CALS Curriculum Committee Meeting
April 12, 2019
2:00 p.m.
1044 McCarty Hall D

Members: J. Brendemuhl, J.C. Bunch, D. Coenen, D. Gabriel, P. Inglett, S. Johnson, B. Kolaczkowski, A. Mathews, G. Nunez, B. Pearson, W. Porter, C. Prince, K. Rose, S. Sager (Chair), M. Sharp, C. Stefanou, L. Warren, J. Weeks, C. Wilson A. Wysocki

Agenda and Index for Materials

Approve Minutes from March 15, 2018 meeting

Dr. Brendemuhl: Update from UCC

Graduate New Course Proposals

1. ANS 6XXX – HACCP Systems (req. #13769)

2. ENY 6XXX – Advanced Apiculture (req. #13824)

3. FAS 5XXX – Fisheries and Aquaculture: An Economics Perspective (req. #12898)

4. WIS 6XXX – Wetland Management (req. #13763)

Graduate Course Change Proposal

5. ENY 5572 – Advanced Apiculture (req. #13825)

Undergraduate New Course Proposals

6. ENY 4XXX – Advanced Beekeeping (req. #13823)

7. MCB 4XXXL – Virology Laboratory (req. #13519)

Undergraduate Course Change Proposals

8. PLS 2003C – Plants that Feed the World (req. #13754)

9. PLS 4941 – Practical Work Experience (req. #13787)

Certificates

10. Proposed Microbial and Cellular Bioinformatics Graduate Certificate (req. #13553)

11. Proposed modification to the Plant Pest Risk Assessment and Management Graduate Certificate (req. #13830)

12. Proposed modification to the Soil Ecosystem Services Graduate Certificate (req. #13805)

Curriculum

13. Proposed addition of ABE to PhD Agroecology Concentration (req. #13829)

14. Proposed revision to the Horticultural Sciences Minor (req. #13831)

Recycled Items

15. ANS 4XXX – HACCP Systems (req. #10762)

This item has been previously reviewed on 2/12/2016 and 8/18/2017. Comments as follows: A motion was made by Dr. Porter to recycle this item back to the department for required changes and resubmission with corresponding graduate course. The motion was approved. This item needs to accompany the submission of the joint taught graduate level course to determine the differences in student requirements. A consultation from Food Science is required to ensure there is no excess overlap in course topics. It was suggested that HACCP be spelled out in the course title. The course descriptions on the UCC1 form and the syllabus must match. The most recent version of the syllabus statements boilerplate needs to be added. A link to the boilerplate can be found on the first page of the minutes.

A motion was made by Dr. Andenoro to approve this item with updates required if the course is now a standalone undergraduate submission. If the plan is for this course to still be joint taught with a graduate course the item is recycled for updates and resubmission with a graduate level proposal. The motion was approved. If the course is standalone: The Category of Instruction on the UCC for needs to be edited. A grading scale using decimal points (ex. 85-89.9% = B+, 80-84.9% = B, etc.) needs to be included on the UCC form and in the syllabus. The committee requires this to avoid potential confusion on the part of the student. In the first sentence of the Attendance and Make-Up Work section of the syllabus the word "day" needs to follow "two." Attendance on the two day trip cannot be labeled as mandatory as is falls outside of normal class time. There must be an alternative provided according to university policy. However, you may include a statement that indicates if a student can't make the trip it may be in their best interest to drop the course. The most recent version of the CALS boilerplate including academic honesty and counseling information needs to be included as some links have changed. This information can be found at: http://www.cals.ufl.edu/faculty-staff/docs/policies/CALS%20Syllabus%20Policy%20Final.pdf.

16. FOS 3XXX – Life After Graduation (req. #12308)

This item was previously reviewed on 2/15/2019. Comments as follows: A motion was made by Dr. Porter to recycle this item back to the department for required edits and resubmission. The motion was approved. The verbs used in the course

objectives are unmeasurable and/or lack the expected rigor. These need to be replaced with verbs that demonstrate a higher order of thinking. There is too much credit being given to attendance in this course. The committee is very concerned that a student could have perfect attendance, do poorly on the two required projects, and still pass the class. The boilerplate statements at the end of the syllabus need to be replaced with the most recent version. This can be found at: https://cals.ufl.edu/content/PDF/Faculty_Staff/CALS-Syllabus-Policy.pdf.

CALS Curriculum Committee Meeting
March 15, 2019
Submitted by James Fant

Members Present: J. Brendemuhl, D. Coenen, P. Inglett, S. Johnson, B. Kolaczkowski, A. Mathews, G. Nunez, W. Porter, C. Prince, K. Rose, S. Sager, M. Sharp, C. Stefanou, C. Wilson

Substitutes: Erica Diffenderfer for J.C. Bunch
Roger Kjelgren for B. Pearson

Guests: Elizabeth Diehl

Call to Order: The College of Agricultural and Life Sciences Curriculum Committee met on March 15, 2019 in Rm. 1044 McCarty Hall D. Scott Sager called the meeting to order at 2:00 p.m.

Previous agenda items and supporting material can be found on the CALS College Committees homepage under document archives: https://cals.ufl.edu/faculty-staff/committees/

Approval of Minutes: A motion was made by Dr. Porter to approve the minutes from the February 15, 2019 meeting of the CALS CC. The motion was approved.

All items approved by the committee will be forwarded to either the Graduate Curriculum Committee (GCC), Graduate Council (GC) or the University Curriculum Committee (UCC) once any changes requested are made and the submission is complete.

Websites: Grades – https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx
Syllabus Statements – https://cals.ufl.edu/content/PDF/Faculty_Staff/CALS-Syllabus-Policy.pdf
Absences & Make-Ups – https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Update from UCC:

Graduate New Course Proposals

1. AOM 6XXX – Advanced Agri-food Systems Innovation (req. #13592)

Item #4 was reviewed along with this submission. All comments apply to both items unless otherwise noted. A motion was made by Dr. Johnson to approve these items with changes required. The motion was approved. An outside consultation from Food Science and Human Nutrition is requested. The committee suggests you contact Sue Percival. Each submission needs its own syllabus. They should have the prefix and course number listed as AOM6XXX and AOM4XXX since there is no established course number. There is confusion regarding the delivery method listed on the UCC forms. It is currently listed as: On-Campus, Online Will the course be offered both in person and online? On the UCC form for the graduate course the word

"Advanced" needs to be removed from the proposed title. On the UCC form for the undergraduate course there needs to be something in the pre-requisite field. If there are no appropriate courses, junior standing will do. The most recent version of the CALS syllabus statements boilerplate needs to be added to both UCC forms and syllabuses. This can be found at: https://cals.ufl.edu/content/PDF/Faculty_Staff/CALS-Syllabus-Policy.pdf.

2. HOS 5XXX – Root and Rhizosphere Ecology (req. #13683)

A motion was made by Dr. Johnson to recycle this item back to the department for required edits and resubmission. The motion was approved. An outside consultation for from the Agronomy Department is required. The proposed course number needs to be changed to the 6000 level. The category of instruction on the UCC form indicates this is a joint graduate/undergraduate course. If that is the case, an undergraduate new course submission must be made at the same time as the proposed graduate level course. If this is not a joint taught course an edit must be made to the UCC form. The proposed credit amount and weekly contact hours do not match. A three credit course needs to have three weekly contact hours. The verbs used in the course objectives are acceptable, but weak. These need to be changed to reflect the rigor expected from a graduate level course. In the assignment breakdown section of both the UCC form and syllabus there is a mathematical error (250 x 3 = 1500 is incorrect). The committee also requires an overall grammatical check for the entire submission.

3. STA 6XXX – Multivariate Statistics for Agricultural and Life Sciences (req. #13713)

A motion was made by Dr. Kolaczkowski to recycle this item back to the department for required changes and resubmission. An outside consultation from the Statistics Department is required. This must be from the department chair. This can be submitted along with the other letters of support already provided. A lab code of "C" is indicated on the UCC form. This must be included with the proposed course number (STA6XXXC). The course objectives need to be more specific. The proposed prefix and course number need to be added to the syllabus. In the grading section the percentages of the grade given to class attendance and participation are too high. There needs to be more weight given to the two projects and final or points given to the required assignments apart from points given for class participation. The most recent version of the CALS syllabus statements boilerplate needs to be added to both the syllabus and UCC form. This can be found at: https://cals.ufl.edu/content/PDF/Faculty_Staff/CALS-Syllabus-Policy.pdf.

Undergraduate New Course Proposals

4. AOM 4XXX – Agri-food Systems Innovation (req. 13591)

Please see item #1.

5. PLS 3XXX – Introduction to Horticultural Therapy (req. #13569

Items #6 and #7 were reviewed with this submission. Each will have its own comments. A motion was made by Dr. Johnson to approve these items with changes required. The motion was approved. On the UCC form the weekly contact hours section needs to be changed to three. The prerequisite section cannot show none. If there is not an appropriate course, it can say sophomore or junior standing. The attendance and make-up policy on the UCC form and in the

syllabus cannot contradict the university policy. In this instance less is more. It is best to just include a link to the university policy.

6. PLS 4XXX – Program Management in Horticultural Therapy (req. #13574)

The weekly contact hours on the UCC form needs to be changed to three. The weekly schedule dates on the UCC form and in the syllabus need to be updated. You can remove the year so it is consistent with the schedule in items #5 and #7. The attendance and make-up policy on the UCC form and in the syllabus cannot contradict the university policy. In this instance less is more. It is best to just include a link to the university policy.

7. PLS 4XXX – Techniques in Horticultural Therapy (req. #13573)

The weekly contact hours on the UCC form needs to be changed to three. The attendance and make-up policy on the UCC form and in the syllabus cannot contradict the university policy. In this instance less is more. It is best to just include a link to the university policy.

Certificate

8. Soil, Water, and Public Health Graduate Certificate (req. #13700)

A motion was made by Dr. Porter to approve this item with changes required. The motion was approved. The verbs used in the learning objectives need to be changed to reflect the rigor of a graduate level certificate. A statement is required from the chair of the Department of Environmental and Global Health assuring they have capacity for additional students in the PHC courses needed to complete this certificate.

Curriculum

9. Proposed termination of the Horticultural Science major specialization – Horticultural Production (req. #13716)

A motion was made by Dr. Porter to approve this item as submitted. The motion was approved.

10. Proposed Horticultural Science specialization – Science and Technology of Horticultural Crops (req. #13720)

This item was reviewed with items #11 and #12. The following comments apply to all three. A motion was made by Dr. Porter to approve these items with a change required. The motion was approved. Remove the tracking course designations from semesters six through eight.

11. Proposed Horticultural Science specialization – Organic Horticultural Systems (req. #13721)

See item #10.

12. Proposed Horticultural Science specialization - Plant Biotechnology and Improvement (req. #13722)

See item #10.

Recycled Material

13. WIS 6XXX – Introduction to U.S. Wildlife Law, Policy, and Ethics (req. #12888)
Item previously submitted 1/11/2019.

A motion was made by Dr. Johnson to recycle this item back to the department for required action and resubmission. Due to the negative consult the committee requires the submitter try to hash it out with the school and get them to provide a positive consult. If there is no resolution the committee will accept a letter from the instructor explaining why the law school's objection should have no impact on the need for this course. The syllabus must contain the most recent version of the CALS syllabus statements boilerplate. This can be found at: https://cals.ufl.edu/content/PDF/Faculty_Staff/CALS-Syllabus-Policy.pdf.

The meeting was adjourned at 3:06 p.m.

(1)

Cover Sheet: Request 13769

ANS 6XXX

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Saundra Tenbroeck sht@ufl.edu
Created	3/18/2019 2:33:22 PM
Updated	3/18/2019 2:40:10 PM
Description of request	New Course submission: HACCP Systems - Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.

Actions

Step	Status	Group	User	Comment	Updated
Department	Commented	CALS - Animal Sciences 514909000	Saundra Tenbroeck	Dr. Mateescu is our graduate coordinator but since this is a combined undergraduate and graduate course, she is happy for me to submit and approve the forms for both courses on behalf of the department. Syllabi from both courses as well as support from Food Science and human nutrition are included.	3/18/2019
Food Science letter of support.pdf HACCP Systems Syllabus ANS 6XXX.docx HACCP Systems Syllabus ANS 4XXX.docx HACCP Overlap (003).pdf					3/18/2019 3/18/2019 3/18/2019 3/18/2019
Department	Approved	CALS - Animal Sciences 514909000	Saundra Tenbroeck		3/18/2019
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			3/18/2019
No document changes					
Graduate Curriculum Committee					
No document changes					
University Curriculum Committee Notified					
No document changes					
Statewide Course Numbering System					
No document changes					
Graduate School Notified					
No document changes					

Step	Status	Group	User	Comment	Updated
Office of the Registrar					
No document changes					
College Notified					
No document changes					

Course|New for request 13769

Info

Request: ANS 6XXX
Description of request: New Course submission: HACCP Systems - Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.
Submitter: Saundra Tenbroeck sht@ufl.edu
Created: 3/18/2019 1:57:41 PM
Form version: 1

Responses

Recommended Prefix ANS
Course Level 6
Number XXX
Category of Instruction Joint (Ugrad/Grad)
Lab Code None
Course Title HACCP Systems
Transcript Title HACCP Systems
Degree Type Graduate

Delivery Method(s) On-Campus, Off-Campus
Co-Listing Yes
Co-Listing Explanation Graduate students will be required to audit the HACCP plans generated by all students enrolled in the course and will earn up to 600 points across the course as compared to 500 points for undergraduate students.
Effective Term Spring
Effective Year 2020
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 2

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 2
Course Description Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.
Prerequisites ANS 3006 & MCB 2000 or equivalent
Co-requisites none
Rationale and Placement in Curriculum HACCP systems is designed to integrate knowledge of food production systems, food safety and government regulations. This course will meet graduate credit hour requirements for Animal Sciences as well as FSHN students interested in food safety.
Course Objectives The primary purpose of this course is to empower students with the knowledge and ability necessary for the multitude of positions available in the food industry that require a strong background and understanding of food safety and the HACCP system. Upon completion of this course, students should be able to demonstrate an understanding of:
1. The role of the various food safety systems in the food industry.
2. The role of preliminary steps and foundations programs in the food safety system.
3. The HACCP principles and required actions in HACCP plan development
4. Food safety system implementation
5. Regulatory implications of HACCP
6. The purpose of the Global Food Safety Initiative and its impact on the food industry
7. Product flow in the food industry

8. The importance of food safety documentation

Course Textbook(s) and/or Other Assigned Reading None
Required reading will depend on the topic selected by the student.
9CFR416.17 Cod of HACCP systems regulations
Weekly Schedule of Topics Organizational meeting. Course overview, group assignments.
Facility tour and Basic HACCP training
(Off campus, requires travel and two nights lodging)
Development of process flow chart and product description
Exam 1, Good manufacturing practices
Hazard assessment
Hazard assessment
Sanitation Standard Operating Procedures
Critical control points
Spring Break
Monitoring procedures
Verification
Validation, Record keeping
Preliminary presentations (rough version of final presentation).
Recall plan
HACCP Plan revisions
Final Presentations
Final Exam (take home)

Links and Policies https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx
https://evaluations.ufl.edu
https://evaluations.ufl.edu/results
http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code
www.dso.ufl.edu/drc/
www.counseling.ufl.edu/cwc/
www.umatter.ufl.edu/
www.crc.ufl.edu/
https://www.dso.ufl.edu/documents/UF_Complaints_phttp://registrar.ufl.edu/catalog0910/policies/regulationferpa.htmlol

Grading Scheme Homework up to 100 points 16%
Exam 1

25 points 4%
Final Exam 100 points 16%
Preliminary presentation 25 points 4%
Plan auditing 100 points 16%
Final presentation 100 points 16%
Final HACCP plan 100 points 16%
Peer assessment 50 points 8%
Total 600 points

Instructor(s) Jason Scheffler and Chad Carr

UF UNIVERSITY of FLORIDA

Institute of Food and Agricultural Sciences
Food Science and Human Nutrition Department

359 FSHN Bldg., Newell Dr.
Gainesville, FL 32611-0370
352-392-1991 Tel
352-392-9084 Fax
Website: fshn.ifas.ufl.edu

January 27, 2017

Keith R. Schneider, Ph.D.
Professor
Food Science & Human Nutrition Department
359 FSHN Bldg., Newell Dr.
Gainesville, FL 32611
Tel: 352-294-3910
Email: keiths29@ufl.edu

Chad Carr, Ph.D.
Associate Professor
Department of Animal Sciences
Gainesville, FL 32611
Cell: 352-213-4911
Tel: 352-392-2454
Email: chadcarr@ufl.edu

Dear Dr. Carr:

After careful review of the syllabus for Hazard Analysis, Critical Control Points Systems, ALS 4932 section 6395 and ANS 6932 section 1B44 taught by yourself and Dr. Jason Scheffler, I believe these courses, while some overlap exists, are significantly different from the Food Safety Systems course (FOS 4936/6936) currently offered by Dr. Soo Ahn (and formerly team taught with myself and Dr. Renée Goodrich Schneider). Additionally, with the advent of the Food Safety Modernization Act (FSMA), the HACCP portion of FOS 4936/6936 will be reduced and additional lectures covering FSMA will be added, further differentiating these offerings.

If you have any further questions or concerns, please feel free to contact me.

Sincerely,

Dr. Keith R. Schneider

Hazard Analysis, Critical Control Points (HACCP) Systems

ANS 6XXX 2 Credits

Tues morning 3rd & 4th Period 9:35-11:35

Room- ANS 156

Instructors

Dr. Jason Scheffler
231G Animal Science
352-392-9155
jmscheff@ufl.edu

Dr. Chad Carr
224B Animal Science
352-392-2454
chadcarr@ufl.edu

Course Description

Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.

Instruction Objectives

The primary purpose of this course is to empower students with the knowledge and ability necessary for the multitude of positions available in the food industry that require a strong background and understanding of food safety and the HACCP system. Upon completion of this course, students should be able to demonstrate an understanding of:

1. The role of the various food safety systems in the food industry.
2. The role of preliminary steps and foundations programs in the food safety system.
3. The HACCP principles and required actions in HACCP plan development
4. Food safety system implementation
5. Regulatory implications of HACCP
6. The purpose of the Global Food Safety Initiative and its impact on the food industry
7. Product flow in the food industry
8. The importance of food safety documentation

Course format

Students will take a three day, two night trip to Kissimmee, FL the second week of class. On this trip, students will attend a 2-day Basic HACCP training program alongside industry personnel. After completion of the Basic HACCP training, students that register (*There is a $50 registration fee*) will be registered with the International HACCP Alliance and recognized as completing a HACCP training program.

Also on this trip, students will tour a food production facility (TBD). The reminder of the semester will involve developing a complete HACCP plan for a production line at this facility. Students will be divided into groups for completion of this task. Each class period will focus on developing a specific aspect of the HACCP plan and may be augmented with short lectures, case studies, and discussions. Groups will present their daily progress at the end of each class period. Short homework assignments (10-15 points each for up to a total of 100 points) will be assigned periodically to be completed individually prior to the start of the next class period. At the end of the semester, groups will present their completed HACCP plans to the class and possibly representatives from this food production facility.

Attendance and Make-Up Work

Participation on the two day trip is STRONGLY RECOMMENDED for completion of the class. There is no mechanism to make up these activities. Students unable to participate will be advised to drop the class as they will lack the foundational training and context necessary for the course. For the rest of the class, formal attendance will not be taken. However, group members will be able to evaluate each other at the end of the semester and poor attendance likely will be detrimental to your grade.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

Assessment

Homework	up to 100 points
Exam 1	25 points
Final Exam	100 points
Preliminary presentation	25 points
Plan auditing	100 points
Final presentation	100 points
Final HACCP plan	100 points
Peer assessment	50 points
Total	600 points

Final Grades

Final grades will be determined by calculating the percentage of points earned out of total points available. No component will be given extra weight. That percentage will be rounded up to the nearest whole number and correspond with a letter grade. Letter grades will be assigned as follows:

>90%	A	85-89%	B+	80-85%	B	75-79%	C+	70-74%	C	60-69%	D	<60%	E

Grades and Grade Points

For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

Academic Honesty, Software Use, Campus Helping Resources, Services for Students with Disabilities

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*"

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

Software use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of

Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Campus helping resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation Self-Help Library
  - Wellness Coaching

- U Matter We Care, www.umatter.ufl.edu/
- Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Student Complaint Policy

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Tentative Class Schedule

January 8th	Organizational meeting. Course overview, group assignments.
January 15th **Early** – January 17th Afternoon	Facility tour and Basic HACCP training (Off campus, requires travel and two nights lodging)
January 22nd	Development of process flow chart and product description
January 29st	**Exam 1**, Good manufacturing practices
February 5th	Hazard assessment
February 12th	Hazard assessment
February 19st	Sanitation Standard Operating Procedures
February 26th	Critical control points
March 5th	**Spring Break**
March 12th	Monitoring procedures
March 19st	Verification
March 26th	Validation, Record keeping
April 2nd	**Preliminary presentations** (rough version of final presentation).
April 9th	Recall plan
April 16th	HACCP Plan revisions
April 23th	**Final Presentations**
April 29th	**Final Exam** (take home, due at 11:59 pm)

Cover Sheet: Request 13824

ENY 6XXX Advanced Apiculture

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Cameron Jack cjack@ufl.edu
Created	4/2/2019 11:40:22 AM
Updated	4/3/2019 5:19:25 PM
Description of request	We are requesting that this new course proposal be considered to be added to the curriculum by the Spring 2020 semester.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Entomology and Nematology 514914000	Heather Mcauslane		4/3/2019
ENY 6XXX Syllabus Spring 2020.pdf					4/3/2019
College	Pending	CALS - College of Agricultural and Life Sciences			4/3/2019
No document changes					
Graduate Curriculum Committee					
No document changes					
University Curriculum Committee Notified					
No document changes					
Statewide Course Numbering System					
No document changes					
Graduate School Notified					
No document changes					
Office of the Registrar					
No document changes					
College Notified					
No document changes					

Course|New for request 13824

Info

Request: ENY 6XXX Advanced Apiculture
Description of request: We are requesting that this new course proposal be considered to be added to the curriculum by the
Spring 2020 semester.
Submitter: Cameron Jack cjack@ufl.edu
Created: 3/25/2019 8:52:35 PM
Form version: 1

Responses

Recommended Prefix ENY
Course Level 6
Number XXX
Category of Instruction Joint (Ugrad/Grad)
Lab Code None
Course Title Advanced Apiculture
Transcript Title Advanced Apiculture
Degree Type Graduate

Delivery Method(s) Online
Co-Listing Yes
Co-Listing Explanation The lectures, module assessments, critical thinking exercise and research blog post will be the same for all, regardless of whether they are undergraduate or graduate students. Graduate students, however, will have an additional extension-related project which can be accomplished in a number of ways. 1) Students can choose to write a Featured Creature article, 2) students can choose to write an EDIS document or 3) students can create an instructional video.
Effective Term Spring
Effective Year 2020
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description This course will provide an in-depth look at the biology of honey bees and the craft of apiculture. Topics such as honey bee natural history, biogeography, anatomy, physiology, colony social structure, pests/diseases, ecology, husbandry and current topics in beekeeping will be discussed.
Prerequisites ENY 4573/5572 (C)
Co-requisites N/A
Rationale and Placement in Curriculum Although honey bees have been a staple in American agriculture for centuries, there are few instructional efforts within universities to train students to become successful beekeepers. Most Land Grant Universities offer a single course in beekeeping, providing students with a basic overview of honey bee biology and management principles; however, almost no universities offer multiple courses on beekeeping. At the University of Florida, students can take multiple courses on specific agricultural topics, preparing them to enter the workforce with the knowledge and skills obtained through their instructional program. In the near future, we would like to develop enough beekeeping-centric courses so that students from around the world could come to the University of Florida to be trained in beekeeping. We believe that an Advanced Beekeeping course would complement the existing Practical Beekeeping (ENY 2041C) and Beekeeping/Apiculture (ENY 4573/5572) courses we teach and propel us toward our goal of creating a new Apiculture Certificate Program.

In the last year, we have seen a significant increase in the number of students interested in taking our

beekeeping courses. Last summer (2018), the Practical Beekeeping course tripled in attendance and left out many students who were unable to get into the course after the enrollment cap was met. To meet student demand, this course will be taught during both Summers A and B this year and the enrollment cap has been increased. The online Beekeeping/Apiculture class has also had a marked increase in students over the last year and is now at 165 students during the Spring 2019 semester. We believe a course in Advanced Beekeeping will be popular among those students who have demonstrated an interest in the subject.

Course Objectives 1. Compare the natural histories of honey bees with those of other bees, emphasizing the development of sociality in bee hymenoptera.
2. Locate the geographical regions of different honey bee species and subspecies.
3. Recognize the intricacies of honey bee biology, anatomy, physiology.
4. Identify the contributions of nest structure, eusocial behavior, and superorganism colony traits to the success of honey bees globally.
5. Discuss advanced apicultural topics such as commercial production, pesticides and honey bee research.

Course Textbook(s) and/or Other Assigned Reading 1. Caron, D.W. 2013 (revised from 1999). Honey Bee Biology and Beekeeping. Wicwas Press. Cheshire, CT, 368 pp.
2. Supplemental Information (documents, videos, etc.) that further explains the concepts taught is provided for each module.
Weekly Schedule of Topics Week 1 - Getting started: syllabus, course orientation, tips for success
Week 2 - Taxonomy: Honey bee classification; Honey bee taxonomy; Micrapis, Megapis and Apis
Week 3 - Sociality: Insect Sociality; Social levels of bees
Week 4 - Apis mellifera biogeography: Apis mellifera; Middle eastern Apis mellifera; European Apis mellifera; African Apis mellifera
Week 5 - External Anatomy and Physiology: Overview; Head; Thorax; Abdomen
Week 6 - Internal Anatomy and Physiology: Overview; Digestive System; Nervous system; Circulatory system; Respiratory system; Reproductive system; Muscular system; Endocrine system; Exocrine system
Week 7 - Nutrition and Immunity: Larval and Adult requirements; Nectar and honey; Pollen; Physical, cellular and enzymatic responses; Colony and behavioral responses; Overcoming bee defenses
Week 8 - Mating: Sexual maturation of the queen;
Sexual maturation of the drones; Drone Congregation Areas; Honey Bee Mating; Post-mating Maturation; Honey bee Genetics
Week 9 - Reproduction: Swarm Preparation; The Swarm; Choosing a nest site
Week 10 - Superorganism: Overview; Tissue specialization, glandular system, food handling; Respiration, waste management, and thermoregulation; Communication, reproduction and death
Week 11 - Queen and Package Bee Production: Overview; Choosing breeder queens; Colony preparation; Queen production timeline; Instrumental Insemination; Package bee production
Week 12 - African and Africanized Bees: Origin and movement into U.S.; Biology and behavior; Identification of African bees; Beekeeper considerations; What to do about African bees
Week 13 - Bee Removal: Types of Bee removal; Bee Removal Safety; Removal Best Management Practices; Practices after removal
Week 14 - Pesticides: Pesticide impacts on bees; Definitions; Routes of exposure; Pesticide regulations; Understanding the label; Pesticide formulations; Risk reduction; Approaches for Applicators; Risk reduction approaches for beekeepers; Recognizing bee exposure and reporting
Week 15 - Honey Bee Research and Extension: Research; Extension

Links and Policies Grades and Grade Points:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Attendance and Make-Up Work: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Student Honor Code: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code
Plagerism: (http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php)

Student Complaint Process: http://www.distance.ufl.edu/student-complaints

Grading Scheme Module assessments 15 points each × 15 assessments 225 points
Section critical thinking exercises 35 points each × 5 exercises 175 points
Select Research Article 5 points 5 points

Submission of your peer evaluations of two of your peers' Research Blog Post 10 points × 2 peer reviews (you get 10 points per peer review you submit) 20 points
Final draft of your Research Blog Post 75 points
75 points
Final Extension Project 100 points 100 points

Final Grading:

A	554.5
A-	536.5 – 554.4
B+	518.5 – 536.4
B	494.5 – 518.4
B-	476.5 – 494.4
C+	458.5 – 476.4
C	434.5 – 458.4
C-	416.5 – 434.4
D+	398.5 – 416.4
D	374.5 – 398.4
D-	356.5 – 374.4
E	0 – 356.4

Instructor(s) Cameron Jack
Jamie Ellis

ENY 6XXX
Advanced Apiculture
Spring 2020
3 credits

ENY 5572 Apiculture is a prerequisite for this course

Lead-Instructor: Cameron Jack, MSc
Office Room #: ENY (Bldg 964), room 114
Office Address: Steinmetz Hall, Natural Area Drive, P.O. Box 110620, Gainesville, FL 32611
Office Phone #: 352-294-6926 (*Please email to set up a phone appointment.*)
E-mail: cjack@ufl.edu

Instructor: Jamie Ellis, PhD
Office Room #: ENY (Bldg 964), room 116
Office Address: Steinmetz Hall, Natural Area Drive, P.O. Box 110620, Gainesville, FL 32611
Office Phone #: 352-273-3924 (*Please email to set up a phone appointment.*)
E-mail: jdellis@ufl.edu
Website: www.ufhoneybee.com

TA: TBA
Office Room #:
Office Address:
E-mail:

Special Note on Contact via Email: Due to UF privacy laws, you must use your GatorLink account or the Canvas mail system when emailing the Instructor or TA. Emails sent from other accounts (gmail, hotmail, etc.) will not be answered by the Instructor or TA.

Office Hours:

Course Description: This course will provide an in-depth look at the biology of honey bees and the craft of apiculture. Topics such as honey bee natural history, biogeography, anatomy, physiology, colony social structure, pests/diseases, ecology, husbandry and current topics in beekeeping will be discussed.

Additional Information Regarding the Course: This course contains significant scientific content. If you are unsure of any vocabulary terms or scientific principles, please take the time to research them. It will be easy to fall behind if you do not understand beekeeping and scientific terminology. A basic knowledge of honey bee biology is required. Students should have taken ENY 4573 as a prerequisite for this course.

Course Learning Objectives:
1. Compare the natural histories of honey bees with those of other bees, emphasizing the development of sociality in bee hymenoptera.

2. Locate the geographical regions of different honey bee species and subspecies.
3. Recognize the intricacies of honey bee biology, anatomy, physiology.
4. Identify the contributions of nest structure, eusocial behavior, and superorganism colony traits to the success of honey bees globally.
5. Discuss advanced apicultural topics such as commercial production, pesticides and honey bee research.

Recommended Readings (not required):
1. Caron, D.W. 2013 (revised from 1999). Honey Bee Biology and Beekeeping. Wicwas Press. Cheshire, CT, 368 pp.
2. Supplemental Information (documents, videos, etc.) that further explains the concepts taught is provided for each module.

Lectures: This is an online, Canvas-based course. The website for the syllabus, all lectures, reading materials, announcements, tests, etc. will be posted on eLearning: http://lss.at.ufl.edu. All lectures for this course are narrated presentations and may include some videos and/or supplemental reading. We will provide text from all the narrated presentations, but all not necessarily from the related videos. Therefore, you should pay close attention as knowing and understanding the spoken information is critical for success in this course. All lectures and tests will be delivered online in Canvas. There will be no classroom meetings.

Throughout the course, you will view video course lectures. Please understand that many of these video clips and photographs are copyrighted and are NOT to be used outside of this class and may be used only this semester. Please do not copy or distribute these photographs or video clips. All class notes are provided for educational use only and are not to be distributed.

Course Notifications and Communication: All course communications (assignments, announcements, test information, etc.) will be made via the Announcements and Email functions of Canvas. Please ensure that your Canvas profile is set to receive notifications (i.e. please check the appropriate box to receive all notifications). To do this, click on your name in the upper right corner of the Canvas homepage after logging into Canvas. Next, click "notifications" on the left. This will take you to the Notification Preferences page. Then, click the check symbol for at least the following notifications: Due Date, Course Content, Announcement, and Grading.

Course Schedule: This course is offered via Canvas as a distance education course. To stay on track, students must adhere to the course schedule.

Module	Week	Content (Lecture # and Title)	Weekly Readings	Module Assessments	Critical Thinking Exercises	Research Blog Post	Extension Project
Getting Started	1	syllabus, course orientation, tips for success		Syllabus quiz			
Taxonomy	2	Honey bee classification Honey bee taxonomy Micrapis, Megapis and Apis	Peer Reviewed Journal	Taxonomy quiz			
Sociality	3	Insect Sociality Social levels of bees	Peer Reviewed Journal	Sociality quiz		Select Research Article Due:	
Apis mellifera Biogeography	4	*Apis mellifera* Middle eastern *Apis mellifera* European *Apis mellifera* African *Apis mellifera*		Biogeography quiz	Critical Thinking Exercise 1		Project Type and Topic Due:
External Anatomy and Physiology	5	Overview Head Thorax Abdomen	ABJ	External anatomy quiz			
Internal Anatomy and Physiology	6	Overview Digestive System Nervous system Circulatory system Respiratory system Reproductive system Muscular system Endocrine system Exocrine system	ABJ	Internal Anatomy quiz			
Nutrition and Immunity	7	Larval and Adult requirements Nectar and honey Pollen Physical, cellular and enzymatic responses Colony and behavioral responses Overcoming bee defenses	ABJ	Nutrition and immunity quiz	Critical Thinking Exercise 2	1st Submission of Research Blog Post	
Mating	8	Sexual maturation of the queen	ABJ Dec. 2015	Mating quiz			

		Sexual maturation of the drones Drone Congregation Areas Honey Bee Mating Post-mating Maturation Honey bee Genetics					1st Submission of Extension Project:
Reproduction	9	Swarm Preparation The Swarm Choosing a nest site	ABJ Nov. 2015	Reproduction quiz		Peer Evaluation of Research Blog Post	
Superorganism	10	Overview Tissue specialization, glandular system, food handling Respiration, waste management, and thermoregulation Communication, reproduction and death	ABJ Feb 2016 ABJ June 2015	Superorganism quiz	Critical Thinking Exercise 3		Peer Review of Extension Project:
Queen and Package Bee Production	11	Overview Choosing breeder queens Colony preparation Queen production timeline Instrumental Insemination Package bee production	ABJ	Queen/Package Bee production quiz			
African and Africanized Bees	12	Origin and movement into U.S. Biology and behavior Identification of African bees Beekeeper considerations What to do about African bees	EDIS Peer Reviewed Journal	African Bee quiz			
Bee Removal	13	Types of Bee removal Bee Removal Safety Removal Best Management Practices Practices after removal	EDIS	Bee Removal quiz	Critical Thinking Exercise 4		
Pesticides and Bees	14	Pesticide impacts on bees Definitions Routes of exposure Pesticide regulations Understanding the label	EDIS Peer Reviewed Journals	Pesticides quiz			Final Submission of Extension Project:

		Pesticide formulations Risk reduction Approaches for Applicators Risk reduction approaches for beekeepers Recognizing bee exposure and reporting					
Honey Bee Research and Extension	15	Research Extension	Peer Reviewed Journal	Research and Extension Quiz	Critical Thinking Exercise 5	Final Research Blog Post Due:	

Evaluation: The course grade is based on total points earned out of 500 possible points.

Module assessments	15 points each × 15 assessments	225 points
Section critical thinking exercises	35 points each × 5 exercises	175 points
Select Research Article	5 points	5 points
Submission of your peer evaluations of two of your peers' Research Blog Post	10 points × 2 peer reviews (you get 10 points per peer review you submit)	20 points
Final draft of your Research Blog Post	75 points	75 points
Final Extension Project	100 points	100 points
	Total Course Points	600 points

Grades and Grade Points
For information on current UF policies for assigning grade points, see
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

FINAL GRADING		
% grade	Letter grade	Points needed to achieve letter grade
100-93	A	≥ 554.5
90-92	A-	536.5 – 554.4
87-89	B+	518.5 – 536.4
83-86	B	494.5 – 518.4
80-82	B-	476.5 – 494.4
77-79	C+	458.5 – 476.4
73-76	C	434.5 – 458.4
70-72	C-	416.5 – 434.4
67-69	D+	398.5 – 416.4
63-66	D	374.5 – 398.4
60-62	D-	356.5 – 374.4
0-59	E	0 – 356.4

Assignments:

(1) Module Assessments: There is a 15-point assessment associated with each of the fifteen modules in this course. These assessments are ***open note*** (i.e. you ***are*** allowed to use class lectures, books, websites, etc. while taking the assessments). The assessments will be composed of true/false and multiple choice questions. **The assessments 1) open the Saturday morning after the previous section ends, 2) are timed (30 minutes each), and 3) are due on Friday at 11:59 pm on the date listed in the course schedule.** These are individual assessments so please do your own work and do not work in groups or share your answers. There is a large bank of test questions for each assessment and the assessment questions are selected randomly for each student. You will receive a 5-point deduction for each day a module assessment is late.

The first module assessment is a graded syllabus quiz on the "Getting Started" module. You need to read the syllabus and answer quiz questions related to it by **11:59 pm ET on the date listed in**

the course schedule. You must complete the syllabus quiz before you are able to advance to the next module. This quiz will show you how your online assessments will be formatted as well as allow you to demonstrate that you understand how this course works and important due dates.

(2) Critical Thinking Exercises: These exercises are designed to encourage you to think critically about the content presented in the module lectures. The critical thinking exercises are worth 35 points each. These are individual exercises so please do your own work and do not work in groups or share your answers. All of the critical thinking exercises are open note and untimed. You can close and reopen the exercise as many times as you would like until the due date (see course schedule), but you will not be able to make any changes once you have officially submitted your final exercise. **The exercises are due at 11:59 pm on the date listed in the course schedule.** You will receive a 5 deduction for each day a module assessment is late.

(3) Research Blog Post: One of the most useful skills in any profession is writing. Furthermore, one of the missions of the Land Grant Institution is extension, which means we are communicating with the general public. As such, you are required to produce a blog post which explains the findings from a recent peer-reviewed honey bee research article. This should be based on a paper that was published in the last 3 years and would be of interest to beekeepers, meaning it should be relevant to honey bee health, production, treatment, etc. Your blog post should be written to have the potential for publication through the University of Florida's extension branch (Cooperative Extension Service). You **must** check with the TA before beginning your blog post so that they can verify that such a blog post does not already exist on your research paper. The instructor or TA can provide ideas for selecting a research paper, but the papers will be reserved on a first come first serve basis. **A grading rubric has been provided at the end of this syllabus to facilitate development of the blog post.**

Here is an example of a blog post written about a widely-discussed research article http://blogs.ifas.ufl.edu/entnemdept/2018/04/18/lithium-chloride-for-varroa-control/ based on the paper by Ziegelmann et al., 2018 Scientific Reports 8:683 https://www.nature.com/articles/s41598-017-19137-5.pdf. You'll notice how the author created figures helpful to understanding the research as well as linking to other useful videos and information.

Your Research Blog Post should convey scientific information in a way that a high school student could understand. Figures are extremely helpful in extension documents, and students are encouraged to include as many figures as necessary to explain a topic. You must obtain use permission from the owner of any figures you include in your final report if the figure is not original to you. There will be an additional assignment to submit with the Final Extension Report called "Extension Report Figures and Permissions." For this assignment, you will upload the full-sized jpeg file for each figure and fill in the accompanying word document with the proof of permission for use.

There are four components of the Research Blog Post that compose the completed assignment. Due dates for each component are listed in the course schedule.

a) Select Research Article Due – The student should identify and record the research article chosen for the Research Blog Post by completing the Canvas assignment "Select Research Article".

b) 1st Submission – This is not a rough draft, but rather is what the student considers the completed document.

c) Peer Review – The 1st submission will be shared with other graduate students in the class who will provide a peer review of the report by the due date listed in the course schedule. Each student will peer review two Research Blog Posts.

d) Final Submission – Students are expected to revise their Research Blog Posts per the "good" comments provided during the peer review process. The final report must be submitted by the due date shown in the course schedule.

A grading rubric has been provided at the end of this syllabus to facilitate development and peer review of the Research Blog Post. **Five points will be deducted from the final project score every day past the due dates that any of the information requested above is late, regardless of the excuse**. Please do not wait until the last minute to produce your blog post or meet any of the other deadlines. All points lost will be deducted from the final Research Blog Post grade.

4) Extension Project: Students enrolled in ENY 6XXX are required to produce an additional project in the form of a report (Featured Creatures article (http://entnemdept.ufl.edu/creatures/) or EDIS document (http://edis.ifas.ufl.edu/)) or an instructional video. Regardless of which type of extension project you choose, it should have the potential for publication through the University of Florida's extension branch (Cooperative Extension Service). You **must** check with the TA before beginning your project so that they can verify that such a document or instructional video does not already exist on your topic. The instructor or TA can provide ideas for selecting a topic. **A grading rubric has been provided at the end of this syllabus to facilitate development of the extension project.**

If writing a Featured Creatures document, you must choose a bee pollinator or bee pest of interest and write about it following the standard Featured Creature format. This format is available at the Featured Creatures link above under the "Format for Authors" link. Here are two examples of published Featured Creatures articles completed by students in this course
http://entnemdept.ufl.edu/creatures/MISC/BEES/Apis_dorsata.htm
http://entnemdept.ufl.edu/creatures/misc/bees/Nomada_fervida.htm.

EDIS documents can be written on a special topic regarding honey bees or beekeeping. These documents are designed to be informational or instructional how-to documents for the public. Students should refer to the "Publishing FAQs" under "Instructions for Authors" on the EDIS website for publication guidelines. Here are two examples of published EDIS documents completed by students in this course https://edis.ifas.ufl.edu/in1123
https://edis.ifas.ufl.edu/in1064.

Your written report should convey scientific information in a way that a high school student could understand. Figures are extremely helpful in extension documents, and students are encouraged to include as many figures as necessary to explain a topic. You must obtain use permission from the owner of any figures you include in your final report if the figure is not original to you. There will be an additional assignment to submit with the Final Extension Report called "Extension Report Figures and Permissions." For this assignment, you will upload the full-sized jpeg file for each figure and fill in the accompanying word document with the proof of permission for use.

If you enjoy using a camera and are skilled in videography, you may wish to produce a 5-minute instructional or informational video useful to U.S. beekeepers. You will still write a draft and a production plan for others to peer review that will be graded using a different rubric. If you do not have the technical expertise to perform the beekeeping tasks in the video, the Instructors or course TA's may be available to help. The video should be of excellent quality; thus, you will need to have access to professional equipment and should have previous experience filming in a narrative style. The video of course does not have to be a masterpiece, but it should be professional enough that it can be published on our lab YouTube channel. Here are two examples of videos produced by a student in this class https://youtu.be/urDsKwHPAV0 https://youtu.be/U6HyBbs9454.

There are four components of the extension project that compose the completed assignment. Due dates for each component are listed in the course schedule.

a) Report Topic Due – The student should identify and record the topic chosen for the extension report by completing the Canvas assignment "Extension Report Topic."

b) 1st Submission – This is not a rough draft, but rather is what the student considers the completed document.

c) Peer Review – The 1st submission will be shared with other graduate students in the class who will provide a peer review of the report by the due date listed in the course schedule. Each student will peer review two extension reports.

d) Final Submission – Students are expected to revise the extension report or production plan per the comments provided during the peer review process. The final report or video must be submitted by the due date shown in the course schedule.

A grading rubric has been provided at the end of this syllabus to facilitate development and peer review of the extension report. **Five points will be deducted from the final project score every day past the due dates that any of the information requested above is late, regardless of the excuse**. Please do not wait until the last minute to produce your report or meet any of the other report deadlines. All points lost will be deducted from the final report grade

Class Attendance and Make-Up Work: There will be a five-point deduction for assessments, critical thinking exercises or other assignments missed without prior approval from the instructor. You will not be able to make up assignments after the due date unless you email an

instructor to reopen the assignment online. You will not lose points if you provide appropriate written documentation (e.g., from a doctor in case of severe illness or a funeral notice or obituary in the unfortunate event of the death of a close relative/friend) upon request to reopen an assignment you failed to complete by the due date. Requirements for class attendance and make-up assignments are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx. This is a distance education course, so attendance is not required.

Online Course Evaluation Process: Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

We, the members of the University of Florida, pledge to hold ourselves and peers to the highest standards of honesty and integrity.

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,* **www.counseling.ufl.edu/cwc/**
  Counseling Services

Groups and Workshops
Outreach and Consultation
Self-Help Library
Wellness Coaching

- *Career Resource Center*, First Floor JWRU, 392-1601, **www.crc.ufl.edu/**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

For issues with technical difficulties for E-learning in Canvas: Please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- https://lss.at.ufl.edu/help.shtml

** Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Services for Students with Disabilities: The Disability Resource center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

0001 Reid Hall, 352-392-8565, **www.dso.ufl.edu/drc/**

UF Policy on E-mail: "Official University business email will be communicated to students using the University GatorLink email account. That is, official email will be sent exclusively to GatorLinkUserName@ufl.edu. The preferred email address recorded for all students will be the GatorLink address. This is the email address displayed in the online phonebook. Students may continue to use the forwarding mechanism to deliver their email to other mail services, if they wish. However, it is the student's responsibility to insure that the forwarding address is current so that they receive official communications from the University".

Software Use: All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Plagiarism: Plagiarism is a serious problem in academia today, especially with the ease of obtaining information from the World Wide Web. Plagiarism is defined as representing the words or ideas of another person as one's own, without attribution to the source. All words and ideas must be attributed to a source unless they are considered common knowledge (i.e., widely known by many people and found in many different sources). There are many kinds of plagiarism; one of the most common ones is "insufficient paraphrasing", even with correct citation. Please look at the Purdue Online Writing Lab's web site on Avoiding Plagiarism (https://owl.purdue.edu/owl/teacher_and_tutor_resources/preventing_plagiarism/index.html).

Plagiarism is unethical, unacceptable in science, and prohibited by the UF Student Honor Code (https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/). The consequences for plagiarism while at the University of Florida range from receiving a grade of zero for the plagiarized assignment or a failing grade for the course, to, for repeated offenses, expulsion from the university. Plagiarism after graduate training calls into question one's scientific integrity and can lead to banning of publication in journals and the loss of jobs/careers. In some countries, it is an acceptable practice to write in a manner that faculty members at the University of Florida consider to be plagiarism. Students studying in our university and with plans to publish their research in the English language need to know what plagiarism is and how to avoid it.

Students who plagiarize will be caught and consequences will be applied. I check all written assignments using an anti-plagiarism software called Turnitin®. Students who plagiarize will receive a grade of zero on the assignment. The second instance of plagiarism in the course will result in an automatic failing grade in the course.

Please understand that our purpose in bringing to your attention the matter of plagiarism is to help train you to be ethical scientists, not to impugn your character.

Student Complaint Process: Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. Should you have any complaints with your experience in this course, please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

Research Blog Post					
	Point Value[1]				
CATEGORY	10	7	5	3	0
Components of the blog post[2]	All required elements are present and additional elements that add to the blog post (e.g., thoughtful comments, graphics) have been added.	All required elements are present.	One required element is missing, but additional elements that add to the blog post (e.g., thoughtful comments, graphics) have been added.	Some required elements are missing.	Many (over half) required elements are missing.
Spelling, Punctuation and Grammar	No errors in spelling, punctuation and grammar in the blog post.	Minor errors (1-3) in spelling, punctuation and grammar in the blog post.	Moderate errors (4-6) in spelling, punctuation and grammar in the blog post.	Considerable errors (7-9) in spelling, punctuation and grammar in the blog post.	A significant number (>9) of spelling, punctuation and grammar errors are present in the blog post.
Appearance and Organization	Blog post uses headings and subheadings to visually organize the material. Additional steps have been taken to make the blog post visually pleasing.	Blog post uses headings and subheadings to visually organize the material. Some additional steps have been taken to make the blog post visually pleasing.	Blog post formatting does not help visually organize the material.	Blog post looks sloppy, with poor formatting and poor organization.	Blog post is sloppy, illegible, and poorly formatted and organized.
Topic Concepts[3]	Blog post illustrates an accurate and thorough understanding of the concepts associated with the research article	Blog post illustrates an accurate understanding of most concepts associated with the research article.	Blog post illustrates a limited understanding of concepts associated with the research article	Blog post illustrates inaccurate understanding of concepts associated with the research article	Blog post illustrates no understanding of concepts associated with the research article

Topic Jargon[4]	Blog post illustrates an accurate knowledge and use of jargon associated with the research article.	Blog post illustrates an accurate knowledge and use of most jargon associated with the topic. The student uses most jargon correctly.	Blog post illustrates a limited knowledge and use of jargon associated with topic. The student uses only some jargon correctly.	Blog post illustrates incomplete knowledge and use of jargon associated with the topic. The student regularly misuses topic-related jargon.	Blog post illustrates no knowledge and/or use of jargon associated with the topic. The student always misuses topic-related jargon.
Drawings, Diagrams, Tables and Figures (collectively called "accompanying materials")	Clear, accurate accompanying materials are included and make the blog post easier to understand. The accompanying materials are labeled neatly and accurately. All non-original accompanying materials are properly acknowledged.	Accompanying materials are included, labeled neatly and accurately, and the original source properly acknowledged.	Some needed accompanying materials are missing OR missing important labels OR the original sources are not identified.	Most needed accompanying materials are missing OR missing important labels OR the original sources not identified.	No accompanying material is present OR is missing important labeling OR credit information.

[1]**Point Value:** All submitted blog posts start with 15 points. So, there are 60 additional points that can be obtained (totaling 75 points). Intermediate points can be assigned for each category. For example, if a student's use of topic jargon lies between the highest (10 points) and 2nd highest (7 points) point values, 8-9 points can be awarded for that category as appropriate.
[2]**Components of the Blog Post:** The Research Blog Post must include a title, student name and email address. Furthermore, the
[3]**Topic Concepts:** The student must demonstrate an understanding of the concepts associated with the research article. For example, if the student writes a blog post based on a research article about small hive beetles, then the student would have to demonstrate an understanding of its biology, behavior, distribution and control (among other things) presented in research article.
[4]**Topic Jargon:** The technical terminology associated with the topic presented in the research article. Does the student demonstrate knowledge of the jargon associated with the topic by using it correctly?

Extension Project Rubric (Featured Creature or EDIS Document)					
	Point Value[1]				
CATEGORY	16	12	8	4	0
Components of the report[2]	All required elements are present and additional elements that add to the report (e.g., thoughtful comments, graphics) have been added.	All required elements are present.	One required element is missing, but additional elements that add to the report (e.g., thoughtful comments, graphics) have been added.	Some required elements are missing.	Many (over half) required elements are missing.
Spelling, Punctuation and Grammar	No errors in spelling, punctuation and grammar in the report.	Minor errors (1-3) in spelling, punctuation and grammar in the report.	Moderate errors (4-6) in spelling, punctuation and grammar in the report.	Considerable errors (7-9) in spelling, punctuation and grammar in the report.	A significant number (>9) of spelling, punctuation and grammar errors are present in the report.
Appearance and Organization	Report uses headings and subheadings to visually organize the material. Additional steps have been taken to make the report visually pleasing.	Report uses headings and subheadings to visually organize the material. Some additional steps have been taken to make the report visually pleasing.	Report formatting does not help visually organize the material.	Report it typed but looks sloppy, with poor formatting and poor organization.	Report is handwritten, sloppy, illegible, and poorly formatted and organized.
Topic Concepts[3]	Report illustrates an accurate and thorough understanding of the concepts associated with the topic.	Report illustrates an accurate understanding of most concepts associated with the topic.	Report illustrates a limited understanding of concepts associated with the topic	Report illustrates inaccurate understanding of concepts associated with the topic	Report illustrates no understanding of concepts associated with the topic
Topic Jargon[4]	Report illustrates an accurate knowledge and use of jargon associated with the topic.	Report illustrates an accurate knowledge and use of most jargon associated with the topic. The student uses most jargon correctly.	Report illustrates a limited knowledge and use of jargon associated with topic. The student uses only some jargon correctly.	Report illustrates incomplete knowledge and use of jargon associated with the topic. The student regularly misuses topic-related jargon.	Report illustrates no knowledge and/or use of jargon associated with the topic. The student always misuses topic-related jargon.

Drawings, Diagrams, Tables and Figures (collectively called "accompanying materials")	Clear, accurate accompanying materials are included and make the report easier to understand. The accompanying materials are labeled neatly and accurately. All non-original accompanying materials are properly acknowledged.	Accompanying materials are included, labeled neatly and accurately, and the original source properly acknowledged.	Some needed accompanying materials are missing OR missing important labels OR the original sources are not identified.	Most needed accompanying materials are missing OR missing important labels OR the original sources not identified.	No accompanying material is present OR is missing important labeling OR credit information.

[1]**Point Value:** All reports start with 4 points. So, there are 96 additional points that can be obtained (totaling 100 points). Intermediate points can be assigned for each category. For example, if a student's use of topic jargon lies between the highest (16 points) and 2nd highest (12 points) point values, 13-15 points can be awarded for that category as appropriate.

[2]**Components of the Report:** The report must include a title, student name and email address. If submitting a Featured Creatures report, the components included must follow those outlined at http://entnemdept.ufl.edu/creatures/ under the link "format for authors": http://entnemdept.ufl.edu/creatures/FC_format.pdf. It is important to note the EDIS formatting is considerably more flexible than that for Featured Creatures articles. If submitting an EDIS document, the student must follow the general guidelines presented at http://edis.ifas.ufl.edu/ and more specifically at http://edis.ifas.ufl.edu/faq/pubfaq.html. However, the "necessary components" will vary with the topic. Please email Dr. Ellis at jdellis@ufl.edu for components that must be included for your particular topic. Additionally, review EDIS documents written about similar topics to identify needed information.

[3]**Topic Concepts:** The student must demonstrate an understanding of the concepts associated with the topic. For example, if the student writes a Featured Creatures article on small hive beetles, then the student would have to demonstrate an understanding of its biology, behavior, distribution and control (among other things). If the student writes an EDIS article on extracting honey, the student would have to demonstrate knowledge on honey extraction and processing techniques, harvesting, production, etc.

[4]**Topic Jargon:** The technical terminology associated with the topic. Does the student demonstrate knowledge of the jargon associated with the topic by using it correctly?

Some additional questions that will help you develop the report: Does the student use accepted terminology rather than colloquialisms? Does the student demonstrate breadth and depth of knowledge about the topic? Do they include information garnered from multiple, reliable sources? Does the manuscript flow logically? Does it tell a story or, is it scattered in thought, jumping from one topic to the next? Do all paragraphs begin with introductory sentences and have supporting sentences that stick to the theme? Does one paragraph flow directly into the next? Are the sentences readable? What is the overall writing quality?

Extension Video Rubric					
	Point Value[1]				
CATEGORY	16	12	8	4	0
Components of the Video[2]	All required elements are present and additional elements that add to the Video (e.g., thoughtful comments, graphics) have been added.	All required elements are present.	One required element is missing, but additional elements that add to the Video (e.g., thoughtful comments, graphics) have been added.	Some required elements are missing.	Many (over half) required elements are missing.
Editing/Storytelling[3]	Video has no editing errors.	Video has minor editing errors (1-3).	Video has moderate editing errors (4-6).	Video has considerable editing errors (7-9).	Video has a significant number (>9) of editing errors.
Video is Technically Sound[4]	Video has no technical issues.	Video has minor technical issues (1).	Video has moderate technical issues (2).	Video has considerable technical issues (3).	Video has a significant number (≥4) of technical issues.
Topic Concepts[5]	Video illustrates an accurate and thorough understanding of the concepts associated with the topic.	Video illustrates an accurate understanding of most concepts associated with the topic.	Video illustrates a limited understanding of concepts associated with the topic	Video illustrates inaccurate understanding of concepts associated with the topic	Video illustrates no understanding of concepts associated with the topic
Topic Jargon[6]	Video illustrates an accurate knowledge and use of jargon associated with the topic.	Video illustrates an accurate knowledge and use of most jargon associated with the topic. The presenter(s) uses most jargon correctly.	Video illustrates a limited knowledge and use of jargon associated with topic. The presenter(s) uses only some jargon correctly.	Video illustrates incomplete knowledge and use of jargon associated with the topic. The presenter(s) regularly misuses topic-related jargon.	Video illustrates no knowledge and/or use of jargon associated with the topic. The presenter(s) always misuses topic-related jargon.

[1]**Point Value:** All videos start with 4 points. So, there are 96 additional points that can be obtained (totaling 100 points). Intermediate points can be assigned for each category. For example, if a student's use of topic jargon lies between the highest (16 points) and 2nd highest (12 points) point values, 13-15 points can be awarded for that category as appropriate.

[2]**Components of the Video:** The video must include an introduction of the presenter(s), a concluding image featuring lab website address (entnemdept.ufl.edu/honey-bee), and the video credits (name of presenters and student videographer). The "necessary components" will vary with the topic. Please email Cameron Jack for components that must be included for your particular topic.

[3]**Editing/Storytelling:** The student edits all soundbites to make the story understandable, ensures that the presenter(s) in the video are concise about the topics, does not have continuity errors or jump shots, spells the presenter(s)'s name and job title correctly, and incorporates appropriate use of edits, effects, photos, etc.
[4]**Video is Technically Sound:** The student makes sure that the video stays within the time requirements, video release forms were collected for everyone who appeared in video, video caption is provided (word document), and final video is exported in correct format.
[5]**Topic Concepts:** The student must demonstrate an understanding of the concepts associated with the topic. For example, if the student makes a video on small hive beetles, then the student would have to demonstrate an understanding of its biology, behavior, distribution and control (among other things). If the student makes a video on extracting honey, the student would have to demonstrate knowledge on honey extraction and processing techniques, harvesting, production, etc.
[6]**Topic Jargon:** The technical terminology associated with the topic. Does the student ensure that the jargon used by the presenter(s) is used correctly and are age-appropriate vocabulary terms for the target audience?

Cover Sheet: Request 12898

FAS5xxx Fisheries and aquaculture: An economics perspective

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Rhiannon Pollard rhiannon-pollard@ufl.edu
Created	8/2/2018 11:58:06 AM
Updated	3/8/2019 11:36:13 AM
Description of request	Create new course in Fisheries & Aquatic Sciences

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	SFRC - Fisheries and Aquatic Sciences 514946003	Joel H Brendemuhl	Approved by Joel Brendemuhl per Rhiannon Pollard.	3/8/2019
FAS5xxx Fisheries and Aquaculture Economics Rubric.docx FAS 5xxx Fisheries and Aquaculture Economics.docx					8/2/2018 1/15/2019
College	Pending	CALS - College of Agricultural and Life Sciences			3/8/2019
No document changes					
Graduate Curriculum Committee					
No document changes					
University Curriculum Committee Notified					
No document changes					
Statewide Course Numbering System					
No document changes					
Graduate School Notified					
No document changes					
Office of the Registrar					
No document changes					
College Notified					
No document changes					

Course|New for request 12898

Info

Request: FAS5xxx Fisheries and aquaculture: An economics perspective
Description of request: Create new course in Fisheries & Aquatic Sciences
Submitter: Rhiannon Pollard rhiannon-pollard@ufl.edu
Created: 8/2/2018 11:41:25 AM
Form version: 1

Responses

Recommended Prefix FAS
Course Level 5
Number xxx
Category of Instruction Introductory
Lab Code None
Course Title Fisheries and aquaculture: An economics perspective
Transcript Title Fisheries Economics
Degree Type Graduate

Delivery Method(s) On-Campus, Online
Co-Listing No
Co-Listing Explanation n/a
Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description Introduces students to important issues in fisheries and aquaculture management from an economic perspective, exploring the incentives of various stakeholders in utilizing and conserving fisheries resources, as well as the impacts and effects of differing management systems on industry and ecosystems.
Prerequisites none

Co-requisites none

Rationale and Placement in Curriculum In many ways the oceans and our waterways are the last frontier. Fisheries are the last major hunting industry, and fishing is also an important recreational activity. During recent decades, global aquaculture production has exploded and has now surpassed fisheries as a source for food, primarily due to new technologies and knowledge that create new opportunities. At the same time, these evolving industries create new pressures on the ecosystem. To a large extent, the use of the ocean and water resources is about exploiting economic opportunities, given the constraints provided by the natural resources in the system. Students in fisheries and related disciplines require exposure to this information and experience working with the kinds of conflicts that arise between economic and ecological perspectives of natural resources.
Course Objectives At the end of this course, each student will be able to:

- Describe economic opportunities in in the production, use and conservation of seafood resources.
- Describe ways fishers and aquaculturists may create environmental externalities that lead to exploitation of the ecosystem.
- Describe methods by which management systems can protect natural resources.
- Analyze the impacts of management systems design relative to various stakeholder interests.
- Analyze the economic and market effects of various management systems.
- Evaluate costs and benefits associated with various uses of fisheries and coastal resources.

- Evaluate the impact of international trade on fisheries and coastal resources.

Course Textbook(s) and/or Other Assigned Reading [to be added asap]
Weekly Schedule of Topics 1 Introduction. Important challenges for utilization and conservation of seafood. Background on some of the conflicts. The economic incentives: Opportunities and challenges
2 Overview of global and U.S. seafood production and consumption including aquaculture and fisheries as production technologies. Overview of global seafood production. Why trade?. Livelihoods and communities
3 The tragedy of the commons, causes and consequences. The benefits of regulating fisheries in the environmental and economic dimensions
4 Fisheries regulations and incentives. Command and control. The race to fish. Overcapacity and subsidies
5 Fisheries regulations and incentives. Individual Fishing Quotas. Quota Transferability. Employment and livelihoods in different regulatory systems
6 Recreational fishing. Conservation and hatcheries. Competition between recreational and commercial fishers
7 Aquaculture: Farming not hunting. Why do aquaculture production grow so rapidly
8 Aquaculture: Environmental issues, regulation and livelihoods. Why is not much farmed fish being produced in the U.S.?
9 Markets
10 Supply chains
11 Seafood trade
12 The sustainable seafood movement. Eco-labeling
13 Illegal, unreported and unregulated (IUU) fishing. High-seas stocks: Exploitation and management
14

Work on final paper
15

Work on final paper

Links and Policies All UF and CALS policies are included in the syllabus
Grading Scheme 10% Attendance and participation in discussions
5% Case study: topic submission
40% Reflection papers (4 required out of 6 possible, 10% each)
45% Case study: Final submission of complete case study

Grades will be allocated as: A (93-100%), A- (90-92%), B+ (86-89%), B (82-85%), B- (78-81%), C+ (74-77%), C (67-73%), C- (63-66%), D+ (59-62%), D (55%-58%), D- (51-54%), E (<50%). Rounding to the nearest whole.
Instructor(s) Dr. Frank Asche

FAS 5xxx Fisheries and aquaculture: An economics perspective

Short description:

This course introduces students to important issues in fisheries and aquaculture management from an economic perspective, exploring the incentives of various stakeholders in utilizing and conserving fisheries resources, as well as the impacts and effects of differing management systems on industry and ecosystems. Appropriate for students with little or no background in economics or fisheries sciences.

1 Overview

In many ways the oceans and our waterways are the last frontier. Fisheries are the last major hunting industry, and fishing is also an important recreational activity. During recent decades, global aquaculture production has exploded and has now surpassed fisheries as a source for food, primarily due to new technologies and knowledge that create new opportunities. At the same time, these evolving industries create new pressures on the ecosystem.

To a large extent, the use of the ocean and water resources is about exploiting economic opportunities, given the constraints provided by the natural resources in the system. Since these opportunities involve the use of public natural resources, it is not surprising that there are a number of conflicts between different user groups such as aquaculture producers, commercial fishers, conservationists, consumers, environmentalists, fisheries managers and recreational fishers.

Lectures and discussions are used to introduce students to key concepts and methods, and follow-up discussions will be provided in class. Prepared questions are encouraged for class participation.

- 3 Credits
- Fall 2018
- Pre-recorded lectures with face-to-face meetings (synchronous virtual participation available)
- Canvas site is available at http://ufl.instructure.com or http://elearning.ufl.edu

Course Prerequisites: None

Instructor: Dr. Frank Asche (Professor), 183 Rodgers Hall, email: frank.asche@ufl.edu

- Office hours: available by email or phone; office visits available by appointment.

Textbook(s) and/or readings: There is no required text for the course. Selected readings from primary literature are included in Reading List below.

2 Learning Outcomes

At the end of this course, each student will be able to:

- Describe economic opportunities in in the production, use and conservation of seafood resources.
- Describe ways fishers and aquaculturists may create environmental externalities that lead to exploitation of the ecosystem.
- Describe methods by which management systems can protect natural resources.
- Analyze the impacts of management systems design relative to various stakeholder interests.
- Analyze the economic and market effects of various management systems.
- Evaluate costs and benefits associated with various uses of fisheries and coastal resources.
- Evaluate the impact of international trade on fisheries and coastal resources.

3 Course Logistics

Learning modules consisting of lectures, readings, supporting material, and homework assignments are provided online for each topic.

This class will be offered in a "flipped" format, with pre-recorded lectures to be watched prior to class meetings on campus (with synchronous online option available).

Discussions in Canvas will be available throughout the semester to facilitate collaboration and interaction, handle course questions, and discuss material in further detail.

3.1 Assignments & Deliverables

Reading Reflections.

Throughout the semester, you will be expected to complete four (4) of six (6) possible reflection papers on assigned readings. These reflections should be a maximum of 1-2 pages in length and should provide evidence of critical thinking about the literature, including questions you have, unaddressed issues in the science or policy, etc. Citation of additional references is encouraged but not required.

- Each reflection is worth 10% of the total grade for a total of 40%.

Case Study Project/Writing Assignment.

A significant portion of the grade is a paper where the student chose a case to analyze based on the materials provided in the course. This paper will be split into two (2) submissions:

- Initial topic and case study site selection (participation grade)
- Final paper (50%), including at least the following sections:
    - Introduction
    - Background
    - Analysis
    - Recommendations
    - References

The final submission should be between 10-15 pages not including references. Use correct *Marine Resource Economics* journal style for citations and writing. See rubric in Canvas Assignments for more details.

Participation.

Attendance at all course meetings (virtual or face-to-face) is expected.

3.2 Grades & Grading Scales

10%	Attendance and participation in discussions
5%	Case study: topic submission
40%	Reflection papers (4 required out of 6 possible, 10% each)
45%	Case study: Final submission of complete case study

Grades will be allocated as: A (93-100%), A- (90-92%), B+ (86-89%), B (82-85%), B- (78-81%), C+ (74-77%), C (67-73%), C- (63-66%), D+ (59-62%), D (55%-58%), D- (51-54%), E (<50%). Rounding to the nearest whole.

For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

4 Course Content

Week	Topics
1	Introduction Important challenges for utilization and conservation of seafood Background on some of the conflicts The economic incentives: Opportunities and challenges
2	Overview of global and U.S. seafood production and consumption including aquaculture and fisheries as production technologies Overview of global seafood production Why trade? Livelihoods and communities
3	The tragedy of the commons, causes and consequences The benefits of regulating fisheries in the environmental and economic dimensions
4	Fisheries regulations and incentives Command and control The race to fish Overcapacity and subsidies
5	Fisheries regulations and incentives Individual Fishing Quotas Quota Transferability Employment and livelihoods in different regulatory systems
6	Recreational fishing Conservation and hatcheries Competition between recreational and commercial fishers
7	Aquaculture: Farming not hunting

	Why do aquaculture production grow so rapidly
8	Aquaculture: Environmental issues, regulation and livelihoods Why is not much farmed fish being produced in the U.S.?
9	Markets
10	Supply chains
11	Seafood trade
12	The sustainable seafood movement Eco-labeling
13	Illegal, unreported and unregulated (IUU) fishing High-seas stocks: Exploitation and management
14	Work on final paper
15	Work on final paper

5 Readings

Lecture 1. Asche, F. and M.D. Smith (2018) Induced Innovation in Fisheries and Aquaculture. Food Policy. 76(April), 1-7.

Lecture 2. Asche, F. C. A. Roheim and M.D. Smith (2014) Markets, Trade, and Seafood. In Encyclopedia of Natural Resources (ed Y. Wang). CRC Press, pp. 791-797.

Knapp. G. (2017) A fishy introduction to Economics. Unpublished manuscript.

Filipski, M., and B. Belton (2018) Give a Man a Fishpond: Modeling the Impacts of Aquaculture in the Rural Economy. World Development 110, 205-223.

Lectures 3-5. Hardin, G. 1968. The Tragedy of the Commons. Science 162:1243-47.
Ostrom, E. 1999. Coping with tragedies of the commons. Ann. Rev. Polit. Sci. 2: 493–535.

Wilen, J. E. (2006) "Why Fisheries Management Fails: Treating Symptoms Rather than Causes", Bulletin of Marine Science, 78: 529-546.

Asche, F., J. L. Anderson and T. M. Garlock (2018) Food from the water – Fisheries and Aquaculture. In G.L. Kramer, K.P. Paudel and A. Schmitz (ed.) The Routledge Handbook of Agricultural Economics. Routledge, NY, pp. 134-159.

Lecture 6. Fenichel, E., J. K. Abbott and B. Huang (2013) Modelling angler behaviour as a part of the management system: synthesizing a multi-disciplinary literatureFish and Fisheries, 14, 137-157.

Arnassson, R (2012), Managing Commercial and Recreational Fisheries: Issues and challenges

Lectures 7-8. Asche, F., J. L. Anderson and T. M. Garlock (2018) Food from the water – Fisheries and Aquaculture. In G.L. Kramer, K.P. Paudel and A. Schmitz (ed.) The Routledge Handbook of Agricultural Economics. Routledge, NY, pp. 134-159.

Asche, F. (2008) Farming the Sea. Marine Resource Economics, 23(4), 527-547.

Naylor, R.L., R.J. Goldburg, J. Primavera, N. Kautsky, M. Beveridge, J. Clay, C. Folke, and J. Lubchenco (2000). Effects of aquaculture on world fish supplies. Nature 405(29): 1017–1024.

Tveterås, S. (2002). Norwegian salmon aquaculture and sustainability: The relationship between environmental quality and industry growth. Marine Resource Economics 17(1): 121–132.

Knapp, G., & Rubino, M. C. (2016). The political economics of marine aquaculture in the United States. Reviews in Fisheries Science and Aquaculture, 24(3), 213–229.

Kobayashi, M., Msangi, S., Batka, M., Vannuccini, S., Dey, M. M., & Anderson, J. L. (2015). Fish to 2030: The role and opportunity for aquaculture. Aquaculture Economics & Management, 193, 282-300.

Lectures 9-11. Anderson, J.L. (2002). Aquaculture and the future. Marine Resource Economics 17(2): 133–152.

Asche, F., J. L. Anderson and T. M. Garlock (2018) Food from the water – Fisheries and Aquaculture. In G.L. Kramer, K.P. Paudel and A. Schmitz (ed.) The Routledge Handbook of Agricultural Economics. Routledge, NY, pp. 134-159.

Lecture 12. Fonner, R., & Sylvia, G. (2015). Willingness to Pay for Multiple Seafood Labels in a Niche Market. Marine Resource Economics, Vol. 30, 51-70.

Roheim, C. A. An Evaluation of Sustainable Seafood Guides: Implications for Environmental Groups and the Seafood Industry. Marine Resource Economics 24, 301-310 (2009).

Tlusty, M. F. Environmental improvement of seafood through certification and ecolabelling: theory and analysis. Fish and Fisheries 13, 1-13.

6 Policies and Requirements

This syllabus represents current plans and objectives for this course. As the semester progresses, changes may need to be made to accommodate timing, logistics, or to enhance learning. Such changes, communicated clearly, are not unusual and should be expected.

6.1 Late Submissions & Make-up Requests

It is the responsibility of the student to attend meetings, complete prep work, and submit assignments as given to maintain satisfactory progress in the course.

Requirements for class attendance and make-up work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket

number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

6.2 Semester Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning.

At approximately the mid-point of the semester, the School of Forest Resources & Conservation will request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required, but encouraged. This is not the UF Faculty Evaluation!

At the end of the semester, students are expected to provide UF with feedback on the quality of instruction in this course using a standard set of university and college criteria (UF Faculty Evaluations). These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

6.3 Netiquette: Communication Courtesy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. Failure to do so may result in loss of participation points and/or referral to the Dean of Students' Office. http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf

6.4 Academic Honesty Policy

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."*

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless them instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct or appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated.

Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:
http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

6.5 University Policy on Accommodating Students with Disabilities:

Students requesting accommodation for disabilities must first register with the Dean of Students Office (http://www.dso.ufl.edu/drc/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

6.6 Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

7 Getting Help

For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- Learning-support@ufl.edu | (352) 392-HELP - select option 2 | http://elearning.ufl.edu
- Library Help Desk support http://cms.uflib.ufl.edu/ask
- SFRC Academic Hub https://ufl.instructure.com/courses/303721

7.1 Student Life, Wellness, and Counseling Help

- Counseling and Wellness resources http://www.counseling.ufl.edu/cwc/
- U Matter, We Care serves as UF's umbrella program for UF's caring culture and provides students in distress with support and coordination of the wide variety of appropriate resources. Visit http://www.umatter.ufl.edu/ or contact umatter@ufl.edu seven days a week for assistance for students in distress.
- Career Resource Center http://www.crc.ufl.edu/
- Other resources are available at http://www.distance.ufl.edu/getting-help for online students.

7.2 Student Complaint Process

The School of Forest Resources & Conservation cares about your experience and we will make every effort to address course concerns. We request that all of our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered.

If you have a more urgent concern, your first point of contact should be the SFRC Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- Students in online courses: http://www.distance.ufl.edu/student-complaint-process
- Students in face-to-face courses: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Cover Sheet: Request 13763

WIS 6XXX Wetland Management

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Peter Frederick pfred@ufl.edu
Created	3/15/2019 4:44:11 PM
Updated	3/18/2019 8:46:48 AM
Description of request	This is a request to assign a course number to this class for its graduate level designation. Note that the course will be taught with undergraduate and graduate sections. A separate course request has been made for the undergraduate section.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Wildlife Ecology and Conservation 514947000	Eric Heilgren	Consult indicate the complementary articulation among departments and colleges on wetland ecology and management	3/18/2019
UCC consult Peter Frederick2.pdf Wetlands Management Syllabus WIS 6XXX.docx					3/15/2019 3/15/2019
College	Pending	CALS - College of Agricultural and Life Sciences			3/18/2019
No document changes					
Graduate Curriculum Committee					
No document changes					
University Curriculum Committee Notified					
No document changes					
Statewide Course Numbering System					
No document changes					
Graduate School Notified					
No document changes					
Office of the Registrar					
No document changes					
College Notified					
No document changes					

Course|New for request 13763

Info

Request: WIS 6XXX Wetland Management
Description of request: This is a request to assign a course number to this class for its graduate level designation. Note that the course will be taught with undergraduate and graduate sections. A separate course request has been made for the undergraduate section.
Submitter: Peter Frederick pfred@ufl.edu
Created: 3/15/2019 4:30:25 PM
Form version: 1

Responses

Recommended Prefix WIS
Course Level 6
Number XXX
Category of Instruction Joint (Ugrad/Grad)
Lab Code C
Course Title Wetlands Management
Transcript Title Wetlands Management
Degree Type Graduate

Delivery Method(s) On-Campus
Co-Listing Yes
Co-Listing Explanation in addition to the undergraduate work assigned (quizzes, exams, reading, lab reports), graduate students must complete a wetland management or monitoring plan. Graduate students must contact a management agency or NGO, consult with them about the creation of a management or monitoring plan, and produce a plan by the end of the semester that is written to the satisfaction of the agency. Grad students may work in pairs or threes to accomplish this goal.
Effective Term Fall
Effective Year 2019
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 5
Course Description This course provides an overview of current wetland management and restoration techniques and approaches, including identification of soils and biota, instrumentation and monitoring techniques, and management and restoration methods. Learning will be accomplished through a combination of class lectures, field identification and hands-on field exercises.
Prerequisites none
Co-requisites None
Rationale and Placement in Curriculum This course fills an important gap for graduate students interested in wetland ecology and management. Basic courses in wetland ecology exist at the undergrad level but they do not offer a lot of specifics in wetland management. The proposed course is designed in part as a next step, offering specific management techniques and restoration examples. This course also fills an important gap at the graduate level that is not currently bridged by existing graduate courses in Environmental Engineering.
Course Objectives By the end of this course, students will be able to:
Identify important plants, animals and biotic communities in southeastern wetlands,
Identify wetland soil types and what they tell about wetland history,
Understand components of hydrological budgets and how to measure them,
Be familiar with standard wetland delineation techniques
Recommend appropriate sampling techniques for tracking spatial and temporal biotic parameters in wetlands

Recommend different wetland management and restoration techniques for specific goals.

Course Textbook(s) and/or Other Assigned Reading nderson, J.T. and C.T. Davis (eds). 2014. Wetland Techniques, Volumes 2 – 3. Springer Science Press, Dortrecht. Note this book is available free to UF students. Emphasis on Vol 2, Chapter 7 Wetland Wildlife Monitoring and Assessment, and Vol 3 Chapter 4, Management of Wetlands for Wildlife.
Tobe, J. et al. 1998. Florida Wetland Plants: an identification manual. Florida Department of Environmental Protection.
Johnson, S. A. and M.E. McGarrity. Identification Guide to the Frogs of Florida. University of Florida. SP 468, available from from the University of Florida/The Institute of Food and Agricultural Sciences (UF/IFAS) Publications
Florida Wetlands Delineation Manual:
http://www.dep.state.fl.us/water/wetlands/delineation/manual.htm
Wetland habitat classification: Florida Natural Areas Inventory:
http://fnai.org/naturalcommguide.cfm

Weekly Schedule of Topics Unit I. Wetland ecology, communities, and indicators for management.

Week 1. Intro to course, wetland ecological principles
23-Aug Course introduction, wetland ecology overview

Week 2. Hydric soils – ID and significance.
4 Sept FNAI community types I, typical and impaired Hydric soils as indicators - Dr. Mark Clark
6-Sep Wetland plant identification, community type field trip

Week 3. Wetland communities and indicators
11-Sep Soils and plants quiz, FNAI Community types II
13-Sep

Hydric soils identification lab – Meet at NATL

Week 4. Wetland Communities and indicators
18-Sep Wetland communities quiz, Herps as indicators
20-Sep Wetland fish and herp field exercise,

Week 5. Wetland animal ecology

25 Sept Monitoring Wetland birds
27-Sep

Animal indicators, plant presses due.

Unit II. Monitoring Wetlands
Week 6. Wetland Classification and Delineation
2 Oct Wetland Classification and delineation
4 Oct Wetland delineation field exercise

Week 7. Catchup, midterm
9-Oct Test I
11-Oct Herp & fish ID quiz, Aquatic bird id lab

Week 8. Monitoring biota
16-Oct Wetland Delineation quiz. Monitoring vegetation
18-Oct Field exercise- quantifying wetland vegetation

Week 9. Monitoring hydrology
23-Oct Managing Hydrology
25-Oct Open for field trip.

Week 10. Monitoring biota, field safety and logistics
30-Oct Monitoring wetland hydrology – Dr. David Kaplan
1-Nov
Field safety & logistics

Unit III. Managing and restoring wetlands
Week 11. Hydrological management
6-Nov Quiz on field safety. Wetland fire ecology
8-Nov field trip to Sweetwater Wetlands Park

Week 12. Fire, Restoration
13-Nov Waterfowl and wetland management
15-Nov Shellfish and Seagrass restoration, Aquatic bird ID quiz

Week 13. Management, restoration
20-Nov Vector control
22-Nov
Thanksgiving, no class

Week 14. Management and Restoration
27-Nov Wetland hydrology quiz. Chesapeake restoration
29-Nov

Kissimmee and Everglades restoration,

Week 16. Test
4-Dec Test II

Links and Policies Attendance policy: Attendance is expected for all class sessions and factored into your overall course grade. Students who miss class for any reason assume complete responsibility for all information missed. Absence is not an excuse for ignorance! Further, absence is not an excuse for not submitting assignments on time. Also, arriving late to class without prior approval of the instructor will result in a deduction of participation points for that class period. If you are going to miss class for any reason, it is a great idea to email the instructor!

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Safe Space & Mutual Respect: My classroom and my office are safe spaces. What that means for you, as a student, is that while in class or in my office you have the right to express yourself freely and openly (and appropriately), and have me, your TA and your classmates respect your expression. In these safe spaces, mutual respect is expected; this means that both parties have respect for one another (note: this does not mean we always agree). In order to foster this environment conducive of learning and growth experiences, please join me in treating your classmates with respect.

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It is assumed all work will be completed independently unless the assignment is defined as a group project in writing by the instructor.

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

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•University Counseling Center, 301 Peabody Hall, 392-1575, www.counsel.ufl.edu
•Career Resource Center, CR-100 JWRU, 392-1601, www.crc.ufl.edu/
•Student Mental Health Services, Rm. 245 Student Health Care Center, 392-1171, www.shcc.ufl.edu/smhs/
Alcohol and Substance Abuse Program (ASAP)
Attention Deficit Hyperactivity Disorder (ADHD)
Center for Sexual Assault / Abuse Recovery & Education (CARE)
Eating Disorders Program
Employee Assistance Program
Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. 0001 Reid Hall, 392-8565, www.dso.ufl.edu/drc/

Student Complaints: see https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Grading Scheme Contributions to final grade for WIS 4934:

	Participation and attendance:	10%
	Lab quizzes	15%
Field trips and exercises	10%	
Mid Term	30%	
	Final exam	35%
	Total	100%

Grading: A (94% or greater), A- (90%-93%), B+ (87%-89%), B (84%-86%), B- (80%-83%), C+ (77%-79%), C (74%-76%), C- (70%-73%), D+ (67%-69%), D (64%-66%), D- (60%-63%) E (<60). See https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx for UF grading policy.
Instructor(s) Dr. Peter Frederick

External Consultation Results (departments with potential overlap or interest in proposed course, if any)

Department	Name and Title
Soil and Water Sciences	Mark Clark, Associate Professor
Phone Number	**E-mail**
352-294-3115	clarkmw@ufl.edu

Comments

The proposed undergraduate and graduate Wetlands Management Techniques course will be highly complementary to both SWS4244 and SWS5248, which are classroom based introductory wetlands courses. The proposed techniques course would provides a more field and management focused opportunity for students. This course will fill a present gap in wetland related course offerings at UF specifically hands on learning opportunities related to measurement and monitoring techniques, identification of biota and soils as well as a focus on wetland restoration techniques.

Department	Name and Title
ESSIE	David Kaplan, Associate Professor
Phone Number	**E-mail**
352-392-8439	dkaplan@ufl.edu

Comments

The proposed course will be of great interest and applicability at the graduate and undergraduate levels. It will serve as a good addition to the Wetlands Certificate and Concentration offered by Center for Wetlands. The material is complementary to, but not duplicative of, SWS 5248, EES 6309, and ENV 6508. Major differences from existing courses include this new course's focus on identifying plants, animals, biotic communities, and soils; wetland delineation techniques; and sampling methods and techniques.

Department	Name and Title
Phone Number	**E-mail**

Comments

Syllabus

Wetlands Management Techniques

WIS 6XXX
3 credits

Instructor: Dr. Peter Frederick, Department of Wildlife Ecology and Conservation
pfred@ufl.edu, Ofc 352-846-0565
Office: Building 87, next to Florida Cooperative Wildlife Research Unit
(knock on entrance door, someone will open it)

Office hours: TBA

Class Time and location: TBA

Course Description

Wetlands ecology is an important and separate area of ecological inquiry because of the unique physical and biological attributes of wetlands. Management and restoration of wetland systems similarly requires a unique set of skills to be effective, and this course provides an overview of current wetland management and restoration techniques and approaches, including identification of soils and biota, measurement and monitoring techniques, and management and restoration techniques. Learning will be accomplished through a combination of class lectures, specimen identification, and hands-on field exercises. Graduate students will develop management, monitoring or restoration plans in conjunction with a wetland management NGO or agency. This course will prepare students for basic monitoring, field research, and management of wetlands.

Course Objectives:

By the end of this course, students will be able to:

Identify important plants, animals and biotic communities in southeastern wetlands
Identify wetland soil types and what they tell about wetland history
Understand components of hydrological budgets and how to measure them
Be familiar with standard wetland delineation techniques
Recommend appropriate sampling techniques for tracking spatial and temporal biotic parameters in wetlands
Recommend different wetland management and restoration techniques for specific goals.

Course requirements: Class attendance, field trip attendance, 5 lab practical quizzes, two lab practical exercises, two written tests, and a graduate project. Note that two of the field trips will be on a Saturday, attendance is optional. These are the only coastal trips, and one of the few places we'll see shorebirds, ducks, and coastal habitats.

For their course project, graduate students will consult for a management agency or NGO, and under the agency's direction write a management and monitoring plan for an existing wetland or wetland mosaic. Projects may be done individually or in small groups of 2 - 3. Note that all members of a group will share the workload, and the final grade for the product.

These projects involve developing a management or monitoring plan for a (preferably local) agency or manager who manages wetlands (State parks, Water Management Districts, National Wildlife Refuges, or consulting firms, for example). Students must seek out managers and consult with them about their needs. Projects need to be developed WITH the manager's direction, rather than for them. Plans must include:

1) a clear statement of needs, with concrete goals (10 points)

2) a short review of the history and literature of site (10 points)

3) an analysis of the techniques to be used and the tradeoffs they present (25 points)

4) a plan of action for achieving the goals, with timeline (25 points)

5) a realistic budget, including capital investment, salary and training needs. (10 points)

6) literature cited (10 points)

All sections will be evaluated for clarity of writing (20% emphasis), organization (20% emphasis), and effectiveness (60%, includes accuracy, realism, likelihood of succeding).

Each plan will be presented as a final report of no more than 20 pages including figures and tables. Students will present the results of the report (10 points) to the class using a 10-minute presentation on November 29th.

Schedule for graduate projects:

1. contact a land manager from a list that Dr. Frederick will provide, and define a management or monitoring plan. due 29 September

2. Develop a prospectus for the plan that includes the goals of the plan, an outline and likely methods to be used. consult with Dr. Frederick due October 27

3. Final Report, including the standalone management or monitoring plan. due December 3.

4. Class presentation of the plan, 29 November

Contributions to final grade for WIS 6934:

Participation and attendance:	10%
Lab quizzes	5%
Field trips and exercises	5%
Mid Term	30%
Final exam	30%
Management/monitoring plan	20%
Total	100%

Grading: A (94% or greater), A- (90%-93%), B+ (87%-89%), B (84%-86%), B- (80%-83%), C+ (77%-79%), C (74%-76%), C- (70%-73%), D+ (67%-69%), D (64%-66%), D- (60%-63%), E (<60). See https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx for UF grading policy.

Course Materials and Readings.

This course is heavily based on identification and hands on field experience, which will be supplemented with readings, and a combination of field guides and online material. This course relies considerably on material presented in class and encountered in the field – **this is definitely not a class where you can miss classes and catchup by reading the materials on the Canvas site.**

Required Materials:

General: Anderson, J.T. and C.T. Davis (eds). 2014. Wetland Techniques, Volumes 2 – 3. Springer Science Press, Dortrecht. *Note this book is available free to UF students*, see the Canvas site (under Files) for downloads. The two chapters (below) must be finished BEFORE the lectures that they pertain to. The goal is to supplement information from lectures and build general knowledge about commonly accepted techniques for monitoring and assessing wetland biota and condition.

Material in these chapters will be on Mid-term and Final exams, and we will discuss much of the reading and situations in which different methodologies are used, and the ability to name and identify what is generally involved in each technique. For example, I might ask an exam question about the situation in which a funnel net might be used to capture turtles, or the most likely method to sample amphibians emerging from a pond postbreeding. These readings will also build your knowledge for more synthetic questions that involve designing a monitoring study for a particular purpose, that involves multiple forms of biota and wetland response. These are also likely to be on the tests.

Reading schedule:

Date due	Assignment	Folder (Canvas>Files...)
September 6, field trip	Lightning Safety (be prepared to answer questions)	>Wetland transport and safety
September 25, class	Chapter 7 in Wetland Wildlife Monitoring and Assessment (vol 2)	>Wetland Techniques
September 27, class	Chapter 7 in Wetland Wildlife Monitoring and Assessment (vol 2)	>Wetland Techniques
October 4, field trip	Methods section in the Florida Wetland Delineation Manual	>Wetland classification and delineation
October 18, lab	Updated Wetland Plant Sampling Protocol	>Wetland Plant quantification lab
November 1, class	Chapter 2 in Management of Wetlands for Wildlife (vol 3)	>Wetland Techniques
November 6, class	Chapter 2 in Management of Wetlands for Wildlife (vol 3)	>Wetland Techniques
November 8, field trip	Payne's Prairie Sheetflow project pdf	In Files
November 15, class	Kellogg paper (Kellog et al 2013) Mann and Powell paper (2007) Plus one other paper of your choice	>Shellfish restoration
November 20, class	Chapter 2 in Management of Wetlands for Wildlife (vol 3)	>Wetland Techniques
November 29, class	Sklar paper (Sklar et al 2005) Smith paper (Smith et al 2011)	>Everglades and Chesapeake

Vol. 2. Chapter 7. Wetland Wildlife Monitoring and Assessment. Read before classes on 25, 27 September.

Vol 3. Chapter 4. Management of Wetlands for Wildlife. Read before classes on 1, 6, 20 November.

Paynes Prairie Sheetflow project pdf. Read prior to the field trip to the Sweetwater Branch Park on 8 November.

Shellfish restoration – read and be prepared to discuss the Kellogg paper and the Mann and Powell papers, plus one other paper of your choice (Canvas- Files-Shellfish restoration) prior to class on 15 November.

Wetland delineation – read Methods section of the Florida Wetland Delineation Manual before the field trip on 4 October.

Wetland plant quantification – read Updated Wetland Plant Sampling Protocol prior to the lab on 18 October.

Lightning Safety – read and be prepared to answer questions about Lightning Safety before the first field trip on 6 September.

Everglades restoration: Read and be prepared to discuss Sklar et al. article and Smith article on Hole in the Donut before class on November 29th.

Birds identification: Sibley Field Guide to Birds –book or the eguide app (recommended). https://play.google.com/store/apps/details?id=com.coolideas.eproducts.sibleybirds&feature=search_result . Other field guides such as Audubon guides or National Geographic guides are also acceptable, but you will need to find a source for calls (which are in the app).

Wetland Soil identification: Field Indicators of Hydric Soils in the United States. A Guide for Identifying and Delineating Hydric Soils, Version 7.0, 2010. Available on the Canvas site.

Wetland Plant identification: Tobe, J. et al. 1998. *Florida Wetland Plants: an identification manual*. Florida Department of Environmental Protection and UF/IFAS Publications.The manual is no longer available in print, but we will make a pdf available on the Canvas site.

Frogs and toads identification:
Johnson, S. A. and M.E. McGarrity. Identification Guide to the Frogs of Florida. University of Florida. SP 468, available from from the University of Florida/The Institute of Food and Agricultural Sciences (UF/IFAS) Publications, P.O.Box 110011, Gainesville, Florida, 32611. The cost is $16.00 plus $7.00 shipping and handling. Note the book can be purchased without shipping and handling charge 9:00 – 5:00 pm at the IFAS bookstore, Building 440, 1371 Sabal Palm Drive on the UF campus (1-800-226-1764).

Frog calls: Use the Florida Frog Calls lookup
https://www.pwrc.usgs.gov/Frogquiz/index.cfm?fuseaction=main.lookup&CFID=6366850&CFTOKEN=288034ba03db9883-0B5283B7-D5D5-4EA0-BD3B20F30FA9B4A6

Wetlands Delineation: Florida Wetlands Delineation Manual:
http://www.dep.state.fl.us/water/wetlands/delineation/manual.htm

Wetland habitat classification: Florida Natural Areas Inventory:
http://fnai.org/naturalcommguide.cfm http://fnai.org/natcom_accounts.cfm

Other resources:

Wetland Plants:

Godfrey, R.K. and J.W.Wooten 1981. Aquatic and Wetland Plants of Southeastern United States: Vol. 1. Monocots, Vol 2. Dicotyledons. University of Georgia Press. This is the authoritative book for wetland flora complete with keys and detailed descriptions.

Tiner, R. 1993. Field guide to coastal wetland plants of the southeastern United States. U niversity of Massachusetts Press.

Aquatic and Wetland Plants in Florida – Plant management
http://plants.ifas.ufl.edu/manage/why-manage-plants/aquatic-and-wetland-plants-in-florida/

Links to information and research on frogs and toads:
http://ufwildlife.ifas.ufl.edu/frogs/links.shtml

Waterfowl Management: Baldassare G.A. and E. G. Bolen. 2006. Waterfowl ecology and management. Krieger Publishing. Second edition.

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•University Counseling Center, 301 Peabody Hall, 392-1575, www.counsel.ufl.edu

•Career Resource Center, CR-100 JWRU, 392-1601, www.crc.ufl.edu/

•Student Mental Health Services, Rm. 245 Student Health Care Center, 392-1171, www.shcc.ufl.edu/smhs/

Alcohol and Substance Abuse Program (ASAP)

Attention Deficit Hyperactivity Disorder (ADHD)

Center for Sexual Assault / Abuse Recovery & Education (CARE)

Eating Disorders Program

Employee Assistance Program

Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. 0001 Reid Hall, 392-8565, www.dso.ufl.edu/drc/

Student Complaints: see https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Course schedule
WIS 6934

Unit I. Wetland ecology, communities, and indicators for management.

Week 1. Intro to course, wetland ecological principles

23-Aug Course introduction, wetland ecology overview

Week 2. Hydric soils – ID and significance.

4 Sept FNAI community types I, typical and impaired Hydric soils as indicators - Dr. Mark Clark

6-Sep Wetland plant identification, community type field trip

Week 3. Wetland communities and indicators

11-Sep **Soils and plants quiz**, FNAI Community types II

13-Sep Hydric soils identification lab – Meet at NATL

Week 4. Wetland Communities and indicators

18-Sep ***Wetland communities quiz,*** Herps as indicators

20-Sep Wetland fish and herp field exercise,

Week 5. Wetland animal ecology

25 Sept Monitoring Wetland birds

27-Sep Animal indicators, **plant presses due**.

Unit II. Monitoring Wetlands

Week 6. Wetland Classification and Delineation

2 Oct Wetland Classification and delineation

4 Oct Wetland delineation field exercise

Week 7. Catchup, midterm

9-Oct **Test I**

11-Oct ***Herp & fish ID quiz***, Aquatic bird id lab

Week 8. Monitoring biota

16-Oct ***Wetland Delineation quiz***. Monitoring vegetation

18-Oct Field exercise- quantifying wetland vegetation

Week 9. Monitoring hydrology

23-Oct Managing Hydrology

25-Oct *Open for field trip.*

Week 10. Monitoring biota, field safety and logistics

30-Oct Monitoring wetland hydrology – Dr. David Kaplan

1-Nov Field safety & logistics

Unit III. Managing and restoring wetlands

Week 11. Hydrological management

6-Nov **Quiz on field safety**. Wetland fire ecology

8-Nov field trip to Sweetwater Wetlands Park

Week 12. Fire, Restoration

13-Nov Waterfowl and wetland management

15-Nov Shellfish and Seagrass restoration, ***Aquatic bird ID quiz***

Week 13. Management, restoration

20-Nov Vector control

22-Nov *Thanksgiving, no class*

Week 14. Management and Restoration

27-Nov **Wetland hydrology quiz**. Chesapeake restoration

29-Nov Kissimmee and Everglades restoration, **Graduate presentations**.

Week 16. Test

4-Dec **Test II**

(5)

Cover Sheet: Request 13825

ENY 5572 Advanced Apiculture

Info

Process	Course|Modify|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Cameron Jack cjack@ufl.edu
Created	4/2/2019 12:18:12 PM
Updated	4/3/2019 5:20:58 PM
Description of request	I would like to request that we change the name of ENY 5572 Advanced Apiculture to ENY 5572 Apiculture.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Entomology and Nematology 514914000	Heather Mcauslane		4/3/2019
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			4/3/2019
No document changes					
Graduate Curriculum Committee					
No document changes					
University Curriculum Committee Notified					
No document changes					
Statewide Course Numbering System					
No document changes					
Graduate School Notified					
No document changes					
Office of the Registrar					
No document changes					
College Notified					
No document changes					

Course|Modify for request 13825

Info

Request: ENY 5572 Advanced Apiculture
Description of request: I would like to request that we change the name of ENY 5572 Advanced Apiculture to ENY 5572 Apiculture.
Submitter: Cameron Jack cjack@ufl.edu
Created: 4/2/2019 12:00:47 PM
Form version: 1

Responses

Current Prefix ENY
Course Level 5
Number 572
Lab Code None
Course Title Advanced Apiculture
Effective Term Earliest Available
Effective Year Earliest Available
Requested Action Other (selecting this option opens additional form fields below)
Change Course Prefix? No

Change Course Level? No

Change Course Number? No

Change Lab Code? No

Change Course Title? Yes
Current Course Title Advanced Apiculture
Proposed Course Title Apiculture
Change Transcript Title? Yes
Current Transcript Title Advanced Apiculture
Proposed Transcript Title (21 char. max) Apiculture
Change Credit Hours? No

Change Variable Credit? No

Change S/U Only? No

Change Contact Type? No

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Maximum Repeatable Credits 0
Change Course Description? No

Change Prerequisites? No

Change Co-requisites? No

Rationale Currently, I am teaching the slash course ENY 4573/5572 entitled Beekeeping for undergraduate students and Advanced Apiculture for graduate students. I am proposing the creation of a new undergraduate/graduate course entitled Advanced Beekeeping for undergraduates and I would like to call the graduate version Advanced Apiculture. I believe that if the ENY 5572 course was titled Apiculture, it would be very clear which classes go together. It makes the most sense to have the courses as follows: ENY 4573/5572 Beekeeping/Apiculture and ENY 4XXX/6XXX Advanced Beekeeping/Advanced Apiculture.

Cover Sheet: Request 13823

ENY - 4XXX Advanced Beekeeping

Info

Process	Course|New|Ugrad/Pro
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Cameron Jack cjack@ufl.edu
Created	4/2/2019 11:32:42 AM
Updated	4/3/2019 5:18:52 PM
Description of request	The online Beekeeping/Apiculture class has also had a marked increase in students over the last year and is now at 165 students during the Spring 2019 semester. Each semester we are asked by several students about more advanced beekeeping courses. We believe that a course in Advanced Beekeeping will be popular among those students who have demonstrated an interest in the subject. Furthermore, In the near future, we would like to develop enough beekeeping-centric courses so that students from around the world could come to the University of Florida to be trained in beekeeping. We believe that an Advanced Beekeeping course would complement the existing Practical Beekeeping (ENY 2041C) and Beekeeping/Apiculture (ENY 4573/5572) courses we teach and propel us toward our goal of creating a new Apiculture Certificate Program. We are requesting that this new course proposal be considered to be added to the curriculum by the Spring 2020 semester.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Entomology and Nematology 514914000	Heather Mcauslane		4/3/2019
ENY 4XXX Syllabus Spring 2020.pdf					4/3/2019
College	Pending	CALS - College of Agricultural and Life Sciences			4/3/2019
No document changes					
University Curriculum Committee					
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 13823

Info

Request: ENY - 4XXX Advanced Beekeeping
Description of request: The online Beekeeping/Apiculture class has also had a marked increase in students over the last year and is now at 165 students during the Spring 2019 semester. Each semester we are asked by several students about more advanced beekeeping courses. We believe that a course in Advanced Beekeeping will be popular among those students who have demonstrated an interest in the subject. Furthermore, In the near future, we would like to develop enough beekeeping-centric courses so that students from around the world could come to the University of Florida to be trained in beekeeping. We believe that an Advanced Beekeeping course would complement the existing Practical Beekeeping (ENY 2041C) and Beekeeping/Apiculture (ENY 4573/5572) courses we teach and propel us toward our goal of creating a new Apiculture Certificate Program.

We are requesting that this new course proposal be considered to be added to the curriculum by the Spring 2020 semester.
Submitter: Cameron Jack cjack@ufl.edu
Created: 2/25/2019 1:29:45 PM
Form version: 1

Responses

Recommended Prefix ENY
Course Level 4
Number XXX
Category of Instruction Joint (Ugrad/Grad)
Lab Code None
Course Title Advanced Beekeeping
Transcript Title Advanced Beekeeping
Degree Type Baccalaureate

Delivery Method(s) Online
Co-Listing Yes
Co-Listing Explanation The lectures, module assessments, critical thinking exercise and research blog post will be the same for all, regardless of whether they are undergraduate or graduate students. Graduate students, however, will have an additional extension-related project which can be accomplished in a number of ways. 1) Students can choose to write a Featured Creature article, 2) students can choose to write an EDIS document or 3) students can create an instructional video.

Effective Term Spring
Effective Year 2020
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description This course will provide an in-depth look at the biology of honey bees and the craft of apiculture. Topics such as honey bee natural history, biogeography, anatomy, physiology, colony social structure, pests/diseases, ecology, husbandry and current topics in beekeeping will be discussed.
Prerequisites ENY 4573/5572 (C)
Co-requisites N/A
Rationale and Placement in Curriculum Although honey bees have been a staple in American agriculture for centuries, there are few instructional efforts within universities to train students to become successful beekeepers. Most Land Grant Universities offer a single course in beekeeping,

providing students with a basic overview of honey bee biology and management principles; however, almost no universities offer multiple courses on beekeeping. At the University of Florida, students can take multiple courses on specific agricultural topics, preparing them to enter the workforce with the knowledge and skills obtained through their instructional program. In the near future, we would like to develop enough beekeeping-centric courses so that students from around the world could come to the University of Florida to be trained in beekeeping. We believe that an Advanced Beekeeping course would complement the existing Practical Beekeeping (ENY 2041C) and Beekeeping/Apiculture (ENY 4573/5572) courses we teach and propel us toward our goal of creating a new Apiculture Certificate Program.

In the last year, we have seen a significant increase in the number of students interested in taking our beekeeping courses. Last summer (2018), the Practical Beekeeping course tripled in attendance and left out many students who were unable to get into the course after the enrollment cap was met. To meet student demand, this course will be taught during both Summers A and B this year and the enrollment cap has been increased. The online Beekeeping/Apiculture class has also had a marked increase in students over the last year and is now at 165 students during the Spring 2019 semester. We believe a course in Advanced Beekeeping will be popular among those students who have demonstrated an interest in the subject.

Course Objectives 1. Compare the natural histories of honey bees with those of other bees, emphasizing the development of sociality in bee hymenoptera.
2. Locate the geographical regions of different honey bee species and subspecies.
3. Recognize the intricacies of honey bee biology, anatomy, physiology.
4. Identify the contributions of nest structure, eusocial behavior, and superorganism colony traits to the success of honey bees globally.
5. Discuss advanced apicultural topics such as commercial production, pesticides and honey bee research.

Course Textbook(s) and/or Other Assigned Reading 1. Caron, D.W. 2013 (revised from 1999). Honey Bee Biology and Beekeeping. Wicwas Press. Cheshire, CT, 368 pp.
2. Supplemental Information (documents, videos, etc.) that further explains the concepts taught is provided for each module.

Weekly Schedule of Topics Week 1 - Getting started: syllabus, course orientation, tips for success
Week 2 - Taxonomy: Honey bee classification; Honey bee taxonomy; Micrapis, Megapis and Apis
Week 3 - Sociality: Insect Sociality; Social levels of bees
Week 4 - Apis mellifera biogeography: Apis mellifera; Middle eastern Apis mellifera; European Apis mellifera; African Apis mellifera
Week 5 - External Anatomy and Physiology: Overview; Head; Thorax; Abdomen
Week 6 - Internal Anatomy and Physiology: Overview; Digestive System; Nervous system; Circulatory system; Respiratory system; Reproductive system; Muscular system; Endocrine system; Exocrine system
Week 7 - Nutrition and Immunity: Larval and Adult requirements; Nectar and honey; Pollen; Physical, cellular and enzymatic responses; Colony and behavioral responses; Overcoming bee defenses
Week 8 - Mating: Sexual maturation of the queen;
Sexual maturation of the drones; Drone Congregation Areas; Honey Bee Mating; Post-mating Maturation; Honey bee Genetics
Week 9 - Reproduction: Swarm Preparation; The Swarm; Choosing a nest site
Week 10 - Superorganism: Overview; Tissue specialization, glandular system, food handling; Respiration, waste management, and thermoregulation; Communication, reproduction and death
Week 11 - Queen and Package Bee Production: Overview; Choosing breeder queens; Colony preparation; Queen production timeline; Instrumental Insemination; Package bee production
Week 12 - African and Africanized Bees: Origin and movement into U.S.; Biology and behavior; Identification of African bees; Beekeeper considerations; What to do about African bees
Week 13 - Bee Removal: Types of Bee removal; Bee Removal Safety; Removal Best Management Practices; Practices after removal
Week 14 - Pesticides: Pesticide impacts on bees; Definitions; Routes of exposure; Pesticide regulations; Understanding the label; Pesticide formulations; Risk reduction; Approaches for Applicators; Risk reduction approaches for beekeepers; Recognizing bee exposure and reporting
Week 15 - Honey Bee Research and Extension: Research; Extension

Links and Policies Grades and Grade Points:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Attendance and Make-Up Work: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Student Honor Code: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code
Plagerism: (http://www.dso.ufl.edu/sccr/honorcodes/honorcode.php)

Student Complaint Process: http://www.distance.ufl.edu/student-complaints

Grading Scheme Module assessments 15 points each × 15 assessments 225 points
Section critical thinking exercises 35 points each × 5 exercises 175 points
Select Research Article 5 points5 points
Submission of your peer evaluations of two of your peers' Research Blog Post 10 points × 2 peer reviews (you get 10 points per peer review you submit) 20 points
Final draft of your Research Blog Post 75 points
75 points

Final Grading:

A	463
A-	448 – 462
B+	433 – 447
B	413 – 432
B-	398 – 412
C+	383 – 397
C	363 – 382
C-	348 – 362
D+	333 – 347
D	313 – 332
D-	298 – 312
E	0 – 297

Instructor(s) Cameron Jack
Jamie Ellis

ENY 4XXX
Advanced Beekeeping
Spring 2020
3 credits

ENY 4573 Beekeeping is a prerequisite for this course

Lead-Instructor: Cameron Jack, MSc
Office Room #: ENY (Bldg 964), room 114
Office Address: Steinmetz Hall, Natural Area Drive, P.O. Box 110620, Gainesville, FL 32611
Office Phone #: 352-294-6926 (*Please email to set up a phone appointment.*)
E-mail: cjack@ufl.edu

Instructor: Jamie Ellis, PhD
Office Room #: ENY (Bldg 964), room 116
Office Address: Steinmetz Hall, Natural Area Drive, P.O. Box 110620, Gainesville, FL 32611
Office Phone #: 352-273-3924 (*Please email to set up a phone appointment.*)
E-mail: jdellis@ufl.edu
Website: www.ufhoneybee.com

TA: TBA
Office Room #:
Office Address:
E-mail:

Special Note on Contact via Email: Due to UF privacy laws, you must use your GatorLink account or the Canvas mail system when emailing the Instructor or TA. Emails sent from other accounts (gmail, hotmail, etc.) will not be answered by the Instructor or TA.

Office Hours:

Course Description: This course will provide an in-depth look at the biology of honey bees and the craft of apiculture. Topics such as honey bee natural history, biogeography, anatomy, physiology, colony social structure, pests/diseases, ecology, husbandry and current topics in beekeeping will be discussed.

Additional Information Regarding the Course: This course contains significant scientific content. If you are unsure of any vocabulary terms or scientific principles, please take the time to research them. It will be easy to fall behind if you do not understand beekeeping and scientific terminology. A basic knowledge of honey bee biology is required. Students should have taken ENY 4573 as a prerequisite for this course.

Course Learning Objectives:
1. Compare the natural histories of honey bees with those of other bees, emphasizing the development of sociality in bee hymenoptera.

2. Locate the geographical regions of different honey bee species and subspecies.
3. Recognize the intricacies of honey bee biology, anatomy, physiology.
4. Identify the contributions of nest structure, eusocial behavior, and superorganism colony traits to the success of honey bees globally.
5. Discuss advanced apicultural topics such as commercial production, pesticides and honey bee research.

Recommended Readings (not required):
1. Caron, D.W. 2013 (revised from 1999). Honey Bee Biology and Beekeeping. Wicwas Press. Cheshire, CT, 368 pp.
2. Supplemental Information (documents, videos, etc.) that further explains the concepts taught is provided for each module.

Lectures: This is an online, Canvas-based course. The website for the syllabus, all lectures, reading materials, announcements, tests, etc. will be posted on eLearning: http://lss.at.ufl.edu. All lectures for this course are narrated presentations and may include some videos and/or supplemental reading. We will provide text from all the narrated presentations, but all not necessarily from the related videos. Therefore, you should pay close attention as knowing and understanding the spoken information is critical for success in this course. All lectures and tests will be delivered online in Canvas. There will be no classroom meetings.

Throughout the course, you will view video course lectures. Please understand that many of these video clips and photographs are copyrighted and are NOT to be used outside of this class and may be used only this semester. Please do not copy or distribute these photographs or video clips. All class notes are provided for educational use only and are not to be distributed.

Course Notifications and Communication: All course communications (assignments, announcements, test information, etc.) will be made via the Announcements and Email functions of Canvas. Please ensure that your Canvas profile is set to receive notifications (i.e. please check the appropriate box to receive all notifications). To do this, click on your name in the upper right corner of the Canvas homepage after logging into Canvas. Next, click "notifications" on the left. This will take you to the Notification Preferences page. Then, click the check symbol for at least the following notifications: Due Date, Course Content, Announcement, and Grading.

Course Schedule: This course is offered via Canvas as a distance education course. To stay on track, students must adhere to the course schedule.

Module	Week	Content (Lecture # and Title)	Weekly Readings	Module Assessments	Critical Thinking Exercises	Research Blog Post
Getting Started	1	syllabus, course orientation, tips for success		Syllabus quiz		
Taxonomy	2	Honey bee classification Honey bee taxonomy Micrapis, Megapis and Apis	Peer Reviewed Journal	Taxonomy quiz		
Sociality	3	Insect Sociality Social levels of bees	Peer Reviewed Journal	Sociality quiz		Select Research Article Due:
Apis mellifera Biogeography	4	*Apis mellifera* Middle eastern *Apis mellifera* European *Apis mellifera* African *Apis mellifera*		Biogeography quiz	Critical Thinking Exercise 1	
External Anatomy and Physiology	5	Overview Head Thorax Abdomen	ABJ	External anatomy quiz		
Internal Anatomy and Physiology	6	Overview Digestive System Nervous system Circulatory system Respiratory system Reproductive system Muscular system Endocrine system Exocrine system	ABJ	Internal Anatomy quiz		
Nutrition and Immunity	7	Larval and Adult requirements Nectar and honey Pollen Physical, cellular and enzymatic responses Colony and behavioral responses Overcoming bee defenses	ABJ	Nutrition and immunity quiz	Critical Thinking Exercise 2	First Draft of Research Blog Post
Mating	8	Sexual maturation of the queen Sexual maturation of the drones Drone Congregation Areas	ABJ Dec. 2015	Mating quiz		

		Honey Bee Mating Post-mating Maturation Honey bee Genetics				
Reproduction	9	Swarm Preparation The Swarm Choosing a nest site	ABJ Nov. 2015	Reproduction quiz		Peer Evaluation of Research Blog Post
Superorganism	10	Overview Tissue specialization, glandular system, food handling Respiration, waste management, and thermoregulation Communication, reproduction and death	ABJ Feb 2016 ABJ June 2015	Superorganism quiz	Critical Thinking Exercise 3	
Queen and Package Bee Production	11	Overview Choosing breeder queens Colony preparation Queen production timeline Instrumental Insemination Package bee production	ABJ	Queen/Package Bee production quiz		
African and Africanized Bees	12	Origin and movement into U.S. Biology and behavior Identification of African bees Beekeeper considerations What to do about African bees	EDIS Peer Reviewed Journal	African Bee quiz		
Bee Removal	13	Types of Bee removal Bee Removal Safety Removal Best Management Practices Practices after removal	EDIS	Bee Removal quiz	Critical Thinking Exercise 4	
Pesticides and Bees	14	Pesticide impacts on bees Definitions Routes of exposure Pesticide regulations Understanding the label Pesticide formulations Risk reduction Approaches for Applicators Risk reduction approaches for beekeepers Recognizing bee exposure and reporting	EDIS Peer Reviewed Journals	Pesticides quiz		

Honey Bee Research and Extension	15	Research Extension	Peer Reviewed Journal	Research and Extension Quiz		Final Research Blog Post Due:

5

Evaluation: The course grade is based on total points earned out of 500 possible points.

Module assessments	15 points each × 15 assessments	225 points
Section critical thinking exercises	35 points each × 5 exercises	175 points
Select Research Article	5 points	5 points
Submission of your peer evaluations of two of your peers' Research Blog Post	10 points × 2 peer reviews (you get 10 points per peer review you submit)	20 points
Final draft of your Research Blog Post	75 points	75 points
	Total Course Points	500 points

Grades and Grade Points
For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

FINAL GRADING		
% grade	Letter grade	Points needed to achieve letter grade
100-93	A	≥ 463
90-92	A-	448 – 462
87-89	B+	433 – 447
83-86	B	413 – 432
80-82	B-	398 – 412
77-79	C+	383 – 397
73-76	C	363 – 382
70-72	C-	348 – 362
67-69	D+	333 – 347
63-66	D	313 – 332
60-62	D-	298 – 312
0-59	E	0 – 297

Assignments:

(1) Module Assessments: There is a 15-point assessment associated with each of the fifteen modules in this course. These assessments are ***open note*** (i.e. you ***are*** allowed to use class lectures, books, websites, etc. while taking the assessments). The assessments will be composed of true/false and multiple choice questions. **The assessments 1) open the Saturday morning after the previous section ends, 2) are timed (30 minutes each), and 3) are due on Friday at 11:59 pm on the date listed in the course schedule.** These are individual assessments so please do your own work and do not work in groups or share your answers. There is a large bank of test questions for each assessment and the assessment questions are selected randomly for each student. You will receive a 5-point deduction for each day a module assessment is late.

The first module assessment is a graded syllabus quiz on the "Getting Started" module. You need to read the syllabus and answer quiz questions related to it by **11:59 pm ET on the date listed in the course schedule**. You must complete the syllabus quiz before you are able to advance to the

next module. This quiz will show you how your online assessments will be formatted as well as allow you to demonstrate that you understand how this course works and important due dates.

(2) Critical Thinking Exercises: These exercises are designed to encourage you to think critically about the content presented in the module lectures. The critical thinking exercises are worth 35 points each. These are individual exercises so please do your own work and do not work in groups or share your answers. All of the critical thinking exercises are open note and untimed. You can close and reopen the exercise as many times as you would like until the due date (see course schedule), but you will not be able to make any changes once you have officially submitted your final exercise. **The exercises are due at 11:59 pm on the date listed in the course schedule.** You will receive a 5 deduction for each day a module assessment is late.

(3) Research Blog Post: One of the most useful skills in any profession is writing. Furthermore, one of the missions of the Land Grant Institution is extension, which means we are communicating with the general public. As such, you are required to produce a blog post which explains the findings from a recent peer-reviewed honey bee research article. This should be based on a paper that was published in the last 3 years and would be of interest to beekeepers, meaning it should be relevant to honey bee health, production, treatment, etc. Your blog post should be written to have the potential for publication through the University of Florida's extension branch (Cooperative Extension Service). You **must** check with the TA before beginning your blog post so that they can verify that such a blog post does not already exist on your research paper. The instructor or TA can provide ideas for selecting a research paper, but the papers will be reserved on a first come first serve basis. **A grading rubric has been provided at the end of this syllabus to facilitate development of the blog post.**

Here is an example of a blog post written about a widely-discussed research article http://blogs.ifas.ufl.edu/entnemdept/2018/04/18/lithium-chloride-for-varroa-control/ based on the paper by Ziegelmann et al., 2018 Scientific Reports 8:683 https://www.nature.com/articles/s41598-017-19137-5.pdf. You'll notice how the author created figures helpful to understanding the research as well as linking to other useful videos and information.

Your Research Blog Post should convey scientific information in a way that a high school student could understand. Figures are extremely helpful in extension documents, and students are encouraged to include as many figures as necessary to explain a topic. You must obtain use permission from the owner of any figures you include in your final report if the figure is not original to you. There will be an additional assignment to submit with the Final Extension Report called "Extension Report Figures and Permissions." For this assignment, you will upload the full-sized jpeg file for each figure and fill in the accompanying word document with the proof of permission for use.

There are four components of the Research Blog Post that compose the completed assignment. Due dates for each component are listed in the course schedule.

1) Select Research Article Due – The student should identify and record the research article chosen for the Research Blog Post by completing the Canvas assignment "Select Research Article".

2) 1st Submission – This is not a rough draft, but rather is what the student considers the completed document.

3) Peer Review – The 1st submission will be shared with other graduate students in the class who will provide a peer review of the report by the due date listed in the course schedule. Each student will peer review two Research Blog Posts.

4) Final Submission – Students are expected to revise their Research Blog Posts per the "good" comments provided during the peer review process. The final report must be submitted by the due date shown in the course schedule.

A grading rubric has been provided at the end of this syllabus to facilitate development and peer review of the Research Blog Post. **Five points will be deducted from the final project score every day past the due dates that any of the information requested above is late, regardless of the excuse**. Please do not wait until the last minute to produce your blog post or meet any of the other deadlines. All points lost will be deducted from the final Research Blog Post grade.

Class Attendance and Make-Up Work: There will be a five-point deduction for assessments, critical thinking exercises or other assignments missed without prior approval from the instructor. You will not be able to make up assignments after the due date unless you email an instructor to reopen the assignment online. You will not lose points if you provide appropriate written documentation (e.g., from a doctor in case of severe illness or a funeral notice or obituary in the unfortunate event of the death of a close relative/friend) upon request to reopen an assignment you failed to complete by the due date. Requirements for class attendance and make-up assignments are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx. This is a distance education course, so attendance is not required.

Online Course Evaluation Process: Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the

University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment."*

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

We, the members of the University of Florida, pledge to hold ourselves and peers to the highest standards of honesty and integrity.

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,* **www.counseling.ufl.edu/cwc/**
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Wellness Coaching
- *Career Resource Center,* First Floor JWRU, 392-1601, **www.crc.ufl.edu/**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

For issues with technical difficulties for E-learning in Canvas: Please contact the UF Help Desk at:

- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- https://lss.at.ufl.edu/help.shtml

** Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Services for Students with Disabilities: The Disability Resource center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

0001 Reid Hall, 352-392-8565, **www.dso.ufl.edu/drc/**

UF Policy on E-mail: "Official University business email will be communicated to students using the University GatorLink email account. That is, official email will be sent exclusively to GatorLinkUserName@ufl.edu. The preferred email address recorded for all students will be the GatorLink address. This is the email address displayed in the online phonebook. Students may continue to use the forwarding mechanism to deliver their email to other mail services, if they wish. However, it is the student's responsibility to insure that the forwarding address is current so that they receive official communications from the University".

Software Use: All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Plagiarism: Plagiarism is a serious problem in academia today, especially with the ease of obtaining information from the World Wide Web. Plagiarism is defined as representing the words or ideas of another person as one's own, without attribution to the source. All words and ideas must be attributed to a source unless they are considered common knowledge (i.e., widely known by many people and found in many different sources). There are many kinds of plagiarism; one of the most common ones is "insufficient paraphrasing", even with correct citation. Please look at the Purdue Online Writing Lab's web site on Preventing Plagiarism (https://owl.purdue.edu/owl/teacher_and_tutor_resources/preventing_plagiarism/index.html).

Plagiarism is unethical, unacceptable in science, and prohibited by the UF Student Honor Code (https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/). The consequences for plagiarism while at the University of Florida range from receiving a grade of zero for the plagiarized assignment or a failing grade for the course, to, for repeated offenses, expulsion from the university. Plagiarism after graduate training calls into question one's scientific integrity and can lead to banning of publication in journals and the loss of jobs/careers. In some countries, it is an acceptable practice to write in a manner that faculty members at the University of Florida

consider to be plagiarism. Students studying in our university and with plans to publish their research in the English language need to know what plagiarism is and how to avoid it.

Students who plagiarize will be caught and consequences will be applied. I check all written assignments using an anti-plagiarism software called Turnitin®. Students who plagiarize will receive a grade of zero on the assignment. The second instance of plagiarism in the course will result in an automatic failing grade in the course.

Please understand that our purpose in bringing to your attention the matter of plagiarism is to help train you to be ethical scientists, not to impugn your character.

Student Complaint Process: Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. Should you have any complaints with your experience in this course, please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

Research Blog Post					
	Point Value[1]				
CATEGORY	10	7	5	3	0
Components of the blog post[2]	All required elements are present and additional elements that add to the blog post (e.g., thoughtful comments, graphics) have been added.	All required elements are present.	One required element is missing, but additional elements that add to the blog post (e.g., thoughtful comments, graphics) have been added.	Some required elements are missing.	Many (over half) required elements are missing.
Spelling, Punctuation and Grammar	No errors in spelling, punctuation and grammar in the blog post.	Minor errors (1-3) in spelling, punctuation and grammar in the blog post.	Moderate errors (4-6) in spelling, punctuation and grammar in the blog post.	Considerable errors (7-9) in spelling, punctuation and grammar in the blog post.	A significant number (>9) of spelling, punctuation and grammar errors are present in the blog post.
Appearance and Organization	Blog post uses headings and subheadings to visually organize the material. Additional steps have been taken to make the blog post visually pleasing.	Blog post uses headings and subheadings to visually organize the material. Some additional steps have been taken to make the blog post visually pleasing.	Blog post formatting does not help visually organize the material.	Blog post looks sloppy, with poor formatting and poor organization.	Blog post is sloppy, illegible, and poorly formatted and organized.
Topic Concepts[3]	Blog post illustrates an accurate and thorough understanding of the concepts associated with the research article	Blog post illustrates an accurate understanding of most concepts associated with the research article.	Blog post illustrates a limited understanding of concepts associated with the research article	Blog post illustrates inaccurate understanding of concepts associated with the research article	Blog post illustrates no understanding of concepts associated with the research article

Topic Jargon[4]	Blog post illustrates an accurate knowledge and use of jargon associated with the research article.	Blog post illustrates an accurate knowledge and use of most jargon associated with the topic. The student uses most jargon correctly.	Blog post illustrates a limited knowledge and use of jargon associated with topic. The student uses only some jargon correctly.	Blog post illustrates incomplete knowledge and use of jargon associated with the topic. The student regularly misuses topic-related jargon.	Blog post illustrates no knowledge and/or use of jargon associated with the topic. The student always misuses topic-related jargon.
Drawings, Diagrams, Tables and Figures (collectively called "accompanying materials")	Clear, accurate accompanying materials are included and make the blog post easier to understand. The accompanying materials are labeled neatly and accurately. All non-original accompanying materials are properly acknowledged.	Accompanying materials are included, labeled neatly and accurately, and the original source properly acknowledged.	Some needed accompanying materials are missing OR missing important labels OR the original sources are not identified.	Most needed accompanying materials are missing OR missing important labels OR the original sources not identified.	No accompanying material is present OR is missing important labeling OR credit information.

[1]**Point Value:** All submitted blog posts start with 15 points. So, there are 60 additional points that can be obtained (totaling 75 points). Intermediate points can be assigned for each category. For example, if a student's use of topic jargon lies between the highest (10 points) and 2nd highest (7 points) point values, 8-9 points can be awarded for that category as appropriate.
[2]**Components of the Blog Post:** The Research Blog Post must include a title, student name and email address. Furthermore, the
[3]**Topic Concepts:** The student must demonstrate an understanding of the concepts associated with the research article. For example, if the student writes a blog post based on a research article about small hive beetles, then the student would have to demonstrate an understanding of its biology, behavior, distribution and control (among other things) presented in research article.
[4]**Topic Jargon:** The technical terminology associated with the topic presented in the research article. Does the student demonstrate knowledge of the jargon associated with the topic by using it correctly?

Cover Sheet: Request 13519

MCB 4XXXL Virology Laboratory

Info

Process	Course|New|Ugrad/Pro
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Melissa Jones mmk@ufl.edu
Created	1/14/2019 10:49:50 AM
Updated	3/13/2019 7:57:28 AM
Description of request	New undergraduate laboratory in virology

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Microbiology and Cell Science 514910000	Eric Triplett		3/13/2019
UCC External Consultations_Jones_Virology Lab.pdf					2/22/2019
Virology Lab Syllabus.pdf					3/12/2019
College	Pending	CALS - College of Agricultural and Life Sciences			3/13/2019
No document changes					
University Curriculum Committee					
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 13519

Info

Request: MCB 4XXXL Virology Laboratory
Description of request: New undergraduate laboratory in virology
Submitter: Melissa Jones mmk@ufl.edu
Created: 3/12/2019 4:25:56 PM
Form version: 10

Responses

Recommended Prefix MCB
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code L
Course Title Virology Laboratory
Transcript Title Virology Lab
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No
Co-Listing Explanation N/A
Effective Term Earliest Available
Effective Year 2019
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 1

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description This is an upper division laboratory course covering basic virology assays used to generate, propagate and enumerate viruses using cell culture and molecular methods.
Prerequisites MCB3020L or MCB3023L
Co-requisites none
Rationale and Placement in Curriculum This course will educate students on the fundamental techniques for culturing and detecting viruses. This course will add to the laboratory courses currently offered in the Microbiology and Cell Science curriculum and provide students with additional training and a broader knowledge base.
Course Objectives 1. Maintain mammalian cells in laboratory culture and identify healthy, dying and virally infected cells.
2. Generate and cultivate viruses in culture.
3. Quantify virus concentration using infectious, genetic and antibody based methods.
4. Implement the use of proper controls within an experiment and employ standard data analysis software to analyze class-generated results.

Course Textbook(s) and/or Other Assigned Reading none
Weekly Schedule of Topics Module 1a (week 1): Introduction to cell culture
Module 1b (week 2): Counting cells, determining cell viability and calculating cell concentration
Module 1c (week 3): Maintaining cells in culture and plating cells for experimental use.
Module 2a (week4): Using cell culture to generate viruses
Module 2b (week 5): Plaque Assays for virus enumeration
Module 2c (week 6): TCID50 assay for virus enumeration
Module 2d (week 7): Determining multiplicity of infection (MOI) and analysis of Plaque Assay and TCID50 results

week 8: REVIEW SESSION
week 9: MIDTERM EXAM

Module 3a (week 10): Nucleic acid extraction
Module 3b (week 11): Detecting viruses using PCR
Module 3c (week 12): Gel electrophoresis
Module 4a (week 13) : Virus – antibody interactions, working with antibodies
Module 4b (week 14): ELISA

week 15: EXAM REVIEW
week 16: FINAL EXAM
Links and Policies Grading:

A	930 points or above (93% and above)	D+	630-679 (63.9 – 67.9%)
A-	890-939 (89.0 – 93.9%)	D	600-629 (60.0 – 62.9%)
B+	850-889 (85.0 – 88.9%)	D-	570-599 (57.0 – 59.9%)
B	810-849 (81.0 – 84.9%)	E	569 or below (56.9% and below)
B-	780-809 (78.0 – 80.9%)		
C+	750-779 (75.0% - 77.9%)		
C	710-749 (71.0 – 74.9%)		
C-	680-709 (68.0 – 70.9%)		

Grades and Grade Points: For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Attendance Policy and Make-ups: Laboratory attendance is required. Excused absences and make-up of missed work will follow UF policy. Further information regarding class attendance and make-up exams, assignments and other work can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

Online Course Evaluation Process: Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:
http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

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The university requires all members of its community to be honest in all endeavors. A fundamental principle is that the whole process of learning and pursuit of knowledge is diminished by cheating,

plagiarism and other acts of academic dishonesty. In addition, every dishonest act in the academic environment affects other students adversely, from the skewing of the grading curve to giving unfair advantage for honors or for professional or graduate school admission. Therefore, the university will take severe action against dishonest students. Similarly, measures will be taken against faculty, staff and administrators who practice dishonest or demeaning behavior. Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean or Student Honor Court.
(Source: 2007-2008 Undergraduate Catalog)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor. This policy will be vigorously upheld at all times in this course.

Software Use: All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.
We require for each student to have MS Office (Mac or PC) installed on their/a computers. Similar graphing programs are available for iPads and tablets
Microsoft Software for UF students
http://www.software.ufl.edu/

The Office of Information Technology has great news for University of Florida students! If you want to upgrade your operating system or need Microsoft Office Suite, this media will be available in the Spring 2011 semester. The different media available are: Windows 7 operating system Upgrade, Microsoft Office Professional Plus 2010 (32-bit/64-bit) for PC or Microsoft Office for Mac 2011. Software is free for UF students.
To check for availability of the media and technical requirements, contact the UF Computing Help Desk at (352)392-HELP(4357). Once the media is available, you can get it at the UF Computing Help Desk or at the UF Bookstore .
Other software training opportunities are available. For examples through Lynda.com
http://www.lynda.com/member.aspx

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. Both the Counseling Center and Student Mental Health Services provide confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance. The Counseling Center is located at 301 Peabody Hall (next to Criser Hall). Student Mental Health Services is located on the second floor of the Student Health Care Center in the Infirmary.

University Counseling Center, 301 Peabody Hall, 392-1575, www.counsel.ufl.edu
Career Resource Center, CR-100 JWRU, 392-1602, www.crc.ufl.edu/
Student Mental Health Services, Rm. 245 Student Health Care Center, 392-1171, www.shcc.ufl.edu/smhs/

Alcohol and Substance Abuse Program (ASAP)
Center for Sexual Assault / Abuse Recovery & Education (CARE)
Eating Disorders Program
Employee Assistance Program
Suicide Prevention Program

Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. 0001 Reid Hall, 392-8565, www.dso.ufl.edu/drc/

Grading Scheme Laboratory Assessment: Each student has the opportunity to earn 1000 total points. Points will be earned through quizzes, lab write-ups and a final exam. The point breakdown for each of these categories is outlined below.

- Attendance/Participation: 70 points (5 points per non-exam class period)

- Quizzes: 120 points (10 points each)
- Lab Write-up: 500 points (125 points each)
- Exams: 310 points (155 points each)

Attendance/Participation: Attendance to all laboratory sessions is mandatory and your instructor will record attendance. Should a conflict arise, notify your lab instructor in advance if possible and find arrangements to make up the missed material and quizzes. Unexcused absences will result in a zero for that day's attendance. You must e-mail your instructor within 24h before/after the missed lab to qualify for makeup opportunity and provide valid written excuse.

Quizzes: In-lab quizzes given at the beginning of class on and will cover the concepts and techniques to be discussed/performed during that lab period.

Lab Write-ups: Lab write-ups are based on lab exercises and will include presentation and discussion of the data gathered and application of the information learned in class. At times the write-ups will require the use of data generated in class. For write-ups where class data is compiled, lab groups are responsible for posting their data on Canvas in the format provided by the instructor by the deadline provided at the beginning of the module. A template for the expected format for the write-ups will be handed out at the beginning of the module and also posted on the course Canvas page. Lab Write-ups must be submitted via Canvas no later than 11:59 PM on the due date and will be graded in accordance with the rubric posted with the assignment.

Exams: There will be one midterm exam given during the semester and one final exam given during exam week. Each exam will consist of an online/written portion given through Canvas and a practical portion. These exams are mandatory and a review session will be held during the lab period prior to each exam.

Instructor(s) Dr. Melissa Jones

UF UNIVERSITY of FLORIDA

UCC: External Consultations

External Consultation Results (departments with potential overlap or interest in proposed course, if any)

Department	Name and Title
Plant Pathology	Jane E. Polston, Professor
Phone Number	**E-mail**
352-273-4627	jep@ufl.edu

Comments

This course teaches techniques/methods appropriate to viruses that are cultured in human or animal cells. Since plant viruses are cultured in plants, there is very little overlap between PLP 6223/4777 and this course. The only overlap is with 2 labs - ELISA and PCR. I don't think that will be a problem - these are standards techniques for virus detection and should be included in any lab class. Detection of viruses in animal cells and plant cells have different challenges so there is even less overlap than there might appear to be.

Department	Name and Title
Food Science and Human Nutrition	Sue Percival, Professor and Chair
Phone Number	**E-mail**
352-392-1991 x202	percival@ufl.edu

Comments

I'm ok with the course.

Department	Name and Title
Phone Number	**E-mail**

Comments

Virology Laboratory
(Course # - TBD) – 1 credit hour

Course Summary: This is an upper division laboratory course covering basic virology assays used to generate, propagate and enumerate viruses using cell culture and molecular methods.

Learning Objectives and Outcomes – After successful completion of this course, students will be able to:

1. Maintain mammalian cells in laboratory culture and identify healthy, dying and virally infected cells.
2. Generate and grow viruses in culture.
3. Detect and quantify viruses using infectious, genetic and antibody based methods.
4. Implement the use of proper controls within an experiment and employ standard analysis software to analyze class-generated results.

Laboratory Overview: This course will incorporate the use of online materials, in-lab lectures and hands-on activities to facilitate learning of course material. Canvas will be used to provide students with course materials, facilitate instructor communication, and exams. Students will be required to review course materials prior to class to ensure they have a base knowledge of the days activities. Short (5 min) quizzes on this material will be given at the beginning of class.

Laboratory Meeting Times: One day per week - TBD; Time - TBD

Material and Supply Fees: TBD

Instructor: Dr. Melissa Jones
Office: MCB 1148
Phone: 352-392-5923
Email: mmk@ufl.edu

Prerequisites: MCB3020L or MCB3023L

Office hours: Friday from 8-11 AM or by appointment. If an appointment is needed, send an e-mail with three suggested times and Dr. Jones will select a time.

Discussion Board: One of the most useful Canvas tools for communicating information is the discussion board. Dr. Jones will post commonly asked questions (and their answers). If you have general questions about the lab or a lab exercise, it is very likely that another student has the same question. Please post these questions on the discussion board. Postings and answers are monitored by the instructor and TAs to make sure no mistakes get propagated.

Textbook: There is no required textbook for the course

Laboratory Assessment: Each student has the opportunity to earn 1000 total points. Points will be earned through quizzes, lab write-ups and a final exam. The point breakdown for each of these categories is outlined below.

- Attendance/Participation: 70 points (5 points per non-exam class period)
- Quizzes: 120 points (10 points each)
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Exams: There will be one midterm exam given during the semester and one final exam given during exam week. Each exam will consist of an online/written portion given through Canvas and a practical portion. These exams are mandatory and a review session will be held during the lab period prior to each exam.

No cheating and plagiarism is allowed. If caught cheating or plagiarizing for particular assignment, project or exam. You will be reported to the Dean of Student office (DSO)!

Grading:

A	930 points or above (93% and above)	D+	630-679 (63.9 – 67.9%)
A-	890-939 (89.0 – 93.9%)	D	600-629 (60.0 – 62.9%)
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Microsoft Software for UF students

http://www.software.ufl.edu/

The Office of Information Technology has great news for University of Florida students! If you want to upgrade your operating system or need Microsoft Office Suite, this media will be available in the Spring 2011 semester. The different media available are: Windows 7 operating system Upgrade, Microsoft Office Professional Plus 2010 (32-bit/64-bit) for PC or Microsoft Office for Mac 2011. Software is free for UF students.

To check for availability of the media and technical requirements, contact the UF Computing Help Desk at (352)392-HELP(4357). Once the media is available, you can get it at the UF Computing Help Desk or at the UF Bookstore .

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Alcohol and Substance Abuse Program (ASAP)
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Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. 0001 Reid Hall, 392-8565, **www.dso.ufl.edu/drc/**

Topic	Date	Discussion	Activities	Assignment Due Dates
Module 1: Introduction to cell culture and virus propagation	Week 1 (Mod. 1a)	• Lab safety and biosafety • Importance of sterile technique • Proper use of a biosafety cabinet • Cell culture basics	• Using a light microscope to visualize cells • Determining cell culture confluency • Splitting/passaging cells	
	Week 2 (Mod. 1b)	• Counting cells • Determining culture concentration • Adjusting cell culture concentration for experimental use	• Using a hemocytometer to count cells • Assessing cell viability with trypan blue • Recognizing cell death • Calculating cell concentration and adjusting for experimental use	
	Week 3 (Mod. 1c)	• Healthy vs. unhealthy cells • Basics of viral replication inside host cells • Cytopathic Effect (CPE)	• Plating cells for experimental use • Evaluating CPE	
Module 2: Using cell culture to generate viruses and quantification of infectious viruses	Week 4 (Mod. 2a)	• Using cell culture to generate viruses • Principles of transfection	• Transfection assay	• Module 1 Write-up Due
	Week 5 (Mod. 2b)	• Viral Replication • • Quantifying virus using Plaque assay	• Bacteriophage Plaque Assay	
	Week 6 (Mod. 2c)	• Importance of using mock infected and positive control infected cells • Quantifying virus using $TCID_{50}$ assay	• $TCID_{50}$ assay to quantify virus generated by transfection • Read Plaque Assay	
	Week 7 (Mod. 2da)	• Determining Multiplicity of Infection (MOI) • Review cytopathic Effect (CPE) • Data analysis and graphing	• Read $TCID_{50}$ plates • Using $TCID_{50}$ and Plaque assay results to calculate virus concentration	

	Week 8	Review Session		
	Week 9	Midterm Exam		
Module 3: Detecting viruses using PCR	Week 10 (Mod. 3a)	• Nucleic acid extraction • Review cytopathic Effect (CPE)	• Nucleic acid extraction	• Module 2 Write-up Due
	Week 11 (Mod. 3b)	• Review of PCR principles • Using PCR to detect viruses • Importance of standards and controls	• PCR	
	Week 12 (Mod. 3c)	• Gel electrophoresis	• Gel electrophoresis	
Module 4: Detecting and quantifying viruses using ELISA	Week 13 (Mod. 4a)	• Antibodies for viral detection vs quantification • Principles of ELISA • Importance of standard curves and their use	• ELISA set up • working with antibodies	• Module 3 Write-up Due
	Week 14 (Mod. 4b)	• Analysing ELISA results	• Performing ELISA	
	Week 15	Exam Review		• Module 4 Write-up Due
		Final Exam		

(8)

Cover Sheet: Request 13754

PLS2003C Plants that Feed the World

Info

Process	Course|Modify|Ugrad/Pro
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	James Estrada estradaj@ufl.edu
Created	3/14/2019 3:25:55 PM
Updated	3/17/2019 1:58:25 PM
Description of request	Course title and description change. This course is being updated to meet the Quest 2 initiative learning objectives and pedagogical standards.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Agronomy 514908000	Diane Rowland		3/17/2019
Q2 - Estrada Syllabus.docx					3/14/2019
College	Pending	CALS - College of Agricultural and Life Sciences			3/17/2019
No document changes					
University Curriculum Committee					
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|Modify for request 13754

Info

Request: PLS2003C Plants that Feed the World
Description of request: Course title and description change. This course is being updated to meet the Quest 2 initiative learning objectives and pedagogical standards.
Submitter: James Estrada estradaj@ufl.edu
Created: 3/14/2019 3:09:05 PM
Form version: 1

Responses

Current Prefix PLS
Course Level 2
Number 003
Lab Code C
Course Title Plants that feed the world
Effective Term Fall
Effective Year 2019
Requested Action Other (selecting this option opens additional form fields below)
Change Course Prefix? No

Change Course Level? No

Change Course Number? No

Change Lab Code? No

Change Course Title? Yes
Current Course Title Plants that feed the world
Proposed Course Title Living and Eating on Earth
Change Transcript Title? Yes

Proposed Transcript Title (21 char. max) Living on Earth
Change Credit Hours? No

Change Variable Credit? No

Change S/U Only? No

Change Contact Type? No

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Maximum Repeatable Credits 3
Change Course Description? Yes
Current Course Description Plants that Feed the World provides a broad introduction to the 25 most important food crops that feed the majority of humans today. This is an introductory course for majors and non-majors who have no previous academic experience with food crop plants. The course introduces the interaction of humans and food crop plants and the role of food crops in the development of societies, along with botanical and morphological characteristics of these crops, soil

and climatic adaptations, major producers and consumers, nutritional attributes, processing needs, and the cultural factors influencing use and production. Students are expected to be able to identify the crops and their seeds, know the role of these plants in the world's food supply, where these crops are grown, where they originated and how they are utilized in various cultures. Plant identification will be a core requirement and will include the wild relatives and centers of origin of important food crops to emphasize the role of selection and plant breeding in modern crop development.

Proposed Course Description (50 words max) This class examines the complex relationship between humans, their food, and the environment that sustains them both. Major themes include agriculture and environmental policies, global trends in population growth, climate change and food security, and how personal and cultural perceptions of food affect trends in consumption and conservation.
Change Prerequisites? No

Change Co-requisites? No

Rationale Course is being updated to adhere to Quest 2 program objectives. It was approved as a Quest 2 course on 3/3 2019.

Living and Eating on Earth

PLS 2003C: Section XX
Time: M-W-F Period 4 (10:40 – 11:30)
Location: McCarty Hall B 3096
Spring 2020

Instructor:
James Estrada
3121 McCarty Hall B
Phone: 352-294-1588
estradaj@ufl.edu
Office Hours: TBD

Teaching Assistants:
Please contact through Canvas site
TDB

Course Description:
How can we feed a global population that could exceed 10 billion by 2050? Can we increase food production while still protecting the environment? This class examines the complex relationship between humans, their food, and the environment that sustains them both. Students will explore these themes through reflection on personal beliefs and behaviors, analysis of pressing agricultural and environmental issues, and evaluation of potential solutions for sustainable production. Major themes include agriculture and environmental policies, global trends in population growth, climate change and food security, and how personal and cultural perceptions of food affect trends in consumption and conservation.

Course Delivery:
Monday classes will focus on direct content delivery, while Wednesday and Friday will consist of literature/case-study discussions and group activities, respectively. Lectures will introduce core knowledge of the week's topic and ensure timely achievement of course objectives. The weekly literature/case-study discussions (led by the instructor and/or TA) will build on lecture content by introducing qualitative and quantitative data analysis and experiential learning through real-life problem assessment. While lectures and discussions emphasize identifying and understanding major course themes, group activities challenge students to synthesize this information and create novel solutions for international dilemmas.

General Education Objectives and Learning Outcomes:
This course is a Biological Sciences (B) subject area course in the UF General Education Program. Biological science courses provide instruction in the basic concepts, theories, and terms of the scientific method in the context of the life sciences. Courses focus on major scientific developments and their impacts on society, science and the environment, and the relevant processes that govern biological systems. Students will formulate empirically-testable hypotheses derived from the study of living things, apply logical reasoning skills through scientific criticism, and argument and apply techniques of discovery and critical thinking to evaluate outcomes of experiments.

This course also includes an International (N) designation. This designation is always in conjunction with another program area: International courses promote the development of students' global and intercultural awareness. Students examine the cultural, economic, geographic, historical, political, and/or social experiences and processes that characterize the contemporary world, and thereby comprehend the trends, challenges, and opportunities that affect communities around the world. Students analyze and reflect on the ways in which cultural, economic, political, and/or social systems and beliefs mediate their own and other people's understanding of an increasingly connected world.

These general objectives will be accomplished through:

- Exposing students to global concepts linking society, food resources, and the environment.
- Evaluation and critique of personal beliefs and behaviors, current challenges of global food security and environmental sustainability, and potential scientific and societal solutions for improving agricultural sustainability and international food availability and nutrition.
- Enhancing critical communication skills by presenting project results via multiple modalities, including written reports, poster presentations, student-led activities, and group seminar-style presentations.

At the end of this course, students will be expected to have achieved the following learning outcomes in content, communication and critical thinking:

- **Content**: *Students demonstrate competence in the terminology, concepts, theories, and methodologies used within the discipline.* Students will acquire fundamental knowledge regarding modern agriculture, current/past US environmental challenges, global food security, and societal perceptions of food and nutrition. Key principles of the scientific method, experimental design, and data interpretation will also be discussed. Achievement of this learning outcome will be assessed through four multiple choice and short answer quizzes (fact checks), discussion and review of primary literature and case-studies pertaining to core course themes, and a field research experience essay.
- **Communication**: *Students communicate knowledge, ideas, and reasoning clearly and effectively in written and oral forms appropriate to the discipline.* Students will participate in group projects at the end of each four-week course module. These activities will challenge students to synthesize course information to develop and present novel solutions for real-world problems. Achievement of his learning outcome will be assessed through four group projects, including a written report, a poster presentation, and an in-class group presentation.
- **Critical Thinking**: *Students analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems.* Students will critically analyze the intersection of society's perception of food and public health, including nutrition, access to food resources, and disease. Synthesis of course lectures and activities will be used to develop a proposal for leveraging modern agriculture practices and technologies to sustainably feed a growing human population. Achievement of this learning outcome will be assessed through group projects, paper reviews, and the field research experience essay.

Required Text:
Gliessman, S. (2015). Agroecology: The ecology of Sustainable food systems, 3rd Edition. (ISBN 9781439895610) Boca Raton: CRC Press, https://doi.org/10.1201/b17881

Selected Readings:
Cottrell, R.S., K.L. Nash, J.L. Blanchard. 2019. Food production shocks across land and sea. Nature Sustainability. 1:1-8

Hendrickson, A.W. 2015. A paradigm shift in use and management of United States public lands for livestock grazing. Animal Frontiers. 5:36-42.

Lusk, Jayson. 2016. "Why industrial farms are good for the environment." *New York Times*, September 25, 2016. Pp:SR4.

Mehrabi, A., E.C. Ellis, N. Ramankutty. 2018. The challenge of feeding the world while conserving half the planet. Nature Sustainability. 1:409-412.

Wezel, A., Bellon, S., Dore, T., Francis, C., Vallod, D., David, C. 2009. Agroecology as a science, a movement, and a practice. A review. Agronomy Journal. 29:503-515.

Other selected readings from peer-reviewed journals and popular media sources will be selected by the

instructor based on current research and relevant news. These readings will be used for weekly literature discussions and student paper reviews (see assignments below).

Course Schedule (Modules and weeks):

Module 1: Agriculture and the Environment

1. History of Agriculture in the US
2. Plants That Feed Us
3. Agricultural and Environmental Movements
4. Environmental Challenges

Group Project 1: The Perfect Farm

Module 2: Feeding the World

5. The Population Problem
6. Global Food Production
7. Food Security and Conservation
8. Crops of the Future

Group Project 2: Food for Everyone

Module 3: People and Their Food

9. Perceptions of Food and Agriculture
10. Global Food Availability
11. Nutrition, Health, and Culture
12. Changing How We See Food

Group Project 3: Making Food Great Again

Module 4: Our Challenge

13. Putting the Pieces Together
14. The Challenge
15. Potential Solutions and Outcomes

Group Project 4: The Best Way Forward

Evaluation of Grades:

Requirement	Points each	Total Points
Fact Checks (4)	50	200
Group Module Projects (4)	100	400
Paper Reviews (4)	50	200
Field Experience Essay	200	200
Total Points		**1000**

Assessment Descriptions:

- **Four Fact Checks**: These brief quizzes will be completed at the end of the second week of each four-week module. Fact Checks will cover two weeks of material and focus on core concepts covered in lectures and in-class discussions. These assessments will be completed through Canvas and consist of multiple choice and short answer.
- **Group Module Projects**: These group assessments will be due at the end of each four-week module. The project topics are as follows: *Project 1 – The Perfect Farm; Project 2 – Food for Everyone; Project 3 - Making Food Great Again; and Project 4 - The Best Way Forward.* Project 1 will be a 3-page group report, project 2 a group poster presentation, project 3 an in-class group presentation (15 minutes), and project 4 will be the group's choice.

- **Paper Reviews**: Paper reviews should be a 1-page summary and analysis of a weekly reading assignment. Students can select any one of the four papers discussed per module but must submit one review for each module topic. Summaries must be submitted prior to in-class discussion. A grading rubric and sample review will be provided.
- **Field Research Experience**: As a requirement for the lab component of the course, students will participate in a field trip to the Plant Science Research and Education Unit (PSREU) in Citra Florida. The class will be given an in-depth tour of the facility with discussion focused on the following themes: 1) The pros and cons of conventional and organic farming systems, 2) the advantages and limitations of field and greenhouse studies, and 3) the need for a multidisciplinary approach when addressing complex agricultural issues. Knowledge gained from this experience will be used to complete a two-page proposal for a novel research experiment that could be conducted at the PSREU to answer a question concerning the environmental impacts of agriculture or enhancing food production. The report will include the following components: Research question, hypothesis, general experimental design, data collected, and potential application of findings. A grading rubric will be provided.

Grading Scale:

Score	Percent	Grade	Grade Points
943-1000	93.4-100	A	4.00
900-933	90.0-93.3	A-	3.67
867-899	86.7-89.9	B+	3.33
843-866	83.4-86.6	B+	3.00
800-833	80.0-83.3	B-	2.67
767-799	76.6-79.9	C+	2.33
734-766	73.4-76.6	C	2.00
700-733	70.0-73.3	C-	1.67
667-699	66.7-69.9	D+	1.33
634-666	63.4-66.6	D	1.00
600-633	60-63.3	D-	0.67
0-599	0-59.9	E	0.00

A minimum grade of C is required for general education credit.
More information on grades and grading policies is here:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Class Attendance and Make-Up Policy
Class attendance is expected. Each unexcused absence will result in a 10-point reduction in the final grade. Excused absences are consistent with university policies in the undergraduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation.

Late essays or incomplete presentations will not be accepted. Makeup quiz dates will be provided for students who miss either exam due to extreme, documented circumstances. Students should arrange with the instructor for makeup material, and the student will receive one week to prepare for any makeup assignment, if circumstances allow it.

Students Requiring Accommodations Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be

presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation
Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Class Demeanor
Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

Materials and Supplies Fees
There are no additional fees for this course.

University Honesty Policy
UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conducthonor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Counseling and Wellness Center
Contact information for the Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Cover Sheet: Request 13787

PLS4941 Course Description

Info

Process	Course|Modify|Ugrad/Pro
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Danae Perry d.perry@ufl.edu
Created	3/21/2019 3:35:39 PM
Updated	3/21/2019 3:46:30 PM
Description of request	Request to update the PLS4941 course description to more accurately represent the purpose and expectations of the course.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Environmental Horticulture 514918000	Dean Kopsell		3/21/2019
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			3/21/2019
No document changes					
University Curriculum Committee					
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|Modify for request 13787

Info

Request: PLS4941 Course Description
Description of request: Request to update the PLS4941 course description to more accurately represent the purpose and expectations of the course.
Submitter: Danae Perry d.perry@ufl.edu
Created: 2/18/2019 2:17:08 PM
Form version: 1

Responses

Current Prefix PLS
Course Level 4
Number 941
Lab Code None
Course Title Practical Work Experience
Effective Term Earliest Available
Effective Year Earliest Available
Requested Action Other (selecting this option opens additional form fields below)
Change Course Prefix? No

Change Course Level? No

Change Course Number? No

Change Lab Code? No

Change Course Title? No

Change Transcript Title? No

Change Credit Hours? No

Change Variable Credit? No

Change S/U Only? No

Change Contact Type? No

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Maximum Repeatable Credits 3
Change Course Description? Yes
Current Course Description PLS 4941 Practical Work Experience, 1-3 credits

Practical, hands-on experience in the plant sciences through a paid internship in the industry. This must be a new experience and related to the student's field of study. One month of full-time work is required for each credit.

Prereq: junior standing and AG-PLS major.

Proposed Course Description (50 words max) A hands-on professional experience in plant sciences in a paid plant industry or research internship. Must relate to student's field of study within Plant Science. One credit per 160 hours of work and 3 credits required for graduation. Single or multiple experiences permitted. Approval of internship required prior to enrollment.

Change Prerequisites? No

Change Co-requisites? No

Rationale These changes were decided on by the Plant Science Committee to more clearly reflect the course's purpose and expectations.

(10)

Cover Sheet: Request 13553

Microbial and Cellular Bioinformatics

Info

Process	Certificate|New|Grad|Revised
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Bryan Kolaczkowski bryank@ufl.edu
Created	1/29/2019 6:48:19 PM
Updated	3/13/2019 10:48:48 AM
Description of request	New graduate certificate in microbial and cellular bioinformatics

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Microbiology and Cell Science 514910000	Eric Triplett		3/13/2019
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			3/13/2019
No document changes					
OIPR					
No document changes					
Graduate Council					
No document changes					
Graduate School Notified					
No document changes					
University Curriculum Committee Notified					
No document changes					
Office of the Registrar					
No document changes					
OIPR Notified					
No document changes					
Academic Assessment Committee Notified					
No document changes					
Student Academic Support System					
No document changes					
College Notified					
No document changes					

Certificate|New for request 13553

Info

Request: Microbial and Cellular Bioinformatics
Description of request: New graduate certificate in microbial and cellular bioinformatics
Submitter: Bryan Kolaczkowski bryank@ufl.edu
Created: 2/27/2019 10:58:32 AM
Form version: 6

Responses

Certificate Name Microbial and Cellular Bioinformatics
Transcript Title Micro and Cell Bioinformatics
Credits 14
Level Graduate
CIP Code 26.1103
Degree Program Bioinformatics
Effective Term Fall
Effective Year 2019
Certificate Description This graduate certificate provides students in the biological sciences with a structured course of study investigating the foundational concepts, techniques and tools used for bioinformatics analyses applicable to microbial biology, molecular biology and cell science.
Requirements for Admission For admission to this graduate certificate program, students must have:

A Bachelor of Arts (BA) or Bachelor of Science (BS) degree from a regionally accredited US institution or an international equivalent undergraduate degree.

A strong foundation in biological sciences, computational sciences and/or statistics, such as coursework related to microbiology, biology, computer science and statistics or mathematics.

No GREs are required, and students are allowed to enroll one semester at a time with no long-term commitment or time limit. Students are not required to enroll in a UF graduate degree program to complete the certificate. Up to 15 completed credits earned with a grade of B or better, however, may potentially be applied to a future advanced degree in Microbiology and Cell Science at UF, provided those credits comply with all Graduate Council policies governing transfer credit. Enrolled graduate students can earn this certificate to complement their current M.S. or Ph.D. degree programs.
Requirements for Completion Required Courses (9 credits total):
BSC6459, Fundamentals of Bioinformatics, 3 credits, letter-graded.
BSC6438, R for Functional Genomics, 3 credits, letter-graded
MCB6670C, The Microbiome, 3 credits, letter-graded

Elective Courses (2 courses from the following list, 5-6 credits)
MCB6937, Human Genomics, 3 credits, letter-graded
MCB6318, Comparative Microbial Genomics, 2 credits, letter-graded
STA6093, Introduction to Applied Statistics for Agricultural and Life Sciences, 3 credits, letter-graded
CAP5510, Bioinformatics, 3 credits, letter-graded
CAP5515, Computational Molecular Biology, 3 credits, letter-graded

Students must have a C or higher in all courses to complete the certificate.

Students must have a 3.0 overall GPA or higher to receive the certificate.

Course Descriptions:

BSC 6459: Fundamentals of Bioinformatics
Fall
Credits: 3 Grading Scheme: Letter
An introduction to the basic bioinformatics tools used in computational biology for life science

research. The course will use web-based resources that analyze gene and protein sequences as pertinent data examples.

BSC 6438: R for Functional Genomics
Fall
Credits: 3 Grading Scheme: Letter
Prerequisite: BSC2010 or BSC2011 or MCB3020 or MCB3023 or BCH4024 or CHM3218 or equivalent AND STA6166 or STA6167 or equivalent.
Introductory course to the basics of the R language and to state of the art methods for functional genomics data analysis. Students will learn how to write R scripts, choose appropriate statistical tools and how to use linux environments to analyse
high-throughput genomics data.

MCB 6670C: The Microbiome
Spring
Credits: 3 Grading Scheme: Letter
Prerequisite: MCB 3020 or MCB 3023 with minimum grades of C.
Increase knowledge, appreciation and use of genomics pertaining to the breadth of microbial diversity across a wide variety of organisms and habitats using methods that do not require culturing of the myriad of inhabitants. Students will use tools, practice analysis and interpretation of genomic data sets to analyze different microbiomes.

MCB 6937: Human Genomics
Fall
Credits: 3 Grading Scheme: Letter
Prerequisite: Two semesters of college biology or equivalent, M.S. or Ph.D. student in a life sciences program
Increasingly, researchers and health care providers are mining the genome to uncover the basis of disease susceptibility and treatment. Genome-based strategies are used for the detection, treatment, and prevention of many diseases. This course will discuss the field of genomics, how genome sequence data is obtained and analyzed, and most importantly, what can be learned from an individual's genome. The course will address cutting-edge research in epigenetics, pharmacogenomics, molecular diagnostics, and the microbiome. The course will also include timely topics such as GMO's, stem cells, genetic testing and genome editing. This course will reinforce fundamental concepts in molecular biology and genetics.

MCB 6318: Comparative Microbial Genomics
Spring
Credits: 2 Grading Scheme: Letter
Prerequisite: PCB 4522 and a working knowledge of basic bioinformatic tools.
Methods to allow experimental scientists to efficiently use genomic and post-genomic data that is publicly available. Examples taken primarily from the field of microbial metabolism and regulation.

STA 6093: Introduction to Applied Statistics for Agricultural and Life Sciences
Fall,Spring
Credits: 3 Grading Scheme: Letter
Provides students with a conceptual and practical understanding of the application of statistics in the agricultural and life sciences. A combination of lectures, programming demonstrations, data exercises using the programming language R, group activities, and primary literature will be used.

CAP 5510: Bioinformatics
Fall
Credits: 3 Grading Scheme: Letter
Prerequisite: CIS 3020 or equivalent.
Basic concepts of molecular biology and computer science. Sequence comparison and assembly, physical mapping of DNA, phylogenetic trees, genome rearrangements, gene identification, biomolecular cryptology, and molecular structure prediction.

CAP 5515: Computational Molecular Biology
Spring
Credits: 3 Grading Scheme: Letter
Algorithms related to molecular biology. Sequence comparisons, pattern matching, pattern extraction,

graph techniques in phylogeny construction, secondary structure prediction, multiple sequence alignment, contig search, DNA computing, computational learning theory, and genetic algorithms.

Suggested Coursework Plan:

Fall (9 credits)
BSC 6459: Fundamentals of Bioinformatics (3 credits)
BSC 6438: R for Functional Genomics (3 credits)
Fall Elective (3 credits):
MCB 6937: Human Genomics or
STA 6093: Introduction to Applied Statistics for Agricultural and Life Sciences or
CAP 5510: Bioinformatics

Spring (5-6 credits)
MCB 6670C: The Microbiome (3 credits)
Spring Elective:
MCB 6318: Comparative Microbial Genomics (2 credits) or
STA 6093: Introduction to Applied Statistics for Agricultural and Life Sciences (3 credits; can only be taken once) or
CAP 5515: Computational Molecular Biology (3 credits)

Rationale and Place in Curriculum Bioinformatic analysis has become a cornerstone of modern biology and plays particularly important roles in current research programs in microbiology and cell science. Success in many industry and graduate/professional programs requires students to have strong foundational knowledge and working experience with bioinformatics.

The proposed graduate certificate provides graduate students in the biological sciences and professionals working in industry or government jobs with a structured course of study, allowing them to develop the understanding and practical experience in bioinformatics needed to pursue advanced research and professional work in microbiology, molecular biology and/or cell science. Having the certificate on the transcript will allow students to directly and effectively communicate their course of study in bioinformatics to potential employers.

The proposed certificate is expected to allow MS and PhD students from across biology-related disciplines to pursue a structured course of study in bioinformatics concurrent with their program's course requirements, allowing students to develop understanding and skills in bioinformatics in support of their primary graduate-program goals. Additionally, the proposed certificate is expected to provide industry and government professionals meeting the admissions criteria to develop additional bioinformatics skills related to their employment or career goals.

The proposed certificate is expected to enhance the quality of existing programs in Microbiology and Cell Science by providing students a structured course of study for developing an important knowledge base and skillset applicable to a wide variety of specializations within the field and across the biological sciences.

In our view, there is no significant overlap of the proposed certificate program with any existing certificate or program at UF.
Student Learning Outcomes After successfully completing this graduate certificate, students will be able to:

Use common bioinformatics tools to solve analysis problems in microbiology and molecular biology (BSC6459, assessed in this course through final project by single faculty member)

Assess the validity of results produced by bioinformatics tools (BSC6459, assessed in this course through final project by single faculty member)

Solve bioinformatics problems using computer programming languages (BSC6438, assessed in this course through final project by single faculty member)

Design and conduct a statistical analysis pipeline to analyze functional genomic data (BSC6438, assessed in this course through final project by single faculty member)

Compare and contrast the appropriateness of various omics-level data for addressing questions in environmental and medical microbiology (MCB6670C, evaluated in this course through final project and exams by single faculty member)

Design and execute a computational analysis pipeline for analyzing microbiome data (MCB6670C, evaluated in this course through final project and exams by single faculty member)

Depending on the elective chosen, students will also have the opportunity to develop additional knowledge and skills in:

Genomics (MCB6937, MCB6318)
Statistics (STA6093)
Bioinformatics Algorithms (CAP5510, CAP5515)

Which will be assessed in each course by individual course instructors.

Cover Sheet: Request 13830

Certificate of Plant Pest Risk Assessment and Management-Modification Request

Info

Process	Certificate|Close/Modify|Grad|Revised
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Amanda Hodges achodges@ufl.edu
Created	4/4/2019 8:29:55 AM
Updated	4/4/2019 10:47:20 AM
Description of request	The request reduces the credit hour requirements for the Certificate of Plant Pest Risk Assessment and Management from 16 to 10 credits. The 10 credits listed for the modified curriculum are the original core courses listed within the certificate.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Entomology and Nematology 514914000	Heather Mcauslane		4/4/2019
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			4/4/2019
No document changes					
Graduate Council					
No document changes					
Graduate School Notified					
No document changes					
University Curriculum Committee Notified					
No document changes					
Office of the Registrar					
No document changes					
OIPR Notified					
No document changes					
Academic Assessment Committee Notified					
No document changes					
Student Academic Support System					
No document changes					
College Notified					
No document changes					

Certificate|Close-Modify for request 13830

Info

Request: Certificate of Plant Pest Risk Assessment and Management-Modification Request
Description of request: The request reduces the credit hour requirements for the Certificate of Plant Pest Risk Assessment and Management from 16 to 10 credits. The 10 credits listed for the modified curriculum are the original core courses listed within the certificate.
Submitter: Amanda Hodges achodges@ufl.edu
Created: 4/4/2019 8:07:24 AM
Form version: 1

Responses

Current Certificate Name Plant Pest Risk Assessment and Management
Effective Term Earliest Available
Effective Year Earliest Available
Requested Action Other (selecting this option will open additional form fields below)
Change Certificate Name? No
Proposed Certificate Name Plant Pest Risk Assessment and Management
Change Certificate Name on Transcript? No
Current Transcript Name Plant Pest Risk Assessment and Management
Proposed Transcript Name (21 char. max) PPRAM
Change Credit Hours? Yes
Current Credit Hours more than 12 (please detail in description how many credits)
Proposed Credit Hours 10
Change Certificate Description? Yes
Current Certificate Description The mobility of plant pests and plant diseases poses significant risks to world food and fiber production. The movement of pests and diseases can best be managed when the potential risks of relocation and the potential impact are understood. This certificate program goal is to equip graduate students, especially those in the Doctor of Plant Medicine (DPM) Program, to work in the regulatory sector on management of plant pests and disease risk.
Proposed Certificate Description (50 word max) Exciting career opportunities in plant pest regulation occur at the federal (U.S.), state government, and international level. The University of Florida Graduate Certificate in Plant Pest Risk Assessment and Management will further your knowledge of regulatory plant health programs and policies.
Change Certificate Prerequisites? No
Current Prerequisites Completion of a baccalaureate degree and admission criteria for the UF graduate school.
Proposed Prerequisites Completion of a baccalaureate degree and admission criteria for the UF graduate school.
Change Certificate Requirements? Yes
Current Requirements Current Core Courses/Internships (10 Credits)
.
1. Principles of Plant Pest Risk Assessment and Management, ALS 6942, 3 credits
2. Colloquium on Plant Pests of Regulatory Significance, ALS 6921, 1 credit
3. Internship in Plant Pest Risk Assessment and Management, ALS 6943, 6 credits

Elective Courses (at least 6 credits)
Students must select at least one course from each group
Group 1 – Technical (3 credits)
1. Exotic Species and Biosecurity Issues, ALS 6166, 3 credits
2. Epidemiology of Plant Disease, PLP 6404, 4 credits
3. GIS and Remote Sensing in Agriculture and Natural Resources, AOM 5431, 3 credits

Group 2 – Policy (3 credits)
1. Special Topics, AEB 6933, 1-6 credits
2. Ag and Natural Resources Communications Theory and Strategy, AEC 6540, 3 credits
3. Environmental Institutions and Regulations, ENV 6932P, 3 credits
4. Environmental Policy, ENV 5075, 3 credits
5. Special Problems in Environmental Engineering, ENV 6932, 1-4 credits

6. Natural Resources and Environmental Policy, ENV 6932, 3 credits
7. Policy Evaluation, PUP 6006, 3 credits
8. Policy Process, PUP 6007, 3 credits
9. Public Opinion and Agricultural and Natural Resource Issues, AEC 5060, 3 credits
10. Public Policy Analysis, PUP 6009, 3 credits
11. Public Policy and Agribusiness Firm, AEB 6225, 3 credits

Proposed Requirements Proposed Requirements
1. Principles of Plant Pest Risk Assessment and Management, ALS 6942, 3 credits
2. Colloquium on Plant Pests of Regulatory Significance, ALS 6921, 1 credit
3. Internship in Plant Pest Risk Assessment and Management, ALS 6943, 6 credits

Upon completion of 10 required core courses for the Certificate of Plant Pest Risk Assessment and Management and a comprehensive assessment, students will be awarded the certificate. The proposed certificate change reduces requirements to the essential regulatory plant health courses offered. All course offerings required for the certificate are available online.

Impact on Program The proposed changes to the Certificate of Plant Pest Risk Assessment and Management will
reduce certificate requirements to the core content currently assessed.
Rationale for Proposed Change(s) Requirements have been reduced to core content with proposed changes. It is anticipated that
the credit reduction from 16 to 10 credits will increase certificate enrollment for graduate students in discipline departments affiliated with the DPM program. The credit hour reduction will also improve certificate enrollment opportunity for DPM students.
Assessment Data Review The following student learning outcomes associated with the Certificate of Plant Pest Risk
Assessment and Management were reviewed as a component of this process:
1. Identify invasive pests and describe their biology and the diseases they cause.
2. Develop management options for invasive pests and diseases and methods to reduce invasiveness.
3. Describe risk assessment methodology.
4. Assimilate technical information related to invasive pests and diseases.
5. Conduct risk assessments using standard methodologies.
6. Communicate pest-related hazards impact on agriculture and natural resources.
It was determined that all student learning outcomes and program goals were achievable within the original core courses and internships available.
Academic Assessment Plan Changes As the student learning outcomes were met with the original core content and internship
requirement for the Certificate of Plant Pest Risk Assessment and Management, changes to the Academic Assessment Plan are not necessary.

(12)

Cover Sheet: Request 13805

Soil Ecosystem Services Graduate Certificate

Info

Process	Certificate|Close/Modify|Grad|Revised
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Michael Sisk mjsisk@ufl.edu
Created	3/27/2019 3:08:56 PM
Updated	3/28/2019 9:11:29 AM
Description of request	Revisions To Soil Ecosystem Services Graduate Certificate Program

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Soil and Water Science 514921000	Matthew Whiles		3/28/2019
Soil Ecosystem Services Graduate Certificate_Revised_3_27_19.pdf					3/27/2019
College	Pending	CALS - College of Agricultural and Life Sciences			3/28/2019
No document changes					
Graduate Council					
No document changes					
Graduate School Notified					
No document changes					
University Curriculum Committee Notified					
No document changes					
Office of the Registrar					
No document changes					
OIPR Notified					
No document changes					
Academic Assessment Committee Notified					
No document changes					
Student Academic Support System					
No document changes					
College Notified					
No document changes					

Certificate|Close-Modify for request 13805

Info

Request: Soil Ecosystem Services Graduate Certificate
Description of request: Revisions To Soil Ecosystem Services Graduate Certificate Program
Submitter: Michael Sisk mjsisk@ufl.edu
Created: 3/27/2019 2:46:22 PM
Form version: 1

Responses

Current Certificate Name Soil Ecosystem Services
Effective Term Earliest Available
Effective Year Earliest Available
Requested Action Other (selecting this option will open additional form fields below)
Change Certificate Name? No
Proposed Certificate Name Soil Ecosystem Services
Change Certificate Name on Transcript? No
Current Transcript Name Soil Ecosystem Services
Proposed Transcript Name (21 char. max) Soil Ecosystem Servic
Change Credit Hours? No
Current Credit Hours 12
Proposed Credit Hours 12
Change Certificate Description? No
Current Certificate Description The functions performed by ecosystems that ensure natural cycles (e.g. water, carbon, oxygen, and nitrogen), processes and energy flows continue to provide an environment that supports life, including human life. Learn about valuation of services provided by soils and ecosystems from local to global scales and sustainable land resource management.
Proposed Certificate Description (50 word max) The functions performed by ecosystems that ensure natural cycles (e.g. water, carbon, oxygen, and nitrogen), processes and energy flows continue to provide an environment that supports life, including human life. Learn about valuation of services provided by soils and ecosystems from local to global scales and sustainable land resource management.
Change Certificate Prerequisites? No
Current Prerequisites Applicants must have earned a Bachelor's degree. Students wishing to enroll in one of these
graduate certificate programs should have a bachelor's degree from an accredited college or university with a major in soil and water science or an equivalent degree in an allied field such as geology, natural resources, biology, ecology, hydrology, microbiology, environmental science, horticultural science, environmental engineering, agricultural engineering or agronomy. If your bachelor's degree is not in soil and water science or you don't have an equivalent degree in an allied field, you will generally have to complete pre-requisite courses at a local institution before applying for admission to the graduate certificate program. It is not necessary to be admitted to the Graduate School to earn a certificate, but students who later enroll in a graduate program may petition to transfer up to 15 UF graduate-level credit hours (grade B or better) to their graduate degree program.
Proposed Prerequisites Applicants must have earned a Bachelor's degree. Students wishing to enroll in one of these
graduate certificate programs should have a bachelor's degree from an accredited college or university with a major in soil and water science or an equivalent degree in an allied field such as geology, natural resources, biology, ecology, hydrology, microbiology, environmental science, horticultural science, environmental engineering, agricultural engineering or agronomy. If your bachelor's degree is not in soil and water science or you don't have an equivalent degree in an allied field, you will generally have to complete pre-requisite courses at a local institution before applying for admission to the graduate certificate program. It is not necessary to be admitted to the Graduate School to earn a certificate, but students who later enroll in a graduate program may petition to transfer up to 15 UF graduate-level credit hours (grade B or better) to their graduate degree program.
Change Certificate Requirements? Yes

Current Requirements The courses for the certificate are a total of four courses (2 core courses – 6 credits & 2 elective
courses – 6 credits)

Core Courses Required (Choose Two)

SWS 5050 Soils for Environmental Professionals, 3 credits, offered in the fall and spring

SWS 5234 Environmental Soil, Water, and Land Use, 3 credits, offered in the fall

SWS 6932 Forest & Soil Ecosystem Services, 3 credits, offered in the fall

Elective Courses (Choose Two)

SWS 5305C Soil Microbial Ecology, 3 credits, offered in the fall

SWS 5721C GIS in Land Resource Management, 3 credits, offered in the fall

SWS 6134 Soil Quality, 3 credits, offered in the fall of even years

SWS 6262 Soil Contamination and Remediation, 3 credits, offered in the fall
Proposed Requirements The courses for the certificate are a total of four courses (2 core courses – 6 credits & 2 elective
courses – 6 credits)

Core (Choose Two – Six Credits):

SWS 5050 – Soils for Environmental Professionals – 3 Credits – Letter Graded – Offered Every Fall and Spring Semester

SWS 5224 – Environmental Biogeochemistry – 3 Credits – Letter Graded – Offered Every Spring Semester

SWS 5234 – Environmental Soil, Water, and Land Use – 3 Credits – Letter Graded – Offered Every Fall semester.

Elective (Choose Two – Six Credits):

AGG 6503 – Nanotechnology in Food, Agriculture, and Environment – 3 Credits – Letter Graded – Offered Every Spring Semester

SWS 5305C – Soil Microbial Ecology – 3 Credits – Letter Graded – Offered Every Fall Semester

SWS 5551 – Soils, Water, and Public Health – 3 Credits – Letter Graded – Offered Every Spring Semester

SWS 5721C – GIS in Land Resource Management – 3 Credits – Letter Graded – Offered Every Fall Semester

SWS 6134 – Soil Quality – 3 Credits – Letter Graded – Offered Fall Semester Even Years

SWS 6262 – Soil Contamination and Remediation – 3 Credits – Letter Graded – Offered Every Fall semester

SWS 6932 – Forest and Soil Ecosystem Services – 3 Credits – Letter Graded – Offered Every Fall semester.
Impact on Program We have discussed these changes with the faculty that offer their courses as part of this graduate certificate program, as well as with our internal SWS Academic Programs Committee, the impact would be a positive (additional enrollment in this graduate certificate program and the courses that make up this graduate certificate program). Also, since already approved for self-funded/off-book status, generate additional income for the academic unit.

Rationale for Proposed Change(s) The rationale for the proposed change is based on requests from students that have completed and from those currently in this graduate certificate program. The current requirements for this graduate certificate program are heavily weighted towards Fall course offerings and we were having to constantly find course substitutes and make the substitutions into the degree audit. These changes will help alleviate these two issues, as well as re-balance the offerings within this graduate certificate program to allow for timely completion.
Assessment Data Review Student Learning Outcomes (SLOs):

Students earning the certificate will be able to:
1. Analyze the role of soils as long-term integrators of ecosystem processes and functions.

2. Quantify the role of soils in performing various ecosystem services including: providing nutrients to plants, carbon sequestration, retention of contaminants, and improving water quality.

3. Describe role of soils as sources and sinks for greenhouse gases (carbon dioxide, nitrous oxide, and methane).

4. Apply soil science principles to determine on how various management practices affect soil and water quality and identify best management practices to protect soil resources.
Academic Assessment Plan Changes Assessments:

Instructors of all core courses available in the certificate program will submit a minimum of 10 questions to assess student competency for the SLOs itemized above. Questions from courses selected for the certificate will be combined into a single on-line "certificate exam" by the Certificate Program Contact. Students are required to score a minimum of 80% to pass the exam. The exam may be taken repeatedly. In addition to the "certificate exam", student competency will be assessed as described in the individual course syllabi (e.g., course exams, term papers/projects, presentations, etc.)

Certificate|New|Grad|Revised

Form Name: **Certificate Revised**

Certificate Name Required

Soil Ecosystem Services

Transcript Title Required

Soil Ecosystem Services

Credits Required

12

Level Required

Graduate

CIP Code Required

60210000

Degree Program Required

Soil and Water Sciences

Effective Term Required

Fall

Effective Year Required

2019

Certificate Description Required

The functions performed by ecosystems that ensure natural cycles (e.g. water, carbon, oxygen, and nitrogen), processes and energy flows continue to provide an environment that supports life, including human life. Learn about valuation of services provided by soils and ecosystems from local to global scales and sustainable land resource management.

Requirements for Admission Required

Applicants must have earned a Bachelor's degree. Students wishing to enroll in one of these graduate certificate programs should have a bachelor's degree from an accredited college or university with a major in soil and water science or an equivalent degree in an allied field such as geology, natural resources, biology, ecology, hydrology, microbiology, environmental science, horticultural science, environmental engineering, agricultural engineering or agronomy. If your bachelor's degree is not in soil and water science or you don't have an equivalent degree in an allied field, you will generally have to complete pre-requisite courses at a local institution before applying for admission to the graduate certificate program. It is not necessary to be admitted to the Graduate School to earn a certificate, but students who later enroll in a graduate program may petition to transfer up to 15 UF graduate-level credit hours (grade B or better) to their graduate degree program.

Requirements for Completion Required

The courses for the certificate are a total of four courses (2 core courses – 6 credits & 2 elective courses – 6 credits)

Core (Choose Two – Six Credits):

SWS 5050 – Soils for Environmental Professionals – 3 Credits – Letter Graded – Offered Every Fall and Spring Semester

SWS 5224 – Environmental Biogeochemistry – 3 Credits – Letter Graded – Offered Every Spring Semester

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SWS 5234 – Environmental Soil, Water, and Land Use – 3 Credits – Letter Graded – Offered Every Fall semester.

~~**SWS 6932 – Forest and Soil Ecosystem Services** – 3 Credits – Letter Graded – Offered Every Fall semester.~~

Elective (Choose Two – Six Credits):

AGG 6503 – Nanotechnology in Food, Agriculture, and Environment – 3 Credits – Letter Graded – Offered Every Spring Semester

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SWS 5305C – Soil Microbial Ecology – 3 Credits – Letter Graded – Offered Every Fall Semester

SWS 5551 – Soils, Water, and Public Health – 3 Credits – Letter Graded – Offered Every Spring Semester

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SWS 5721C – GIS in Land Resource Management – 3 Credits – Letter Graded – Offered Every Fall Semester

SWS 6134 – Soil Quality – 3 Credits – Letter Graded – Offered Fall Semester Even ~~Years~~Years

SWS 6262 – Soil Contamination and Remediation – 3 Credits – Letter Graded – Offered Every Fall semester

SWS 6932 – Forest and Soil Ecosystem Services – 3 Credits – Letter Graded – Offered Every Fall semester.

To qualify for a certificate, students must have an overall GPA of 3.0 or better for the entire program. A grade of C in one course only will be accepted, providing the overall 3.0 average is maintained. No grade below C will be accepted. The student must complete an on-line competency examination with a grade of 80% or better.

Rationale and Place in Curriculum Required

Soil is a fragile and finite resource. It plays unique role in maintaining air and water quality and climate change. Use and management of native, agricultural, forested, range, and urban lands play an integral part in influencing soil and water quality within a watershed. Soils provide various ecosystem services including water quality improvement and nutrients to support plant productivity. Training future scientists and managers to protect wetland and water resources is one of the primary missions of the Soil and Water Science Department, and of the discipline in general. Recent offerings of the courses in the proposed certificate have included students employed in state and federal agencies and private industry who would be well served by such a certificate program.

Student Learning Outcomes Required

List each student learning outcome with its associated courses, assessment type (e.g. course-related exam/assignment/grade, final paper/project/presentation, standardized exam, capstone) and method (e.g. rubric, faculty committee, single faculty member).

Student Learning Outcomes (SLOs):

Students earning the certificate will be able to:

1. Analyze the role of soils as long-term integrators of ecosystem processes and functions.

2. Quantify the role of soils in performing various ecosystem services including: providing nutrients to plants, carbon sequestration, retention of contaminants, and improving water quality.

3. Describe role of soils as sources and sinks for greenhouse gases (carbon dioxide, nitrous oxide, and methane).

4. Apply soil science principles to determine on how various management practices affect soil and water quality and identify best management practices to protect soil resources.

Assessments:

Instructors of all core courses available in the certificate program will submit a minimum of 10 questions to assess student competency for the SLOs itemized above. Questions from courses selected for the certificate will be combined into a single on-line "certificate exam" by the Certificate Program Contact. Students are required to score a minimum of 80% to pass the exam. The exam may be taken repeatedly. In addition to the "certificate exam", student competency will be assessed as described in the individual course syllabi (e.g., course exams, term papers/projects, presentations, etc.)

Cover Sheet: Request 13829

Adding ABE to PhD Agroecology Concentration

Info

Process	Concentration|New/Modify/Close|Grad/Pro/Interdisciplinary
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Wendell Porter waporter@ufl.edu
Created	4/4/2019 8:20:27 AM
Updated	4/4/2019 8:20:51 AM
Description of request	This is a request to add ABE to the PhD Agroecology Concentration

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Agricultural Operations Management 514907001	Wendell Porter		4/4/2019
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			4/4/2019
No document changes					
Graduate Council					
No document changes					
Graduate School Notified					
No document changes					
Office of the Registrar					
No document changes					
College Notified					
No document changes					

Concentration|New for request 13829

Info

Request: Adding ABE to PhD Agroecology Concentration
Description of request: This is a request to add ABE to the PhD Agroecology Concentration
Submitter: Wendell Porter waporter@ufl.edu
Created: 4/4/2019 8:16:48 AM
Form version: 1

Responses

Proposed Action Begin Participating in a Concentration
Degree Level D - Doctoral Degree
Thesis or Non-Thesis Thesis
Concentration Name Agroecology
Credits 30
Effective Term Earliest Available
Effective Year Earliest Available
Students 10
Percentage of Credits Available Fully Online 50-99%
Percentage of Credits Available Off-Campus <25%
Is this an additional (secondary) concentration? No
All Department/Degree/Majors Adding Concentration Agricultural and Biological Engineering/PhD/Agricultural and Biological Engineering
Agronomy/PhD/Agronomy
Soil and Water Sciences/PhD/Soil and Water Science
Rationale for Proposed Concentration There is a demand for graduate concentrations that emphasize greater understanding of
agricultural production in an ecosystem context - considering diminishing soil, water, nutrient, and energy resources. Inclusion of ABE into the concentration will add engineering systems to solving these multi-disciplinary problems. Other institutions are also creating similar multi-discipline programs to meet the need of a changing world.
Impacts on Other Programs The addition of ABE to the concentration should provide greater connectivity among member
departments, research, and students. This addition should not increase a need for general education or common prerequisite courses.

(14)

Cover Sheet: Request 13831

Horticultural Sciences

Info

Process	Minor|Modify/Ugrad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Rebecca Darnell rld@ufl.edu
Created	4/4/2019 8:43:04 AM
Updated	4/4/2019 10:09:56 AM
Description of request	Replace HOS3020 - Principles of Horticultural Crop Production (3 credits) with HOS3020C - Principles of Horticultural Crop Production (4 credits).

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Horticultural Sciences 514923000	Christine Chase		4/4/2019
Horticultural Science minor revision.docx					4/4/2019
College	Pending	CALS - College of Agricultural and Life Sciences			4/4/2019
No document changes					
Associate Provost for Undergraduate Affairs					
No document changes					
University Curriculum Committee					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Minor|Modify for request 13831

Info

Request: Horticultural Sciences
Description of request: Replace HOS3020 - Principles of Horticultural Crop Production (3 credits) with HOS3020C - Principles of Horticultural Crop Production (4 credits).
Submitter: Rebecca Darnell rld@ufl.edu
Created: 4/4/2019 8:35:30 AM
Form version: 1

Responses

Name Horticultural Sciences
Code HOS
Effective Term Earliest Available
Effective Year Earliest Available
Proposed Changes Replace HOS3020 - Principles of Horticultural Crop Production (3 credits) with HOS3020C - Principles of Horticultural Crop Production (4 credits).
This will increase credits required for minor from 15 to 16.
Pedagogical Rationale/Justification HOS3020 (3 credits) was recently updated to HOS3020C (4 credits) to increase and enhance experiential learning in the course and in the minor. The proposed change updates our minor curriculum to accommodate this course update.
Impact on Other Programs No impacts are expected.

HORTICULTURAL SCIENCE

MINOR

ABOUT THIS PROGRAM

- **College:** Agricultural and Life Sciences
- **Credits:** 15
- **Contact:** Email; 352.273.4789
- **Related Horticultural Science Programs**

The horticultural science minor is open to any student who wants to explore an interest in fruits and vegetables.

Some background courses in botany or plant science are recommended.

REQUIRED COURSES

Code	Title	Credits
HOS 3020C		~~3~~4
Select 9 credits:		9
FRC 3212	Introduction to Citrus Culture and Production	
FRC 3252	Tropical and Subtropical Fruits	
FRC 3274	Tree and Small Fruit Production	
HOS 3222C	Greenhouse and Protected Agriculture	
HOS 3430C	Nutrition of Horticultural Crops	
HOS 3281C	Organic and Sustainable Crop Production	
VEC 3221C	Vegetable Production	
FRC, HOS or VEC course (3000/4000 level)		3
Total Credits		**16~~5~~**

Course List

(15)

Cover Sheet: Request 10762

ANS4XXX

Info Recycled

Process	Course|New|Ugrad/Pro
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Saundra Tenbroeck sht@ufl.edu
Created	2/5/2016 10:31:30 AM
Updated	3/18/2019 1:49:09 PM
Description of request	Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Animal Sciences 514909000	Saundra Tenbroeck		2/5/2016
No document changes					
College	Recycled	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	See notes from CALS CC on 2-12-16	2/22/2016
No document changes					
Department	Approved	CALS - Animal Sciences 514909000	Saundra Tenbroeck		2/22/2016
No document changes					
College	Recycled	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Sent back to department until corrections are made.	2/22/2016
No document changes					
Department	Approved	CALS - Animal Sciences 514909000	Saundra Tenbroeck	New, updated syllabus replaced previous syllabus. Course name cannot be more than 21 characters so cannot spell out HACCP. Description in catalog and syllabus must match and word limit is 50. Syllabus is now compliant. Graduate specific course requirements are highlighted on graduate syllabus.	5/8/2017
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			5/8/2017
No document changes					
University Curriculum Committee					
No document changes					
Statewide Course Numbering System					

Step	Status	Group	User	Comment	Updated
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 10762

Info

Request: ANS4XXX
Description of request: Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.
Submitter: Saundra Tenbroeck sht@ufl.edu
Created: 3/18/2019 1:37:25 PM
Form version: 4

Responses

Recommended Prefix ANS
Course Level 4
Number XXX
Lab Code None
Course Title HACCP Systems
Transcript Title HACCP Systems
Effective Term Spring
Effective Year 2020
Rotating Topic? No
Amount of Credit 2

Repeatable Credit? No

S/U Only? No
Contact Type Regularly Scheduled
Degree Type Baccalaureate

Weekly Contact Hours 2
Category of Instruction Joint (Ugrad/Grad)
Delivery Method(s) On-Campus, Off-Campus
Course Description Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.
Prerequisites ANS3006 & ANS3006L or FOS 3042 & MCB 2000 or equivalent
Co-requisites There are no co-requisites.
Rationale and Placement in Curriculum HACCP systems is designed to integrate knowledge of food production systems, food safety and government regulations. This course will meet the Animal Sciences electives requirement for Food Animal and Biology option undergraduates but will also serve FSHN students interested in food safety.
Course Objectives The primary purpose of this course is to empower students with the knowledge and ability necessary for the multitude of positions available in the food industry that require a strong background and understanding of food safety and the HACCP system. Upon completion of this course, students should be able to demonstrate an understanding of:
1. The role of the various food safety systems in the food industry.
2. The role of preliminary steps and foundations programs in the food safety system.
3. The HACCP principles and required actions in HACCP plan development
4. Food safety system implementation
5. Regulatory implications of HACCP
6. The purpose of the Global Food Safety Initiative and its impact on the food industry
7. Product flow in the food industry
8. The importance of food safety documentation

Course Textbook(s) and/or Other Assigned Reading None
Required reading will depend on the topic selected by the student.
9CFR416.17 Code of HACCP systems regulations
Weekly Schedule of Topics Organizational meeting. Course overview, group assignments.
Basic HACCP training

(Off campus, requires overnight travel and lodging)
Food production facility tour- should return to campus by midday
Development of process flow chart and product description
Exam 1, Hazard assessment
Hazard assessment, Good manufacturing practices
Sanitation Standard Operating Procedures
Critical control points
Monitoring procedures
Verification
Validation, Record keeping
HACCP presentations (rough version of final presentation). Auditing the HACCP system
Global Food Safety Initiative
HACCP Plan revisions
Final Presentations
Final Exam
Grading Scheme Homework up to 100 points up to 20%
Exam 1 25 points 5%
Final Exam 100 points 20%
Presentation 1 25 points 5%
Final presentation 100 points 20%%
Final HACCP plan 100 points 20%
Peer assessment 50 points 10%
Total 500 points
Instructor(s) Jason Scheffler and Chad Carr

UF UNIVERSITY of FLORIDA

Institute of Food and Agricultural Sciences
Food Science and Human Nutrition Department

359 FSHN Bldg., Newell Dr.
Gainesville, FL 32611-0370
352-392-1991 Tel
352-392-9084 Fax
Website: fshn.ifas.ufl.edu

January 27, 2017

Keith R. Schneider, Ph.D.
Professor
Food Science & Human Nutrition Department
359 FSHN Bldg., Newell Dr.
Gainesville, FL 32611
Tel: 352-294-3910
Email: keiths29@ufl.edu

Chad Carr, Ph.D.
Associate Professor
Department of Animal Sciences
Gainesville, FL 32611
Cell: 352-213-4911
Tel: 352-392-2454
Email: chadcarr@ufl.edu

Dear Dr. Carr:

After careful review of the syllabus for Hazard Analysis, Critical Control Points Systems, ALS 4932 section 6395 and ANS 6932 section 1B44 taught by yourself and Dr. Jason Scheffler, I believe these courses, while some overlap exists, are significantly different from the Food Safety Systems course (FOS 4936/6936) currently offered by Dr. Soo Ahn (and formerly team taught with myself and Dr. Renée Goodrich Schneider). Additionally, with the advent of the Food Safety Modernization Act (FSMA), the HACCP portion of FOS 4936/6936 will be reduced and additional lectures covering FSMA will be added, further differentiating these offerings.

If you have any further questions or concerns, please feel free to contact me.

Sincerely,

Dr. Keith R. Schneider

The Foundation for The Gator Nation

Hazard Analysis, Critical Control Points (HACCP) Systems

ANS 4XXX 2 Credits

Tues morning 3rd & 4th Period 9:35-11:35

Room- ANS 156

Instructors

Dr. Jason Scheffler
231G Animal Science
352-392-9155
jmscheff@ufl.edu

Dr. Chad Carr
224B Animal Science
352-392-2454
chadcarr@ufl.edu

Course Description

Introduction to safe food production from farm to consumption and its application in the food industry and food safety as evaluated by sanitation and control measures in conjunction with HACCP as it relates to the Global Food Safety Initiative.

Prerequisite

Before taking this course you must have: ANS 3006 + lab Introduction to Animal Sciences lecture and lab OR FOS 3042 Introductory Food Science

Instruction Objectives

The primary purpose of this course is to empower students with the knowledge and ability necessary for the multitude of positions available in the food industry that require a strong background and understanding of food safety and the HACCP system. Upon completion of this course, students should be able to demonstrate an understanding of:

1. The role of the various food safety systems in the food industry.
2. The role of preliminary steps and foundations programs in the food safety system.
3. The HACCP principles and required actions in HACCP plan development
4. Food safety system implementation
5. Regulatory implications of HACCP
6. The purpose of the Global Food Safety Initiative and its impact on the food industry
7. Product flow in the food industry
8. The importance of food safety documentation

Course format

Students will take a three day, two night trip to Kissimmee, FL the second week of class. On this trip, students will attend a 2-day Basic HACCP training program alongside industry personnel. After completion of the Basic HACCP training, students that register (*There is a $50 registration fee*) will be registered with the International HACCP Alliance and recognized as completing a HACCP training program.

Also on this trip, students will tour a food production facility (TBD). The remainder of the semester will involve developing a complete HACCP plan for a production line at this facility. Students will be divided into groups for completion of this task. Each class period will focus on developing a specific aspect of the HACCP plan and may be augmented with short lectures, case studies, and discussions. Groups will present their daily progress at the end of each class period. Short homework assignments (10-15 points each for up to a total of 100 points) will be assigned periodically to be completed individually prior to the start of the next class period. At the end of the semester, groups will present their completed HACCP plans to the class and possibly representatives from this food production facility.

Attendance and Make-Up Work

Participation on the two day trip is STRONGLY RECOMMENDED for completion of the class. There is no mechanism to make up these activities. Students unable to participate will be advised to drop the class as they will lack the foundational training and context necessary for the course. For the rest of the class, formal attendance will not be taken. However, group members will be able to evaluate each other at the end of the semester and poor attendance likely will be detrimental to your grade.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

Assessment

Homework	up to 100 points
Exam 1	25 points
Final Exam	100 points
Preliminary presentation	25 points
Final presentation	100 points
Final HACCP plan	100 points
Peer assessment	50 points
Total	500 points

Final Grades

Final grades will be determined by calculating the percentage of points earned out of total points available. No component will be given extra weight. That percentage will be rounded up to the nearest whole number and correspond with a letter grade. Letter grades will be assigned as follows:

>90%	A	85-89%	B+	80-85%	B	75-79%	C+	70-74%	C	60-69%	D	<60%	E

Grades and Grade Points

For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

Academic Honesty, Software Use, Campus Helping Resources, Services for Students with Disabilities

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*" You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment.*"

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

Software use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of

Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Campus helping resources

Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Wellness Coaching

- U Matter We Care, www.umatter.ufl.edu/
- Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Student Complaint Policy

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Tentative Class Schedule

Week 1	Organizational meeting. Course overview, group assignments.
Week 2	Facility tour and Basic HACCP training (Off campus, requires travel and two nights lodging)
Week 3	Development of process flow chart and product description
Week 4	**Exam 1**, Good manufacturing practices
Week 5	Hazard assessment
Week 6	Hazard assessment
Week 7	Sanitation Standard Operating Procedures
Week 8	Critical control points
	Spring Break
Week 9	Monitoring procedures
Week 10	Verification
Week 11	Validation, Record keeping
Week 12	**Preliminary presentations** (rough version of final presentation).
Week 13	Recall plan
Week 14	HACCP Plan revisions
Week 15	**Final Presentations**
Finals Week	**Final Exam** (take home, due at 11:59 pm)

(16)

Cover Sheet: Request 12308

FOS3xxx Life After Graduation

Recycled.

Info

Process	Course|New|Ugrad/Pro
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Charles Sims csims@ufl.edu
Created	2/15/2018 12:26:49 PM
Updated	3/28/2019 11:45:51 AM
Description of request	New undergraduate course intended for all food science majors, especially those preparing to graduate within the academic year.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Food Science and Human Nutrition 514915000	Susan Percival	This has been a course well-received! We are asking for a permanent number.	2/15/2018
No document changes					
College	Approved	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Edits requested by the CALS CC have been addressed.	5/7/2018
No document changes					
University Curriculum Committee	Commented	PV - University Curriculum Committee (UCC)	Andrew Figueroa	Added to September agenda.	8/29/2018
No document changes					

Step	Status	Group	User	Comment	Updated
University Curriculum Committee	Recycled	PV - University Curriculum Committee (UCC)	Tobin Shorey	Recycled based upon committee feedback: • Is this going to be a required course? Is a request for curriculum change following this at a future meeting? • Course description. The opening needs to be rephrased. Suggestion (in line with UCC recommendation): 'Provides an overview of what opportunities are available for food science students after graduation, and tips and advice on how to be successful after graduation. Intended for all food science majors, especially those preparing to graduate within the academic year.' • For course outcomes, it is preferable to start bullet points with verbs that are measurable. • Grading Scheme: Students may pass the class by simply attending. Attendance is 80%. The two parts (resume and interview projects) constitute 20% only. To pass, a student needs to earn 70%. In other words, if a student attends all classes and does no work, s/he can pass the class.	9/19/2018
No document changes					
College	Recycled	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Based on UCC requests course will need major revisions which will need to be reevaluated by the CALS CC.	9/21/2018
No document changes					
Department	Approved	CALS - Food Science and Human Nutrition 514915000	Susan Percival	NA	9/21/2018
No document changes					
College	Recycled	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Department approved before corrections were made and therefore it is recycled again.	9/21/2018
No document changes					
Department	Approved	CALS - Food Science and Human Nutrition 514915000	Susan Percival	NA	9/21/2018
No document changes					

Step	Status	Group	User	Comment	Updated
College	Recycled	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Department approved before corrections were made.	9/21/2018
No document changes					
Department	Approved	CALS - Food Science and Human Nutrition 514915000	Susan Percival		1/9/2019
No document changes					
College	Recycled	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	This course has been recycled by the CALS CC on 2/15/19. Needed corrections have been sent to the submitter.	3/1/2019
No document changes					
Department	Approved	CALS - Food Science and Human Nutrition 514915000	Susan Percival		3/1/2019
No document changes					
College	Recycled	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Approved by Dept. before corrections were made.	3/1/2019
No document changes					
Department	Approved	CALS - Food Science and Human Nutrition 514915000	Susan Percival		3/28/2019
Life After Graduation syllabus revised 03152019.doc					3/28/2019
College	Pending	CALS - College of Agricultural and Life Sciences			3/28/2019
No document changes					
University Curriculum Committee					
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 12308

Info

Request: FOS3xxx Life After Graduation
Description of request: New undergraduate course intended for all food science majors, especially those preparing to graduate within the academic year.
Submitter: Charles Sims csims@ufl.edu
Created: 3/28/2019 8:56:04 AM
Form version: 7

Responses

Recommended Prefix FOS
Course Level 3
Number xxx
Category of Instruction Intermediate
Lab Code None
Course Title Life After Graduation
Transcript Title Life After Graduation
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No
Co-Listing Explanation None
Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 1

S/U Only? Yes
Contact Type Regularly Scheduled
Weekly Contact Hours 1
Course Description Provides an overview of what opportunities are available for food science students after graduation, and tips and advice on how to be successful after graduation. Intended for all food science majors, especially those preparing to graduate within the academic year..
Prerequisites junior or senior standing
Co-requisites None
Rationale and Placement in Curriculum The food science faculty identified a real need to better prepare our students for the opportunities and challenges after they graduate, and this course was developed to do so. This course was taught twice as a special topics and was very well received by the students. The course was slightly revised each year based on feedback from the students. We are now requesting formal approval of this course as a new course that will become mandatory in the future for the food science major.
Course Objectives • Describe and assess the opportunities for graduate education.

- Prepare and complete a mock job interview.
- Integrate expert advice and class exercises to create a professional resume.
- Summarize information and gain competence in the search and application process for jobs.
- Facilitate professional development through organizations, internships, and international experience.

Course Textbook(s) and/or Other Assigned Reading None

Weekly Schedule of Topics Course overview
Life after graduation/Who are you, and what are your options?
Graduate school opportunities
Graduate school application process
Graduate Student Roundtable
Jobs/careers (academia and government)
Jobs/careers (alumni from food industry)
Careers in food science -- the big picture
Interviewing strategies and complete a mock interview
Resumes and cover letters
Internships, undergraduate research opportunities
International opportunities and study abroad
Professional practices and professional organizations

Links and Policies Grades and Grade Points
For information on current UF policies for assigning grade points, see
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Attendance and Make-Up Work
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https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

Online Course Evaluation Process
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http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

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Services for Students with Disabilities
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accommodation

0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources
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Counseling Services
Groups and Workshops
Outreach and Consultation
Self-Help Library
Wellness Coaching

- U Matter We Care, www.umatter.ufl.edu/

- Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Grading Scheme This course will be graded on an Satisfactory (>80%)/Unsatisfactory (<80%) basis out of a total of 100 points. Points will be awarded from assignments and attendance as follows:

Assignment on graduate education opportunities = 10 points
Assignment on graduate applications = 10 points
Assignment on job opportunities = 10 points
Resume project = 30 points
Interview project = 30 points
Assignment on options for future plans = 10 points
Total points = 100

Instructor(s) Charles Sims
Renee Goodrich-Schneider
Keith Schneider
Guest Lecturers

FOS 4936
Life after Graduation
1 Credit, Fall 2018

Course Instructors

Charles Sims, Ph.D.
Food Science and Human Nutrition Department
Building 120, room 130
Email: csims@ufl.edu
Office phone: 352-294-3592
Office Hours: Wednesday and Thursday 1:00-3:00 pm or by appointment

Renee Goodrich-Schneider, Ph.D.
Food Science and Human Nutrition Department
FSHN Building, room 329a
Email: Goodrich@ufl.edu
Office phone: 352-294-3726
Office Hours: Wednesday and Thursday 1:00-3:00 pm

Keith Schneider, Ph.D.
Food Science and Human Nutrition Department
Aquatic Food Products Lab, room 216
Email: keiths29@ufl.edu
Office phone: 352-294-3910
Office Hours: Tuesday and Thursday 9:00-11:00 am

Course Hours

Monday, period 5 (11:45am)

Course Description

Provides an overview of what opportunities are available for food science students after graduation, and tips and advice on how to be successful after graduation. Intended for all food science majors, especially those preparing to graduate within the academic year.

Textbooks

No textbook is required. You may be given handouts in class by various lecturers.

Class Rules

Attendance, attention and full participation are expected. Other rules for the class are simple and essentially involve common sense and courtesy towards your colleagues and the instructor: no eating or drinking in the classroom; no side conversations; keep cell phones and other communication devices muted and stored away; if you are late, take your seat quietly and unobtrusively. You are welcome to bring laptops to class for note taking.

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Total points = 100

General Policy on Writing

All writing for this course should be clear and concise (including emails to instructors and particularly, any sort of summary assessment we ask you to write). Employers and graduate/professional programs seek graduates who can communicate effectively through standard scientific and business writing. Please familiarize yourself with a major journal in your discipline and follow its citation style throughout the course.

Learning Outcomes

- Describe and assess the opportunities for graduate education.
- Prepare and complete a mock job interview.
- Integrate expert advice and class exercises to create a professional resume.
- Summarize information and gain competence in the search and application process for jobs.
- Facilitate professional development through organizations, internships, and international experience.

Course Outline

Course overview

Life after graduation/Who are you, and what are your options?

Graduate school opportunities

Graduate school application process

Graduate Student Roundtable

Jobs/careers (academia and government)

Jobs/careers (alumni from food industry)

Careers in food science – the big picture

Interviewing strategies and complete a mock interview

Resumes and cover letters

Internships, undergraduate research opportunities

International opportunities and study abroad

Professional practices and professional organizations

Information for All Students

Grades and Grade Points

For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx
A statement related to class attendance and options for making up exams and other work. A standard statement is provided below.

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• U Matter We Care, www.umatter.ufl.edu/.

• Career Connections Center, First Floor JWRU, 392-1601, https://career.ufl.edu/.

Student Complaints
• Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/.
• Online Course: http://www.distance.ufl.edu/student-complaint-process.