communication Requirement[1]
15

3 - BIOL 104 General Biology II
1 - BIOL 106 General Biology Lab. II
3 - ENGL 103 Accelerated Composition
3 - EX ST 301 Introductory Statistics[2] ***or***
3 - MTHSC 203 Elem. Statistical Inference[2]
1 - F N R 102 FNR Freshman Portfolio
4 - Departmental Science Requirement[3]
15

Sophomore Year

4 - F N R 204 Soil Information Systems
2 - FOR 205 Dendrology
3 - FOR 221 Forest Biology
3 - Arts and Humanities (Literature) Requirement[1]
3 - Economics Requirement[4]
15

3 - ENGL 314 Technical Writing
3 - FOR 206 Forestry Ecology
3 - Arts and Humanities (Non-Lit.) Requirement[1]
3 - Social Science Requirement[1]
3 - Minor Requirement[5]
15

Forestry Summer Camp
2 - FOR 251 Forest Communities
1 - FOR 252 Forest Operations
4 - FOR 253 Forest Mensuration
1 - FOR 254 Forest Products
8

Junior Year

2 - FOR 302 Forest Biometrics
3 - FOR 304 Forest Resource Economics
3 - FOR 341 Wood Procurement Practices in the Forest Ind.
4 - FOR 413 Integrated Forest Pest Management
3 - FOR (E N R) 434 GIS for Landscape Planning
1 - Internship, Creative Inquiry or Directed Research Req.[6]
16

2 - FOR 308 Remote Sensing in Forestry
3 - FOR 408 Wood and Paper Products
3 - FOR 418 Forest Resource Valuation
4 - FOR 465 Silviculture
3 - Minor Requirement[5]
1 - Internship, Creative Inquiry or Directed Research Req.[6]
16

Senior Year

4 - FOR 410 Harvesting Processes
3 - FOR (E N R) 416 Forest Policy and Admin.
3 - FOR 417 Forest Resource Mgt. and Regulation
2 - FOR 431 Recreation Resource Planning in Forest Mgt.
3 - Minor Requirement[5]
1 - Internship, Creative Inquiry or Directed Research Req.[6]
16

1 - F N R 499 Natural Resources Seminar
2 - FOR 406 Forested Watershed Management
3 - FOR 415 Forest Wildlife Management
2 - FOR 425 Forest Resource Management Plans
1 - FOR 498 Senior Portfolio
6 - Minor Requirement[5]
15

131 Total Semester Hours

[1]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.)
[2]**Students pursuing a minor in Business Administration must take EX ST 301.**
[3]See advisor. CH 102 or PHYS 200 or higher level general physics course.
[4]AP EC 257, ECON 200, 211, or 212.
[5]To be selected by the middle of the sophomore year.
[6]F N R 470, 490, or FOR 419.

LAND SURVEYING EMPHASIS AREA

000025

Freshman Year

3 - BIOL 103 General Biology I
1 - BIOL 105 General Biology Lab. I
4 - CH 101 General Chemistry
1 - E N R 101 Intro. to Environ. and Natural Res. I
3 - MTHSC 102 Intro. to Mathematical Analysis
3 - Oral Communication Requirement[1]
15

3 - BIOL 104 General Biology II
1 - BIOL 106 General Biology Lab. II
3 - ENGL 103 Accelerated Composition
3 - EX ST 301 Introductory Statistics[2] ***or***
3 - MTHSC 203 Elem. Statistical Inference[2]
1 - F N R 102 FNR Freshman Portfolio
4 - Departmental Science Requirement[3]
15

Sophomore Year

4 - F N R 204 Soil Information Systems
2 - FOR 205 Dendrology
3 - FOR 221 Forest Biology
3 - Arts and Humanities (Literature) Requirement[1]
3 - Economics Requirement[4]
15

2 - E G 210 Engineering Graphics for Civil Engr.
3 - ENGL 314 Technical Writing
3 - FOR 206 Forestry Ecology
3 - Arts and Humanities (Non-Lit.) Requirement[1]
3 - Social Science Requirement[1]
14

Forestry Summer Camp
2 - FOR 251 Forest Communities
1 - FOR 252 Forest Operations
4 - FOR 253 Forest Mensuration
1 - FOR 254 Forest Products
8

Junior Year

2 - FOR 302 Forest Biometrics
3 - FOR 304 Forest Resource Economics
3 - FOR 341 Wood Procurement Practices in the Forest Ind.
4 - FOR 413 Integrated Forest Pest Management
3 - FOR (E N R) 434 GIS for Landscape Planning
15

3 - AG M 221 Surveying: Earthwork and Area Measurements
2 - FOR 308 Remote Sensing in Forestry
3 - FOR 408 Wood and Paper Products
3 - FOR 418 Forest Resource Valuation
4 - FOR 465 Silviculture
15

Summer
3 - F N R 490 Field Training in Natural Resources[5]

Senior Year

4 - FOR 410 Harvesting Processes
3 - FOR (E N R) 416 Forest Policy and Admin.
3 - FOR 417 Forest Resource Mgt. and Regulation
2 - FOR 431 Rec. Resource Plan. in Forest Mgt.
3 - FOR 433 GPS Applications
15

3 - B E 322 Small Watershed Hydrology and Sedimentology
1 - F N R 499 Natural Resources Seminar
2 - FOR 406 Forested Watershed Management
3 - FOR 415 Forest Wildlife Management
2 - FOR 425 Forest Resource Management Plans
1 - FOR 498 Senior Portfolio
3 - LAW 333 Real Estate Law
15

130 Total Semester Hours

[1]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.)
[2]**Students pursuing a minor in Business Administration must take EX ST 301.**
[3]See advisor. CH 102 or PHYS 200 or higher level general Physics course . PHYS 200 is highly recommended.
[4]AP EC 257, ECON 200, 211, or 212
[5]Summer internship must be in land surveying.

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

Change Major Name: Wildlife and Fisheries Biology (BS)
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: MTHSC 203 is being provided as an alternative to the EX ST 301 requirement in the curriculum in order to accommodate students who already have credit for MTHSC 203 through AP credit or through another institution. Based on course descriptions, there would be some redundancy in taking EX ST 301 for a student who has already received credit for MTHSC 203. A footnote has been added indicating that students minoring in Business Administration must take EX ST 301 because it is a prerequisite for FIN 306.

WFB 412 is being moved to the fall semester (switched with "Approved requirement") so that course is sequenced to better fit the existing WFB curriculum.

WFB 440 will no longer be a required course. It will be replaced by the option of ENR 450 (Conservation Issues) or AP EC 475 (Econ. of Wildlife Mgt. and Policy), which will serve to better fulfill the requirements for Professional Certification by the Wildlife Society.
Form Originator: KIRK2, Kendall Kirk **Date Form Created:** 1/28/2013
Form Last Updated by: , **Date Form Last Updated:** 1/28/2013
Form Number: 5879

Approval

Chair, Department Curriculum Committee	1/28/13 Date	Chair, Undergraduate Curriculum Committee	3/1/2013 Date
Department Chair	1/28/13 Date	Chair, Graduate Curriculum Committee	Date
Chair, College Curriculum Committee	2/7/13 Date	Provost	5/8/13 Date
College Dean	2/11/13 Date	President	5/8/13 Date

Wildlife and Fisheries Biology Curriculum
Proposed for 2014-15 Catalog (last update 1/28/13 by krk)

Freshman Year

3 - BIOL 103 General Biology I
1 - BIOL 105 General Biology Lab. I
4 - CH 101 General Chemistry
1 - E N R 101 Intro. to Env. and Natural Res. I
3 - MTHSC 102 Intro. to Mathematical Analysis
3 - Oral Communication Requirement[1]
15

3 - BIOL 104 General Biology II
1 - BIOL 106 General Biology Lab. II
4 - CH 102 Chemistry in Context II or
4 - PHYS 200 Introductory Physics
3 - ENGL 103 Accelerated Composition
3 - EX ST 301 Introductory Statistics[2] ***or***
3 - MTHSC 203 Elem. Statistical Inference[2]
1 - F N R 102 FNR Freshman Portfolio
15

Sophomore Year

4 - F N R 204 Soil Information Systems
2 - FOR 205 Dendrology
3 - FOR 221 Forest Biology
3 - W F B 300 Wildlife Biology
1 - W F B 301 Wildlife Biology Lab.
3 - Arts and Humanities (Non-Lit.) Requirement[1]
16

3 - ENGL 314 Technical Writing
3 - FOR 206 Forestry Ecology
3 - GEN 300 Fundamental Genetics
3 - W F B 350 Principles of Fish and Wildlife Biol.
3 - Social Science Requirement[1]
15

Junior Year

3 - BIOSC 303 Vertebrate Biology
4 - BIOSC 320 Field Botany
3 - W F B 410 Wildlife Management Techniques
3 - W F B 412 Wildlife Management
3 - Arts and Humanities (Literature) Requirement[1]
16

3 - WFB (BIOSC) 313 Conservation Biology
3 - W F B 416 Fishery Biology
~~**3 - W F B 440 Non-Game Wildlife Management**~~
3 - E N R 450 Conservation Issues *or*
3 - AP EC 475 Econ. of Wildlife Mgt. and Policy
3 - W F B 462 Wetland Wildlife Biology
3 - Approved Requirement[3]
15

Senior Year

3 - AP EC 257 Natural Resources, Environment, and Econ.
4 - AVS 301 Anat. and Phys. of Domestic Animals
3 - FOR (E N R) 434 GIS for Landscape Planning
1 - W F B 498 Senior Portfolio
4 - Approved Requirement[3]
15

1 - F N R 499 Natural Resources Seminar
3 - W F B 430 Wildlife Conservation Policy
8 - Approved Requirement[3]
3 - Policy and Law Requirement[3]
15

122 Total Semester Hours

[1]See General Education Requirements. Three of these credit hours must also satisfy the Cross-Cultural Awareness Requirement; three credits must also satisfy the Science and Technology in Society Requirement. (Note: Social Science Requirement must be in an area other than economics or applied economics.)

[2]Students pursuing a minor in Business Administration must take EX ST 301.

[3]Select from department-approved list.

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CLEMSON UNIVERSITY

To whom it may concern,

This memo is to indicate that the chemistry department wishes to separate CH 201 from a 4 credit (3,3) lecture / lab course into:

1) CH 2010 (3,0), a 3 credit lecture course
   a. Prereq: CH 102 or Consent of Instructor
   b. Description: Introduction to organic chemistry emphasizing nomenclature, classes of organic compounds, and chemistry of functional groups. For students needing a one-semester course in organic chemistry. Credit toward a degree will be given for only one of CH 201 or 223.

2) CH 2011 (0,3), a 1 credit lab course with fee
   a. Prereq: CH 102, concurrent enrollment in CH 201 (lecture course)
   b. Description: Laboratory emphasizing standard techniques of organic laboratory analysis with the synthesis and characterization of organic molecules discussed in CH 201. Credit will only be given for only one of CH 201 or CH 227.

Effective Term: Spring 2014

Chair, Dept. Curriculum Committee	Date	Chair, Undergrad Curriculum Committee	Date
			3/1/2013
Dept. Chair		Chair, Graduate Curriculum Committee	
			5/8/13
Chair, College Curriculum Committee		Provost	
	2/15/13		5/8/13
College Dean		President	
	2/18/13		
Director, Calhoun Honors College			

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