CALS Curriculum Committee Meeting
September 14, 2018
2:00 p.m.
1044 McCarty Hall D

Members: R. Baldwin, J. Brendemuhl, J.C. Bunch, D. Coenen, D. Farnsworth, D. Gabriel,
P. Inglett, S. Johnson, B. Kołaczkowski, A. Mathews, G. Nunez, B. Pearson, W. Porter,
C. Prince, K. Rose, D. Rowland, S. Sager (Chair), C. Stefanou, L. Warren, A. Wysocki

Agenda and Index for Materials

Approve Minutes from August 17, 2018 meeting

Dr. Brendemuhl: Update from UCC

Graduate New Course Proposals

1. HOS 6XXX – Weed Management for Organic and Sustainable Cropping Systems (req. #12982)

2. MCB 6XXX – Probiotics (req. #12935)

3. SWS 6XXX – Landscape Hydrology (req. #12960)

Graduate Course Change Proposal

4. HUN 6321 – Proteins and Amino acids in Nutrition (req. #12955)

Undergraduate New Course Proposals

5. HOS 3XXX – Genetics and Breeding of Fruit Crops (req. #12998)

6. HOS 3XXX – Innovations in Organic Agriculture (req. #12997)

7. HOS 4XXXC – Principles of Postharvest Horticulture (req. #13001)

8. HOS 4XXX – Horticultural Sciences Capstone (req. #13002)

9. HOS 4XXX – Supervised Teaching Experience in Horticultural Sciences (req. #13000)

10. HOS 4XXX – Capstone Planning in Horticultural Sciences (req. #12999)

11. HOS 4XXX – Organic Weed Management (req. #12981)
12. MCB 4XXX – Probiotics (req. #12932)
(Supporting materials with Graduate submission)

13. PLS 3XXXC – Hydroponic Systems (req. #12996)

**Undergraduate Course Change Proposal**

14. HOS 3020C – Principles of Horticultural Crop Production (req. #12995)

**Certificates**

15. Proposed change to the Wildlife Forensic Sciences and Conservation Graduate Certificate (req. #12959)

16. Proposed termination of the Personal and Financial Planning Undergraduate Certificate (req. #12972)
ALS Curriculum Committee Meeting
August 17, 2018
Submitted by James Fant


Substitutes: Misti Sharp for D. Farnsworth
Adam Watson for W. Porter

Visitors: Rebecca Darnell and Martha Monroe

Call to Order: The College of Agricultural and Life Sciences Curriculum Committee met on August 17, 2018 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 Curriculum Committee homepage under archived information:
http://www.cals.ufl.edu/faculty_staff/curriculum_committee.shtml

Approval of Minutes: A motion was made by Dr. Warren to approve the minutes from the April 13, 2018 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.


Update from UCC: Dr. Brendemuhl noted the following items were addressed at the April 17th, 2018 UCC: 1) Proposed changes Microbiology and Cell Science (request #'s 12335&12400) were both conditionally-approved, 2) Proposed change to the Undergraduate Certificate – Family Life Educator (approved). There were no CALS items on the May UCC agenda. Dr. Brendemuhl noted that there were several new Compass releases that were affecting academic advisors and that much work is currently being done to correct degree audits in the new system and prepare for fall graduation. He also indicated that a new release would occur that would affect admissions. All semester plans for critical-tracking during semesters 6-8 were submitted on time and he is awaiting their review. He once again reminded members concerning trainings associated with various rollouts of UF COMPASS and to stay abreast and take the trainings. Lastly he mentioned that there is a new component on degree audits concerning the Common Prerequisite Manual (CPM) that will need to be addressed for degree programs moving forward.
Graduate New Course Proposal

1. ENY 6XXX – Ecology and Conservation of Pollinators (req. #12773)
   
   This item was reviewed with item #9. Any comments are directed at both submissions unless otherwise noted. A motion was made by Dr. Bunch to approve these items with changes required. The motion was approved. The description of request section on the UCC form and cover sheet should not be the course description. This space is used to explain what you are requesting. For example: Requesting a new course to fill a void regarding pollinator populations worldwide. In the course textbook section of the UCC form replace “purchased” with “required.” The learning objectives section in the graduate syllabus should contain a couple of expectations that are above and beyond those of the undergraduates. The graph in the grades and assignment sections of both syllabuses includes a possible 50 point for participation. Please outline in each syllabus the expectations for participation. The grade distribution section in each syllabus shows a letter grade associated with a percentage range. This should also include point ranges in relation to percentage ranges (Graduate 0-550 and Undergraduate 0-500).

2. FAS 5XXX – Invasion Ecology of Aquatic Animals (req. #12896)
   
   A motion was made by Dr. Nunez to recycle this item back to the department for required changes and resubmission. The motion was approved. Please provide external consults from other departments which may offer courses involving invasion ecology to ensure there is no excessive overlap with any existing courses. There is concern that the proposed title is too broad. The learning outcome section on the UCC form and in the syllabus have no mention of aquatic animals. In topic review and data paper section of the syllabus explain what is included in a data set. The grading scale on the UCC form and in the syllabus should contain decimal points (A 94-100%, A- 90-93.99, B+ 86-89.99, etc.). This will help avoid any confusion or discussion regarding the rounding up of final grades. Lastly, the committee suggests considering this course as a possible co-taught Graduate (6000 level) and Undergraduate (4000 level) option.

3. FAS 6XXX – Environmental Physiology of Fishes (req. #12895)
   
   A motion was made by C. Prince to recycle this item back to the department for required changes and resubmission. The motion was approved. Provide an external consult from Biology (Marta Wayne – mlwayne@ufl.edu) to ensure there is no excessive overlap with any existing courses.

4. FAS 6XXX – Spatial Sciences for Marine Environmental Characterization (req. #12897)
   
   A motion was made by C. Prince to recycle this item back to the department for required changes and resubmission. The motion was approved. Provide an outside consultation from Soil and Water Science to ensure there is no excessive overlap with any existing courses. The citations for the required readings on the UCC form need to be listed the like they are in the syllabus (all information included).

5. FAS 6XXX – Fisheries Enhancement (req. #12900)
   
   A motion was made by Dr. Nunez to approve this item with changes required. The motion was approved. Decimal points need to be added to the grading scale (A 93-100, A- 90-
92.99, B+ 86-89.99, etc.). This will help avoid any confusion or discussion regarding the rounding up of final grades.

6. SWS 5XXX – Aquatic Toxicology: Science and Applications (req. #12689)
   This item was reviewed with item #11. Comments will apply to both submissions unless otherwise noted. A motion was made by Dr. Sharp to approve these items with changes required. The motion was approved. An external consult is requested from Ruth Francis-Floyd (rffloyd@ufl.edu) at the College of Veterinary Medicine to ensure there is no excessive overlap with any existing course. The Graduate submission needs to be changed from a 5000 to a 6000-level course. This will need to be changed everywhere it appears in the submission. The course objectives for the graduate students need to differ enough from the undergraduate objectives to show the rigor expected for a graduate level course. The grading scales in both submissions need to include decimal points (A 93% and above, A- 90-92.99%, B+ 87-89.99%, etc.). This will help avoid any confusion or discussion regarding the rounding up of final grades.

Graduate Course Change Proposals

7. AEC 6933 – Seminar in Agricultural Education and Communication (req. #12781)
   A motion was made by Dr. Inglelt to recycle this item back to the department for required changes and resubmission. A syllabus must be provided for any UCC2 submission. An explanation of what is expected of each student who takes this course for 0, 1, 2 or 3 credits is required.

8. WIS 6934 – Topics in Wildlife and Range Sciences (req. #12511)
   A motion was made by Dr. Inglelt to approve this item with an update required. The motion was approved. The description of the request must be fixed on the UCC form. This statement needs to explain what you are requesting. It is not a space for the course description. Dr. Brendemuhl has made this correction and will forward the item to the next level of the approval process. Therefore, there is no action required on your part.

Undergraduate New Course Proposals

9. ENY 4XXX – Ecology and Conservation of Pollinators (req. #12772)
   Please see item #1 for comments.

10. FYC 4XXX – Family and Cultural Diversity (req. #12849)
    A motion was made by Dr. Bunch to recycle this item back to the department for required changes and resubmission. The motion was approved. There needs to be a syllabus submitted with this item. There was a question that the proposed title should contain something about studying abroad.

11. SWS 4XXX – Aquatic Toxicology: Science and Applications (req. #12688)
    Please see item #6 for comments.

Certificates
12. Graduate Certificate in Environmental Microbiology
   A motion was made by Dr. Bunch to recycle this item back to the department for required
   updates and resubmission. An external consult is required from the Soil and Water Science
   department.

13. Graduate Certificate in Environmental Education and Communication (req. #12164)
   A motion was made by Dr. Inglett to recycle this item back to the department for required
   updates and resubmission. The motion was approved. There is too much flexibility in the course
   options for this certificate. There needs to be some commonality. At least six credit hours should
   be common to all students who pursue the certificate. The committee also suggests the
   possibility of developing several certificates based on the proposed course options.

Recycled items

14. Proposed name change to Interdisciplinary Studies Concentration in Environmental
    Management in Agriculture and Natural Resources (req. #11996)
    A motion was made by Dr. Inglett to recycle this item back to the department for required
    changes and resubmission. The motion was approved. It is the CALS CC’s understanding that
    there will be a committee formed by the School of Natural Resources and Conservation and the
    department of Soil and Water Sciences to discuss this proposal. The CALS CC would like to
    review the outcome once that committee has met. Please include a letter from UF Online
    explaining the need for a shorter title.

15. MCB 4XXX – Microbial Applications of Synthetic Biology (req. #11708)
    A motion was made by Dr. Bunch to recycle this item back to the department for required
    changes and resubmission. The motion was approved. There is still not enough of a difference in
    rigor between Graduate and Undergraduate students. The course objectives must be measurable
    (Understand and Consider cannot be measured). The Graduate version of this course has to be
    included with the resubmission of the Undergraduate version and all previous committee
    concerns must be addressed.

16. HOS 3XXX – Medicinal Plant and Herb Production (req. #12481)
    Title changed to: Breeding and Production of Medicinal Plants and Herbs
    A motion was made by Dr. Inglett to approve this item as submitted. The motion was
    approved.

****Dr. Inglett has volunteered to chair the remaining (4) CALS CC meetings in 2018 due to a
schedule conflict for Scott Sager.

The meeting was adjourned at 3:41 p.m.
Cover Sheet: Request 12982

HOS6XXX Weed Management for Organic and Sustainable Cropping Systems

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<td>This graduate level course has been taught for many years in alternate years in spring as HOS6932. A permanent course number is required by the Horticultural Sciences Department and to make the course available to the graduate Interdisciplinary Ecology program.</td>
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No document changes
Course\New for request 12982

Info
Request: HOSGXXX Weed Management for Organic and Sustainable Cropping Systems
Description of request: This graduate level course has been taught for many years in alternate years in spring as HOS6932. A permanent course number is required by the Horticultural Sciences Department and to make the course available to the graduate Interdisciplinary Ecology program.
Submitter: Carlene Chase cachase@ufl.edu
Created: 8/30/2018 4:40:57 PM
Form version: 1

Responses
Recommended Prefix HOS
Course Level 6
Number XXX
Category of Instruction Joint (Ugrad/Grad)
Lab Code None
Course Title Weed Management for Organic and Sustainable Cropping Systems
Transcript Title Sustainable Weed Mgt
Degree Type Graduate

Delivery Method(s) On-Campus
Co-Listing Yes
Co-Listing Explanation The weighting of quizzes for undergraduate students is double that for graduate students. Undergraduate students prepare a written laboratory report based on an experiment conducted over an 8-week period. Graduate students are required to serve as discussion moderators. Graduate students develop a grant proposal on a sustainable and/or organic weed management problem formatted for submission to the Southern Sustainable Agriculture Research and Education graduate student grant program. A ten-minute PowerPoint presentation is also required.
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 Ecological principles can be applied in agroecosystems to manage weeds sustainably. Alternative weed management approaches that are less dependent on herbicides and utilize ecological processes detrimental to weeds and their propagules will be emphasized. Students will learn actively by critically analyzing pertinent literature and participating in discussions of supplemental reading.
Prerequisites HOS 3020C - Principles of Horticultural Crop Production or ALS 3153 Agricultural Ecology or equivalent.
Co-requisites None.

Rationale and Placement in Curriculum At graduate level this course is intended for students undertaking graduate research with a focus on organic and sustainable cropping systems. It will also be a useful offering for students in the graduate Interdisciplinary Ecology program.
Course Objectives Students will learn how ecological approaches can be utilized to manage weeds in a sustainable manner. In addition, students will develop or improve skills for critically analyzing scientific literature and hone their oral presentation skills by serving as a moderator and by participating in discussions of weed science with peers. Students will polish their research and writing skills by preparing a grant proposal.
**Course Textbook(s) and/or Other Assigned Reading**


**Supplemental Materials**


**Weekly Schedule of Topics**

**Week 1**
1. Introduction and Orientation
2. Weeds – Ecological Definition, Adverse Effects and Utility
3. Ecological Weed Management

**Week 2**
1. Weed Life History
2. Preventive Measures

**Week 3**
1. The National Organic Rule - Permitted Practices
2. Herbicides permitted in organic cropping systems
3. Weed-Crop Interactions, Competition

**Week 4**
1. Weed-Crop Competition Greenhouse Experiment Initiated
3. Allelopathy

**Week 5**
1. Biofumigation
2. Cultural Weed Management
3. Examination 1

**Week 6**
1. Cultural Weed Management
2. Quiz. Cultural Weed Management (Student-Moderated Discussion)
3. Cultural Weed Management
Week 7
1. Physical Weed Control – Mulches
2. Quiz. Physical Weed Control – Soil Solarization (Student-Moderated Discussion)
3. Physical Weed Control – Thermal methods

Week 8
1. Physical Weed Control – Grits (Titles for Grant Proposals Due)
2. Anaerobic Soil Disinfestation
3. Mechanical Weed Control – Tillage

Week 9 NO CLASS – Spring Break

Week 10
1. Mechanical Weed Control – Cultivation
2. Quiz. Automated Weed Control (Student-Moderated Discussion)
3. Examination 2

Week 11
1. Introduction to Biological Control of Weeds
2. Quiz. Weed Seed Predation (Student-Moderated Discussion)
3. Biological Control Using Microorganisms/Bioherbicides

Week 12
1. Final data collection from Weed-Crop Competition experiment
2. Livestock for Weed Management
3. Quiz. Livestock for Weed Management (Student-Moderated Discussion)

Week 13
1. Chemical Weed Control – Soil fumigants (Proposal Drafts and Lab Introduction are due)
2. Chemical Weed Control – Synthetic Herbicides

Week 14
1. Herbicide resistance
2. Quiz. Sustainability of Herbicide-Resistant Crops (Student-Moderated Discussion)
3. Unmanned aerial vehicle use for weed management

Week 15
1. Integrated Weed Management vs Ecological Weed Management
2. Assess Graduate Student Grant Proposal Presentations
3. Submit laboratory report

Week 16
1. Review for Exam
2. Examination 3

Links and Policies
Policies: Attendance and participation in moderating and discussions are required. Students are urged to arrive on time to avoid disrupting class. Late assignments and make-up exams are permitted only for excused absences. Acceptable documents for an excused absence include a doctor’s note or a funeral program. Mobile phones must be turned off during class. Discourse during discussions must be polite and respectful.

Academic Honesty: Students are expected to adhere to the University of Florida Honor Code: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. Please refer to conduct regulations at http://www.dso.ufl.edu/STG. Violations of Academic Honesty Guidelines and the Honor code, which include cheating, plagiarism, bribery, misrepresentation, conspiracy, and fabrication, will not be tolerated.

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.
Counseling and Wellness Center: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling and Wellness Center provides confidential counseling services at no cost for currently enrolled students. 3190 Radio Road, 392-1575, www.counseling.ufl.edu/cwc.

Students Requiring Accommodations: 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. 001 Reid Hall, 392-8565, www.dso.ufl.edu/drc/.

Course Evaluation: Constructive feedback from students via course evaluation is requested to contribute to enhancing course quality. Students are requested to complete online evaluations at https://evaluations.ufl.edu when advised that the evaluation system is open.

**Grading Scheme**

Examinations (60%):

Three examinations, essay type and short answer responses.

Discussion Moderator (10%)

Select a current journal article (published within the past 5 years) on the assigned topic and share the selected article with the class at least 1 week in advance of the scheduled discussion. Prepare a 15-minute presentation to provide background information on the topic using the article, other related journal articles, text books etc. Prepare 4 to 6 questions to stimulate the discussion.

Quizzes (10%)

Students will complete quizzes based on journal articles assigned for discussion.

Grant Proposal (20%)

Students will develop a grant proposal on a sustainable and/or organic weed management problem formatted for submission to the Southern Sustainable Agriculture Research and Education graduate student grant program. A 10-minute PowerPoint presentation is also required.

**Instructor(s)** Carlene A. Chase
COURSE DESCRIPTION

Ecological principles can be applied in agroecosystems to manage weeds sustainably. Alternative weed management approaches that are less dependent on herbicides and utilize ecological processes detrimental to weeds and their propagules will be emphasized. Students will learn actively by critically analyzing pertinent literature and participating in discussions of supplemental reading.

LEARNING OBJECTIVES

Upon successful completion of this course, students will be able to:

- Describe how ecological approaches can be utilized to manage weeds in a sustainable manner
- Select and recommend ecological weed management practices that are approved for use in organic cropping systems.
- Critically analyze and discuss weed science journal articles.
- Lead the discussion of refereed journal articles.
- Develop and write a grant proposal for the Southern Sustainable Research and Education (Southern SARE) graduate student grant program.

TEXTBOOKS: There is no required textbook.

Recommended Texts


Supplemental Materials


COURSE GRADE

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<td>Discussion moderator: Select a current journal article (published within the past 5 years) on the assigned topic and share the selected article with the class at least 1 week in advance of the scheduled discussion. Prepare a 15-minute presentation to provide background information on the topic using the article, other related journal articles, textbooks etc. Prepare 4 to 6 questions to stimulate the discussion.</td>
<td>100</td>
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<tr>
<td>Quizzes: Students will complete quizzes based on journal articles assigned for discussion.</td>
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<td>Grant proposal and presentation: Students will develop a grant proposal on a sustainable and/or organic weed management problem formatted for submission to the Southern SARE Graduate Student grant program.</td>
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GRADING SCALE

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COURSE POLICIES

Attendance and Make-up Policy
You are encouraged to attend every lecture and complete quizzes and assignments by the posted deadlines. Absences will be excused and late assignments will be graded only for documented emergencies as per UF’s attendance policy.
Additional information on class attendance and make-up exams, assignments and other work can be found here:
•  *UF Attendance policy, [www.catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx](http://www.catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx)*

Technical Difficulties
If you are experiencing technical difficulties with Canvas, you should immediately contact the UF Help Desk. This will generate a ticket number, which documents the date and time of your technical difficulty. Any requests to make-up late work due to technical difficulties must be accompanied by this ticket number.
•  *UF Help Desk, HUB 132, (352) - 392 - 4357, [www.lss.at.ufl.edu/help.shtml](http://www.lss.at.ufl.edu/help.shtml)*

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.

Additional information on current UF grading policies for assigning grade points can be found here:

•  *Grading policy, [www.catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx](http://www.catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx)*

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• For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/scrr/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 when 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.
• Disability Resource Center, 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.
• Counseling and Wellness Center, 3190 Radio Road, 392-1575, www.counseling.ufl.edu
• Counseling Services
• Groups and Workshops
• Outreach and Consultation
• Self-Help Library
• Wellness Coaching
• U Matter We Care, www.umatter.ufl.edu

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university’s on-campus resources.
• Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Course Evaluation Process

Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you 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:
- *Course evaluations*, [www.evaluations.ufl.edu](http://www.evaluations.ufl.edu)

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:
- *Evaluations summary*, [www.evaluations.ufl.edu/results](http://www.evaluations.ufl.edu/results)

**Student Complaints**

You can file and resolve any complaints about your experience in this course at the following site:
- *Student complaints in residential courses*, [www.dso.ufl.edu/documents/UF_Complaints_policy.pdf](http://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)

**COURSE SCHEDULE**

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<th>Date</th>
<th>Topics/Learning Experiences</th>
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| Week 1   | 1. Introduction and Orientation  
           2. Weeds – Ecological Definition, Adverse Effects and Utility  
           3. Ecological Weed Management                                   |
| Week 2   | 1. Weed Life History  
           2. Preventive Measures                                             |
| Week 3   | 1. The National Organic Rule - Permitted Practices  
           2. Herbicides permitted in organic cropping systems  
           3. Weed-Crop Interactions, Competition                           |
| Week 4   | 1. Weed-Crop Competition Greenhouse Experiment Initiated  
           3. Allelopathy                                                    |
| Week 5   | 1. Biofumigation  
           2. Cultural Weed Management                                       
           3. **Examination 1**                                              |
| Week 6   | 1. Cultural Weed Management                                              
           2. **Quiz. Cultural Weed Management (Graduate Student-Moderated Discussion)**  
           3. Cultural Weed Management                                       |
| Week 7   | 1. Physical Weed Control – Mulches  
           2. **Quiz. Physical Weed Control – Soil Solarization (Graduate Student-Moderated Discussion)**  
           3. Physical Weed Control – Thermal methods                       |
| Week 8   | 1. Physical Weed Control – Grits *(Titles for Grant Proposals are Due)*  
           2. Anaerobic Soil Disinfestation                                   
           3. Mechanical Weed Control – Tillage                            |

**NO CLASS – Spring Break**
| Week 9          | 1. Mechanical Weed Control – Cultivation  
2. Quiz. Automated Weed Control *(Graduate Student-Moderated Discussion)*  
3. Examination 2 |
|----------------|--------------------------------------------------------------------------------|
| Week 10        | 1. Introduction to Biological Control of Weeds  
2. Quiz. Weed Seed Predation *(Student-Moderated Discussion)*  
3. Biological Control Using Microorganisms/Bioherbicides |
| Week 11        | 1. Final data collection from Weed-Crop Competition experiment  
2. Livestock for Weed Management  
3. Quiz. Livestock for Weed Management *(Graduate Student-Moderated Discussion)* |
| Week 12        | 1. Chemical Weed Control – Soil fumigants *(Grant Proposal Drafts are due)*  
2. Chemical Weed Control – Synthetic Herbicides |
| Week 13        | 1. Herbicide resistance  
2. Quiz. Sustainability of Herbicide-Resistant Crops *(Graduate Student-Moderated Discussion)*  
3. Unmanned aerial vehicle use for weed management |
| Week 14        | 1. Integrated Weed Management vs Ecological Weed Management  
2. Graduate Student Grant Proposal Presentations  
3. Submit grant proposal |
| Week 15        | 1. Review for Exam  
2. Examination 3 |

**Grant Proposal Format**

**Project Abstract:** Limited to no more than 250 words.

**Statement of Problem, Rational and Justification:** Statement of the problem being addressed, rationale and justification for objectives and the impact of the anticipated project. Begin the statement of the problem as: "The purpose of this project is to"... Limited to 500 words.

**Project Relevance to Sustainable Agriculture:** State how the project and the expected results contribute to agricultural sustainability. Don’t simply tell us that your project addresses an element of sustainable agriculture, tell us HOW your project will address it and make it more sustainable. Make sure that your work -- even though it is making a part of a system more sustainable -- does not make the whole system or another part of it, less sustainable. Does your project use genetically engineered varieties or organisms? If so, state how their use will contribute to your project and make agriculture more sustainable. No more than 500 words.

**Objectives:** A numbered list of concise project objectives limited to no more than 500 words.

**Approach and Methods:** A brief description of the methods to be used for each objective, numbered according to their corresponding objective. There must be a direct relationship between the approach...
and methods and the project relevance to sustainable agriculture. Approach and Methods is limited to no more than 1000 words.

**Timetable:** Limited to no more than 500 words.

**Literature Cited:** A minimum of 8 refereed journal articles is required.

**Grant Proposal Presentation**

Students will make a 10 minute PowerPoint presentation of their grant proposals.
Cover Sheet: Request 12935

MCB6xxx Probiotics

Info

<table>
<thead>
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<th>Course/New/Grad</th>
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</thead>
<tbody>
<tr>
<td>Status</td>
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</tr>
<tr>
<td>Submitter</td>
<td>Graciela Lorca <a href="mailto:glorca@ufl.edu">glorca@ufl.edu</a></td>
</tr>
<tr>
<td>Created</td>
<td>8/14/2018 12:36:24 PM</td>
</tr>
<tr>
<td>Updated</td>
<td>8/27/2018 12:50:38 PM</td>
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<td>Description of request</td>
<td>New course</td>
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Actions

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</thead>
<tbody>
<tr>
<td>Department</td>
<td>Approved</td>
<td>CALS - Microbiology and Cell Science</td>
<td>Eric Triplett</td>
<td>We have discussed this course with Food Science and Human Nutrition. They do not offer a course on this topic now. We propose that FSHN offer a complimentary course in prebiotics. The combination of courses in prebiotics and probiotics would be very attractive additions to the CALS curriculum.</td>
<td>8/21/2018</td>
</tr>
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<td>Pending</td>
<td>CALS - College of Agricultural and Life Sciences</td>
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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
Undergraduate Curriculum Committee

This letter is to express my enthusiastic support for the new courses MCB4xxx and MCB6xxx called Probiotics developed by Dr. Lorca in the Department of Microbiology and Cell Sciences.

We currently do not offer a course in this specialized area in the Food Science and Human Nutrition Department. Dr. Langkamp-Henken, Dr. Archer and myself have evaluated the syllabus and we believe it will be of interest to many of our undergraduate and graduate students.

Sincerely,

Susan S. Percival, PhD
Professor & Chair
Food Science & Human Nutrition
University of Florida
percival@ufl.edu
### External Consultation Results (departments with potential overlap or interest in proposed course, if any)

<table>
<thead>
<tr>
<th>Department</th>
<th>Name and Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Science and Human Nutrition</td>
<td>Dr. Susan Percival, Chair &amp; Professor</td>
</tr>
<tr>
<td>Phone Number</td>
<td>E-mail</td>
</tr>
<tr>
<td>352.392.2022</td>
<td><a href="mailto:percival@ufl.edu">percival@ufl.edu</a></td>
</tr>
</tbody>
</table>

Comments

Students in the Food Science and Human Nutrition Department may be interested in taking this new course. No overlaps were identified with the courses being offered by the department.
MCB4xxx/MCB6xxx Probiotics

Similarities between MCB4xxx and MCB6xxx

These courses are taught simultaneously.
The undergraduate and graduate level share the same lectures, tests and assignments.

Differences between MCB4xxx and MCB6xxx

For the undergraduate level course (MCB4xxx) the final grade is the result of:
Total: 1000 points
Assignments: 25% (250 points)
Tests: 75% (3 exams x 250= 750 points)

For the graduate level course (MCB6xxx), the students are required to complete all the
activities and tests required in the undergraduate course (70% of the grade).
In addition, the students in the graduate level course have to write a Topics review paper based
on at least five peer reviewed research articles (30% of the grade).
Total: 1000 points
Assignments: 25% (250 points)
Tests: 45% (3 exams x 150= 450 points)
Topic review: 30% (300 points)
Course Request 12935

Info
Request: MCB6xxx Probiotics
Description of request: New course
Submitter: Graciela Lorca glorca@ufl.edu
Created: 8/14/2018 12:25:09 PM
Form version: 1

Responses
Recommended Prefix MCB
Course Level 6
Number: xxx
Category of Instruction: Joint (Ugrad/Grad)
Lab Code: None
Course Title: Probiotics
Transcript Title: Probiotics
Degree Type: Graduate

Delivery Method(s): Online
Co-Listing: Yes
Co-Listing Explanation: For the graduate level course, the students are required to complete all the activities and tests required in the undergraduate course (70% of the grade). In addition, the students in the graduate level course have to write a Topics review paper based on at least five peer reviewed research articles (30% of the grade).
Effective Term: Spring
Effective Year: 2018
Rotating Topic? No
Repeatable Credit? No
Amount of Credit: 3

S/U Only? No
Contact Type: Regularly Scheduled
Weekly Contact Hours: 3
Course Description: MCB6xxx is an upper division course on probiotics. This course will cover the use of microorganisms to promote a health status in the host. This course will provide a conceptual background in microbiology and immunology for the use of microorganisms for the prevention or treatment of animal and human diseases.
Prerequisites: MCB3020 or MCB3023
Co-requisites: None

Rationale and Placement in Curriculum: These new courses (first sections taught Spring 2018) were created in response to the growing interest (among students and the public) on the use of microorganisms in the prevention and/or treatment of some human and animal diseases, as well as their use to promote a healthy status. To my knowledge, these are the first comprehensive courses available on the topic of probiotics. These courses provide a conceptual background in microbiology and immunology for the use of microorganisms in the prevention or treatment of animal and human diseases. These courses are based on peer-reviewed scientific literature.
This course is proposed as an elective

Course Objectives: After successful completion of this course, students will be able to:
- Understand the history of probiotics
- Compare and contrast the use of lactic acid bacteria, Bifidobacterium and Propionibacterium as probiotics
- Understand the range of proposed probiotics and the challenges in ensuring their safety and efficacy
- Compare and contrast the mechanisms used by probiotic microorganisms to modulate the host immune responses in the animal and in the human host
- List the proposed uses of probiotic microorganisms for the prevention or treatment of animal...
and human diseases
- Compare and contrast the applications of prebiotics, probiotics and symbiotics
- Discuss current research efforts and proposed applications of probiotics for animal and human health

Course Textbook(s) and/or Other Assigned Reading - Textbook: no textbook is required, this course is based on peer reviewed papers either available for free through the links provided or through the UF library (e-journals).
- Suggested readings: For each module, suggested readings will be posted as pdf documents on Canvas or as links to download them from PUBMED (see working list at the end of the document). Students are instructed to connect to UF through VPN (if outside campus) before accessing the journals (https://connect.ufl.edu/it/wiki/pages/glvpn.aspx).

Weekly Schedule of Topics Schedule of Classes

<table>
<thead>
<tr>
<th>Date</th>
<th>Unit</th>
<th>Module, Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-Jan*</td>
<td>1.</td>
<td>Unit 1 Probiotics: definitions, history and classification</td>
</tr>
<tr>
<td>31-Jan*</td>
<td>2.</td>
<td>1. Definitions and History</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>2. Classification and physiology: Lactic acid bacteria (LAB)</td>
</tr>
<tr>
<td></td>
<td>4.</td>
<td>3. Classification and physiology: Bifidobacterium and Propionibacterium</td>
</tr>
</tbody>
</table>
|        | 5.   | 4. Impact of genomics on the characterization of probiotics
|        | 6.   | 4. Impact of genomics on the characterization of probiotics
| 12-Feb | 7.   | Assignment 1 due                                      |
| 14-Feb | 8.   | Test 1                                                |
|        | 9.   | Unit 2 Biotechnological applications of Lactic acid bacteria |
| 16-Feb*| 10.  | 5. The uses of LAB in food fermentation - part 1       |
|        | 11.  | 5. The uses of LAB in food fermentation - part 2       |
|        | 12.  | 6. Antimicrobials components of LAB                    |
|        | 13.  | 7. Bacteriophages from LAB                            |
|        | 14.  | 8. Nutraceutics and high value metabolites produced by LABs |
|        | 15.  | Assignment 2 due                                      |
| 2-Mar  | 16.  | Test 1                                                |
| 12-Mar*| 17.  | Unit 3 Interactions of probiotics with the host immune system |
|        | 18.  | 9. Overview on the adaptive and innate immune response - Part 1 |
|        | 19.  | 9. Overview on the adaptive and innate immune response - Part 2 |
|        | 20.  | 10. Immunomodulatory properties of probiotics: bacterial surface proteins |
|        | 21.  | 11. Immunomodulatory properties of probiotics: interactions with the immune system |
|        | 22.  | 12. Engineering LAB and Bifidobacterium for mucosal delivery of heath-associated molecules: Genetic tools |
|        | 23.  | 12. Engineering LAB and Bifidobacterium for mucosal delivery of heath-associated molecules |
| 30-Mar | 24.  | Assignment 4 due                                      |
| 2-Apr  | 25.  | Test 2                                                |
| 4-Apr* | 26.  | Unit 5 New frontiers in the probiotics’ field          |
|        | 27.  | 18. Overview on the microbiome – Part 1                |
|        | 28.  | 18. Overview on the microbiome – Part 2                |
| 8-Apr  | 29.  | Topic review due                                      |
|        | 30.  | 19. Manipulation of the microbiome with probiotics      |
20. Microbiome based new probiotic microorganisms
21. Fecal transplants as probiotics
22. Probiotics, prebiotics and symbiotic
23. Psychobiotics and the Manipulation of Bacteria–Gut–Brain Signals

Assignment 5 due - EXTRA CREDIT
Test 3

2-May Optional Final
*Release date for the Unit on Canvas

Links and Policies University of Florida Policies
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.

Campus Resources
Resources are available on campus for students having personal problems or lacking clear career and academic goals, which interfere with their academic performance. These resources include:

Health and Wellness
- U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352-392-1575 so that a team member can reach out to the student.
- Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575;
- Sexual Assault Recovery Services (SARS) at the Student Health Care Center, 392-1161.
- For emergencies call: University Police Department, 392-1111 (or 9-1-1 for emergencies).

Academic Resources
- E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.
- Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.
- Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

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.

Netiquette guide for online courses
It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

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://sccr.dso.ufl.edu/process/honor-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.

Additional comments regarding academic integrity:
Students are encouraged to discuss material with each other from the course, help each other understand concepts, study together, and even discuss assessment questions with each other once the quiz window is closed. However, the following is considered academic dishonesty, and I expect that no student will ever do any of the following:

- Have another person complete a quiz in this course
- Copy another student’s quiz in this course
- Collaborate with anyone during a quiz in this course
- Discuss the questions and answers of a quiz with other students while the quiz window is still open
- Manipulate and/or distribute any materials provided in this course for any purpose (including course lecture slides).
- Use any materials provided by a previous student in the 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.
Microsoft Office 365 Software is free for UF students
http://www.it.ufl.edu/gatorcloud/free-office-365-downloads/
Other free software is available at:
http://www.software.ufl.edu/
To check for availability of the media and technical requirements, contact the UF Computing Help Desk at (352)392-HELP(4357).

University of Florida Complaints Policy and Student Complaint Process
Most problems, questions and concerns about the course will be resolved by professionally communicating with the instructor or the TAs.

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy.

If a problem really cannot be resolved by communicating with the instructor or the TAs you can contact

University of Florida Complaints Policy and Student Complaint Process

The University of Florida and most instructors believe strongly in the ability of students to express concerns regarding their experiences at the University. Most problems, questions and concerns about courses can be resolved by professionally communicating with the instructor. Please try to meet your instructor in person, make an appointment to call, or try to set up a remote meeting through Skype or other media.

If this does not help the University encourages the students who wish to file a written complaint to submit that complaint directly to the department that manages that course. If a problem really persists and cannot be resolved by communicating with the instructor and the department, contact on the Residential Course: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

This said, professionalism is a two-way-street. Unprofessional behavior of students includes, among other things: lack of communication, blaming other people or external factors, lying, affecting others negatively in a group or in the class, not accepting criticism and not being proactive in solving
problems or seeking help. Furthermore, faculty often have family and other obligations to tend to. Over the weekend, replies to your inquiries or questions may be delayed.

If a student is lacking professionalism repeatedly, the instructor has the rights to file formal complaint against the student through the Dean of Student office.

**Grading Scheme**

**Assessment of learning**

- **Assignments (250 points):** Activities will be assigned by Unit. The activities include online research on diverse topics such as "co-evolution of beneficial bacteria and its hosts", "GMO’s and probiotics", "Market claims: is there scientific evidence?". The activities are mandatory and count towards the final grade. They should be completed by the deadline indicated on Canvas.

- **Topic review (300 points):** The research topics will involve the search and writing of a critical review of at least 5 scientific articles (original research, no reviews will be allowed). The student will have to complete the review on one of the five topics that will be listed on Canvas. Examples are listed below:
  - Conflicts between study of probiotics as foods, dietary supplements and drugs in the US
  - Use of Omics technologies to help understand the microbiome and probiotic functionality
  - Psychobiotics: the microbiome as a key regulator of Brain and behavior
  - Improving probiotic specificity – ‘designer probiotics’

- **Exams (450 points):** Exams will assess your knowledge of the concepts covered during the lectures. Students must sign up on ProctorU at least 72h in advance. The assessment will be performed in Three Mandatory Mid-term exams. The student will be given the option to take a final cumulative exam to improve the grade obtained through the mid-term exams.
  - **Mid-terms (450 points):** There will be three 50 minutes proctored mid-term exams (150 points each) with multiple choice questions, true/false, fill in the blanks questions and short answers questions. All exams are mandatory and will count towards the final grade. Exams will test learning and understanding of material presented in lectures, assigned readings and in assignments.
  - **Optional Final to replace ONE test (with the lowest grade) will be available during Finals Week. The students MUST have taken all three tests to qualify for the Optional Final. This cumulative test will include all the content included in Units 1 to 5 and will be worth 150 points.**

**Grading Scale (points)**

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<th>Points</th>
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<tr>
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<td>900 or above</td>
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<tr>
<td>A-</td>
<td>860-899</td>
</tr>
<tr>
<td>B+</td>
<td>830-859</td>
</tr>
<tr>
<td>B</td>
<td>790-829</td>
</tr>
<tr>
<td>B-</td>
<td>750-789</td>
</tr>
<tr>
<td>C+</td>
<td>720-749</td>
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<tr>
<td>C</td>
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<tr>
<td>C-</td>
<td>660-689</td>
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<tr>
<td>D-</td>
<td>570-599</td>
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<tr>
<td>E</td>
<td>560 or below</td>
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</tbody>
</table>

**Instructor(s)**

Instructor: Dr. Graciela L Lorca

Office: Genetics Institute, Room 307
MCB6937: Probiotics (3 credits)
Spring 2018

MCB6937 is an upper division course on probiotics. This course will cover the use of microorganisms to promote a health status in the animal and human host. This course will provide a conceptual background in microbiology and immunology for the use of microorganisms for the prevention or treatment of animal and human diseases.

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

- Understand the history of probiotics
- Compare and contrast the use of lactic acid bacteria, *Bifidobacterium* and *Propionibacterium* as probiotics
- Understand the range of proposed probiotics and the challenges in ensuring their safety and efficacy
- Compare and contrast the mechanisms used by probiotic microorganisms to modulate the host immune responses in the animal and in the human host
- List the proposed uses of probiotic microorganisms for the prevention or treatment of animal and human diseases
- Compare and contrast the applications of prebiotics, probiotics and symbiotics
- Discuss current research efforts and proposed applications of probiotics for animal and human health

Lectures: Online through Canvas

Instructor: Dr. Graciela L Lorca

Office: Genetics Institute, Room 307


On line help with classroom technology: http://helpdesk.ufl.edu/

Pre-requisite: MCB3020 or MCB3023

Communication: for questions regarding class and textbook content use the Discussion Board, for issues on Home Work Assignments, class organization check first the syllabus, the announcements and calendar on Canvas, then post your questions on the discussion board. For all other issues contact Dr. Graciela Lorca.
VIRTUAL OFFICE HOURS: will be available every week through the BLUE BUTTON tool in Canvas. To participate go to Conferences in the left of your screen and join! You will receive a weekly remainder by email.

Students in Gainesville can also come for in person office hours: Fridays 2-3 PM at Genetics Institute, Room 307.

All students: If you cannot make it to office hours you can request an appointment. Send an e-mail with three suggested times and I will choose one for us to meet.

Contact Information: Use TEACHER in your emails through Canvas ONLY (personal emails should only be used in a case of emergency)

Dr. Graciela L Lorca:

Email (the most efficient): ONLY use Canvas e-mail (If you do not have access to the e-learning platform and need to contact me for an emergency, use glorca@ufl.edu)

Phone: 273 8090 (please leave a message).

Office hours: Fridays 2-3 PM at Genetics Institute, Room 307. By appointment: (only if you cannot make it to office hours) send an e-mail with three suggested times and I will choose one for us to meet.

Discussion Board: A discussion board is available in Canvas. It is very useful, please post and answer your questions on class content and organization there. Postings and answers are monitored by the instructor to make sure no mistakes get propagated. There are several discussion themes. Please post your questions in the adequate section.

Material

- Textbook: textbook is not required; this course is based on peer reviewed papers either available for free through the links provided or through the UF library (ejournals).

- Suggested readings: For each module, suggested readings will be posted as pdf documents on Canvas or as links to download them from PUBMED (see working list at the end of the document). Remember to connect to UF through VPN (if outside campus) before accessing the journals (https://connect.ufl.edu/it/wiki/pages/glvpn.aspx).

Assessment of learning

• Assignments (250 points): Activities will be assigned by Unit. The activities include online research on diverse topics such us “co-evolution of beneficial bacteria and its hosts”, “GMO’s and probiotics”, “Market claims: is there scientific evidence?”. The
activities are mandatory and count towards the final grade. They should be completed by the deadline indicated on Canvas.

- **Topic review (300 points):** The research topics will involve the search and writing of a critical review of at least 5 scientific articles (original research, no reviews will be allowed). The student will have to complete the review on one of the five topics that will be listed on Canvas. Examples are listed below:
  - Conflicts between study of probiotics as foods, dietary supplements and drugs in the US
  - Use of Omics technologies to help understand the microbiome and probiotic functionality
  - Psychobiotics: the microbiome as a key regulator of Brain and behavior
  - Improving probiotic specificity – ‘designer probiotics’

- **Exams (450 points):** Exams will assess your knowledge of the concepts covered during the lectures. Students must sign up on ProctorU at least 72h in advance. The assessment will be performed in **Three Mandatory Mid-term exams.** The student will be given the option to take a final cumulative exam to improve the grade obtained through the mid-term exams.
  - **Mid-terms (450 points):** There will be three 50 minutes proctored mid-term exams (150 points each) with multiple choice questions, true/false, fill in the blanks questions and short answers questions. **All exams are mandatory and will count towards the final grade.** Exams will test learning and understanding of material presented in lectures, assigned readings and in assignments.
  - **Optional Final to replace ONE test (with the lowest grade) will be available during Finals Week.** The students MUST have taken all three tests to qualify for the Optional Final. This cumulative test will include all the content included in Units 1 to 5 and will be worth 150 points.

**Make-Up policy:** Make-up exams will ONLY be allowed with a VALID justification. If one exam is missed, it will result in a score of 0 for the test (see below for “Excused absences”).

**Excused absences:**

Documentation MUST be provided for absences caused by serious illness, accident, jury duty, or death in the immediate family. You must contact the instructor **IN ADVANCE (as soon as possible)** of the missed exam and I will arrange an alternative time for the exam.

**After the exam:** The grades will be available on Canvas three days after the exam, unless notified by an announcement. Test questions will be made available through Canvas. After we release the questions, the student will have 5 days to submit questions about the test or claim mistakes in grading. No claims will be considered after that time.
Grading: Straight scale

Grading Scale
A  900 or above
A-  860-899
B+  830-859
B  790-829
B-  750-789
C+  720-749
C  690-719
C-  660-689
D+  630-659
D  600-629
D-  570-599
E  560 or below

Schedule of Classes

<table>
<thead>
<tr>
<th>Date</th>
<th>Unit</th>
<th>Module &amp; Topic</th>
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<tbody>
<tr>
<td>8-Jan*</td>
<td>Unit 1</td>
<td>Probiotics: definitions, history and classification</td>
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<tr>
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<td></td>
<td>1. Definitions and History</td>
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<td>2. Classification and physiology: Lactic acid bacteria (LAB)</td>
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<tr>
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<td>3. Classification and physiology: <em>Bifidobacterium</em> and <em>Propionibacterium</em></td>
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<td></td>
<td>4. Impact of genomics on the characterization of probiotics _Intro to genomics</td>
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<td>4. Impact of genomics on the characterization of probiotics _LAB part 1</td>
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<td>29-Jan</td>
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<td>31-Jan*</td>
<td>Unit 2</td>
<td>Biotechnological applications of Lactic acid bacteria</td>
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<td>5. The uses of LAB in food fermentation -part 1</td>
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<td>5. The uses of LAB in food fermentation -part 2</td>
</tr>
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<td>6. Antimicrobials components of LAB</td>
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<td>7. Bacteriophages from LAB</td>
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<td>8. Nutraceuticals and high value metabolites produced by LABs</td>
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<td>12-Feb</td>
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<tr>
<td>14-Feb</td>
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<td>16-Feb*</td>
<td>Unit 3</td>
<td>Interactions of probiotics with the host immune system</td>
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<td></td>
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<td>9. Overview on the adaptive and innate immune response -Part 1</td>
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<td>9. Overview on the adaptive and innate immune response -Part 2</td>
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<td>10. Immunomodulatory properties of probiotics: bacterial surface proteins</td>
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<td>11. Immunomodulatory properties of probiotics: interactions with the immune system</td>
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<tr>
<td>2-Mar</td>
<td>12. Engineering LAB and <em>Bifidobacterium</em> for mucosal delivery of health-associated molecules; Genetic tools</td>
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<td>12-Mar</td>
<td><strong>Probiotics safety and efficacy</strong></td>
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<tr>
<td>14-Mar</td>
<td>14. Safety considerations on probiotics</td>
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<td>15-Mar</td>
<td>15. Environmental factors influencing the efficacy of probiotics</td>
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<tr>
<td>30-Mar</td>
<td>16. Efficacy of probiotics in Human Subjects: Probiotics by design</td>
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<tr>
<td>2-Apr</td>
<td>Probiotics in Animal Production and Health</td>
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<tr>
<td>17-Mar</td>
<td>Unit 4: Probiotics safety and efficacy</td>
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<tr>
<td>30-Mar</td>
<td>Assignment 4 due</td>
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<td>8-Apr</td>
<td>Test 2</td>
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</tr>
<tr>
<td>2-Apr</td>
<td>Unit 5: New frontiers in the probiotic's field</td>
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<tr>
<td>4-Apr</td>
<td>Overview on the microbiome – Part 1</td>
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<tr>
<td>18-Apr</td>
<td>Overview on the microbiome – Part 2</td>
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<tr>
<td>8-Apr</td>
<td>Topic review due</td>
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<tr>
<td>19-Apr</td>
<td>Manipulation of the microbiome with probiotics</td>
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<td>20-Apr</td>
<td>Microbiome based new probiotic microorganisms</td>
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<td>21-Apr</td>
<td>Fecal transplants as probiotics</td>
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<td>22-Apr</td>
<td>Probiotics, prebiotics and symbiotic</td>
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<td>23-Apr</td>
<td>Psychobiotics and the Manipulation of Bacteria–Gut–Brain Signals</td>
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<td>20-Apr</td>
<td>Assignment 5 due – EXTRA CREDIT</td>
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<td>2-May</td>
<td>Optional Final</td>
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*Release date for the Unit on Canvas

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**University of Florida Policies**

**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.
Campus Resources
Resources are available on campus for students having personal problems or lacking clear career and academic goals, which interfere with their academic performance. These resources include:

Health and Wellness
- U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.
- Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575;
- Sexual Assault Recovery Services (SARS) at the Student Health Care Center, 392-1161.
- For emergencies call: University Police Department, 392-1111 (or 9-1-1 for emergencies). http://www.police.ufl.edu/

Academic Resources
- E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.
- Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. http://teachingcenter.ufl.edu/

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.
Netiquette guide for online courses
It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

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://sccr.dso.ufl.edu/process/honor-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.

Additional comments regarding academic integrity:
Students are encouraged to discuss material with each other from the course, help each other understand concepts, study together, and even discuss assessment questions with each other once the quiz window is closed. However, the following is considered academic dishonesty, and I expect that no student will ever do any of the following:

- Have another person complete a quiz in this course
- Copy another student’s quiz in this course
- Collaborate with anyone during a quiz in this course
- Discuss the questions and answers of a quiz with other students while the quiz window is still open
- Manipulate and/or distribute any materials provided in this course for any purpose (including course lecture slides).
- Use any materials provided by a previous student in the 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.

Microsoft Office 365 Software is free for UF students
http://www.it.ufl.edu/gatorcloud/free-office-365-downloads/

Other free software is available at:
http://www.software.ufl.edu/
To check for availability of the media and technical requirements, contact the UF Computing Help Desk at (352)392-HELP(4357).

**University of Florida Complaints Policy and Student Complaint Process**
Most problems, questions and concerns about the course will be resolved by professionally communicating with the instructor or the TAs.

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy.

If a problem really cannot be resolved by communicating with the instructor or the TAs you can contact

**University of Florida Complaints Policy and Student Complaint Process**

The University of Florida and most instructors believe strongly in the ability of students to express concerns regarding their experiences at the University. Most problems, questions and concerns about courses can be resolved by professionally communicating with the instructor. Please try to meet your instructor in person, make an appointment to call, or try to set up a remote meeting through Skype or other media.

If this does not help the University encourages the students who wish to file a written complaint to submit that complaint directly to the department that manages that course. If a problem really persists and cannot be resolved by communicating with the instructor and the department, contact... for Residential Course: [https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

This said, professionalism is a two-way-street. Unprofessional behavior of students includes, among other things: lack of communication, blaming other people or external factors, lying, affecting others negatively in a group or in the class, not accepting criticism and not being proactive in solving problems or seeking help. Furthermore, faculty often have family and other obligations to tend to. Over the weekend, replies to your inquiries or questions maybe delayed.

If a student is lacking professionalism repeatedly, the instructor has the rights to file formal complaint against the student through the Dean of Student office.
Suggested Readings and Sources

Unit 1. Probiotics: definitions, history and classification

Module 1. Definitions and History


Module 2. Classification and physiology: Lactic acid bacteria (LAB)


Module 3. Classification and physiology: Bifidobacterium and Propionibacterium


Module 4. Impact of genomics on the characterization of probiotics

Unit 2. Biotechnological applications of Lactic acid bacteria

Module 5. The uses of LAB in food fermentation


Module 6. Antimicrobials components of LAB


Module 7. Bacteriophages from LAB


Module 8. Nutraceutics and high value metabolites produced by LABs


Unit 3. Interactions of probiotics with the host immune system

Module 10. Immunomodulatory properties of probiotics: bacterial surface proteins


Module 11. Immunomodulatory properties of probiotics: interactions with the immune system


Module 12. Engineering LAB and *Bifidobacterium* for mucosal delivery of health-associated molecules


Unit 4. Probiotics safety and efficacy

Module 13. FAO/WHO Guidelines on Probiotics


Module 14. Safety considerations on probiotics


Module 15. Environmental factors influencing the efficacy of probiotic bacteria

Module 16. Efficacy of probiotics in Human Subjects


Module 17. Probiotics in Animal Production and Health


Unit 5. New frontiers in probiotic's development

Module 18. Overview on the microbiome

• Workshop Slides - JCVI Blog - J. Craig Venter Institute


• Human Microbiome Project
Module 19. Manipulation of the microbiome by probiotics


Module 20. Microbiome research to identify new probiotic microorganisms


Module 21. Fecal transplants as probiotics


Module 22. Probiotics, prebiotics and symbiotics


**Module 23. Psychobiotics: manipulation of bacteria–gut–brain signals**


## Cover Sheet: Request 12960

**SWS 6XXX - Landscape Hydrology**

### Info

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<th>Course</th>
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<th>Grad</th>
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<tr>
<td>Submitter</td>
<td>Michael Sisk <a href="mailto:mjsisk@ufl.edu">mjsisk@ufl.edu</a></td>
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<tr>
<td>Updated</td>
<td>8/24/2018 10:14:06 AM</td>
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<tr>
<td>Description of request</td>
<td>New Graduate Course in Soil and Water Sciences Department</td>
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<td>CALS - Soil and Water Science 51492100</td>
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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 12960

Info

Request: SWS 6XXX - Landscape Hydrology
Description of request: New Graduate Course in Soil and Water Sciences Department
Submitter: Michael Sisk mjsisk@ufl.edu
Created: 8/23/2018 10:24:22 AM
Form version: 1

Responses
Recommended Prefix SWS
Course Level 6
Number XXX
Category of Instruction Intermediate
Lab Code None
Course Title Landscape Hydrology
Transcript Title Landscape Hydrology
Degree Type Graduate

Delivery Method(s) On-Campus
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 Landscape hydrology applies modern techniques within parsimonious model frameworks to study water resource problems of societal relevance. Advanced quantitative principles are applied at larger spatial scales (> 100 km2) and integrate surface and subsurface processes. This course is of interest to environmental and agricultural scientists and engineers.

Prerequisites Prior coursework in hydrology (subsurface or surface hydrology) and statistics.
Co-requisites N/A
Rationale and Placement in Curriculum This graduate course supports the hydrology and water resource programs within the department at the University. The physics-based landscape-scale perspective is consistent with the graduate program and training objectives of the curriculum in the department and in the hydrologic sciences overall.
Course Objectives The course will center around two main themes:

1. Characterizing “landscapes”, including not just traditional “watersheds” but also springsheds, wetlandscapes, lakesheds, airstsheds, cities, and entire regions of anthropogenically modified land use and land cover (such as intensive agriculture), and

2. Understanding natural stochasticity by incorporating a probabilistic approach to consider mean behavior and variability in both time and space. Observed statistical properties of hydrologic data will be related to their physical generation processes.

Course Textbook(s) and/or Other Assigned Reading Each topic on the list below has assigned readings (in bold) plus supplemental suggested readings. Note that this list is not final – other papers may be added or substituted. There is no required textbook for the course. All papers listed below will be available on the course Canvas site.
Background: Statistics for hydrologists

Topic 1 Water budgets

Topic 2 Partitioning water and energy

Topic 3 Hydroclimatic forcing

Topic 4 Hydrologic Response
McDonnell et al., 2010. How old is streamwater? Open questions in catchment transit time conceptualization, modelling and analysis, Hydrological Processes,24: 1745–1754

Topic 5 Biogeochemical Response

Topic 6 Landscape Filtering
Kirchner, J.W., and Neal, C., 2013. Universal fractal scaling in stream chemistry and its implications
for solute transport and water quality trend detection, PNAS, 110(30): 12213–12218.


Topic 7 Heterogeneous Landscapes


Topic 8 Human Landscapes


Ackland et al., 2007. Cultural hitchhiking on the wave of advance of beneficial technologies, PNAS, 104: 21, 8714–8719

Weekly Schedule of Topics

Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic Assignments Due Dates</th>
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<tbody>
<tr>
<td>1</td>
<td>1. Regional water and solute budgets</td>
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<td>Landscapes + hydrology</td>
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<td>Probabilistic representation of hydrologic data</td>
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<td>Relative significance of water budget components</td>
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<td>2</td>
<td>Spatial variability in hydrologic parameters</td>
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<td>Temporal trends in water budget components</td>
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<td>3</td>
<td>2. Partitioning rainfall into E and Q</td>
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<td>Partitioning incoming water and energy</td>
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<td>Predicting water availability under variable climate</td>
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<td>4</td>
<td>Effects of land cover change</td>
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<td></td>
<td>Human influence or climatic variability?</td>
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<td>5</td>
<td>3. Hydroclimatic forcing</td>
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<td></td>
<td>Poisson rainfall</td>
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<td>Indices of extreme events</td>
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<td>Long-wave nonstationarity</td>
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<td>7</td>
<td>4. Hydrologic response</td>
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<td>Runoff pdfs, flow duration curves and beyond</td>
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<td>8</td>
<td>Linear reservoir and convolution</td>
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<td>Lorenz inequality and Gini coefficient</td>
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<td>Regression models</td>
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<td>10</td>
<td>5. Biogeochemical response</td>
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<td>Lagrangian travel time pdfs</td>
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<td>Landscape-scale controls</td>
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<td>11</td>
<td>Concentration vs discharge</td>
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<td>Landscape heterogeneity</td>
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<td>12</td>
<td>Landscape filtering</td>
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<td>Spectral power</td>
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<td>13</td>
<td>Atmospheric deposition</td>
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<td>14</td>
<td>7. Heterogeneous landscapes</td>
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<td>Power law universality?</td>
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<td>Types of heterogeneity</td>
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<td>15</td>
<td>8. Human landscapes</td>
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<td>People on the landscape</td>
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<td></td>
<td>Landscape change (land cover)</td>
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<tr>
<td>16</td>
<td>Water transfers and vulnerability</td>
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<tr>
<td>17</td>
<td>Final project presentations</td>
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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
Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

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/scrr/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
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/next-level

Student Complaints:
* Online Course: http://www.distance.ufl.edu/student-complaint-process

**Grading Scheme**

Student Evaluation and Grading Procedures: No exams! Six (6) quantitative homework assignments, and a final project. Homework assignments will be due 1 week from the date assigned.

<table>
<thead>
<tr>
<th>Course components</th>
<th>Points</th>
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<tbody>
<tr>
<td>Class participation</td>
<td>12</td>
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<tr>
<td>Assignments 1, 2, and 3 (9 each)</td>
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<td>Assignments 4, 5, and 6 (12 each)</td>
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<tr>
<td>Individual project, including in-class presentation</td>
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<td>Total points</td>
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A>90>A->87>B+>84>B>78>C++>75>C>72>C->69>D+ >66>D> 63>D->60>E

Assignments 1-3 can be re-submitted following corrections. Not all assignments have equal weight. Late submissions will be penalized 10% per day. Class participation entails regular, on-time attendance, and active engagement during lectures and discussions. Students are strongly encouraged to use scripts/codes for computational problem solving. This is good scientific practice for both documentation and reproducibility. I will be using RStudio, but Matlab and Python are also good choices.

**Instructor(s)** Dr. James W. Jawitz
SWS 6XXX Landscape Hydrology

3 credits | Fall semester | Odd years
T 3, R 2-3

James W. Jawitz, Professor

2191 McCarty Hall, 352.294.3141, 294-3141, jawitz@ufl.edu
Office hours: Come talk to me anytime, or after class, or schedule an appointment.

Course Description: Landscape hydrology applies modern techniques within parsimonious model frameworks to study water resource problems of societal relevance. Advanced quantitative principles are applied at larger spatial scales (> 100 km²) and integrate surface and subsurface processes. This course is of interest to environmental and agricultural scientists and engineers.

Course Objectives: The course will center around two main themes:
1. Characterizing “landscapes”, including not just traditional “watersheds” but also springsheds, wetlandscapes, lakesheds, airsheds, cities, and entire regions of anthropogenically modified land use and land cover (such as intensive agriculture), and
2. Understanding natural stochasticity by incorporating a probabilistic approach to consider mean behavior and variability in both time and space. Observed statistical properties of hydrologic data will be related to their physical generation processes.

Prerequisites: Prior coursework in hydrology (subsurface or surface hydrology) and statistics.

Student Evaluation and Grading Procedures: No exams! Six (6) quantitative homework assignments, and a final project. Homework assignments will be due 1 week from the date assigned.

<table>
<thead>
<tr>
<th>Course components</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class participation</td>
<td>12</td>
</tr>
<tr>
<td>Assignments 1, 2, and 3 (9 each)</td>
<td>27</td>
</tr>
<tr>
<td>Assignments 4, 5, and 6 (12 each)</td>
<td>36</td>
</tr>
<tr>
<td>Individual project, including in-class presentation</td>
<td>25</td>
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<tr>
<td>Total points</td>
<td>100</td>
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</table>

A>90>A->87>B++>84>B+>81>B->78>C++>75>C>72>C->69>D+>66>D>63>D->60>E

Assignments 1-3 can be re-submitted following corrections. Not all assignments have equal weight. Late submissions will be penalized 10% per day. Class participation entails regular, on-time attendance, and active engagement during lectures and discussions. Students are strongly encouraged to use scripts/codes for computational problem solving. This is good scientific practice for both documentation and reproducibility. I will be using RStudio, but MATLAB and Python are also good choices.
Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Assignments Due Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>1. Regional water and solute budgets</strong></td>
<td></td>
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<tr>
<td></td>
<td><strong>Landscapes + hydrology</strong></td>
<td></td>
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<tr>
<td></td>
<td><strong>Probabilistic representation of hydrologic data</strong></td>
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<tr>
<td></td>
<td><strong>Relative significance of water budget components</strong></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Spatial variability in hydrologic parameters</strong></td>
<td>HW 1: Water budget (8/31)</td>
</tr>
<tr>
<td></td>
<td><strong>Temporal trends in water budget components</strong></td>
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<tr>
<td>3</td>
<td><strong>2. Partitioning rainfall into E and Q</strong></td>
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<tr>
<td></td>
<td><strong>Partitioning incoming water and energy</strong></td>
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<td></td>
<td><strong>Predicting water availability under variable climate</strong></td>
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<tr>
<td>4</td>
<td><strong>Effects of land cover change</strong></td>
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<td></td>
<td><strong>Human influence or climatic variability?</strong></td>
<td>HW 2: Energy budget (9/14)</td>
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<tr>
<td>5</td>
<td><strong>3. Hydroclimatic forcing</strong></td>
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<td></td>
<td><strong>Poisson rainfall</strong></td>
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<td><strong>Indices of extreme events</strong></td>
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<tr>
<td>6</td>
<td><strong>Long-wave nonstationarity</strong></td>
<td></td>
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<td>7</td>
<td><strong>4. Hydrologic response</strong></td>
<td>HW 3: Stochastic rain (9/28)</td>
</tr>
<tr>
<td></td>
<td><strong>Runoff pdfs, flow duration curves and beyond</strong></td>
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</tr>
<tr>
<td>8</td>
<td><strong>Linear reservoir and convolution</strong></td>
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<td><strong>Goodness of fit</strong></td>
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<tr>
<td>9</td>
<td><strong>Lorenz inequality and Gini coefficient</strong></td>
<td>HW 4: Stochastic runoff (10/12)</td>
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<td><strong>Regression models</strong></td>
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<tr>
<td>10</td>
<td><strong>5. Biogeochemical response</strong></td>
<td>HW 5: Spectral methods (10/26)</td>
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<td></td>
<td><strong>Lagrangian travel time pdfs</strong></td>
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<td><strong>Landscape-scale controls</strong></td>
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<td>11</td>
<td><strong>Concentration vs discharge</strong></td>
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<td></td>
<td><strong>Landscape heterogeneity</strong></td>
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<tr>
<td>12</td>
<td><strong>6. Landscape filtering</strong></td>
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<td></td>
<td><strong>Spectral power</strong></td>
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<td></td>
<td><strong>Atmospheric deposition</strong></td>
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<tr>
<td>13</td>
<td><strong>7. Heterogeneous landscapes</strong></td>
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<td></td>
<td><strong>Power law universality?</strong></td>
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<tr>
<td></td>
<td><strong>Types of heterogeneity</strong></td>
<td>HW 6: Solute response (11/2)</td>
</tr>
<tr>
<td>14</td>
<td><strong>8. Human landscapes</strong></td>
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<tr>
<td></td>
<td><strong>People on the landscape</strong></td>
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<td></td>
<td><strong>Landscape change (land cover)</strong></td>
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<td></td>
<td><strong>Water transfers and vulnerability</strong></td>
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<tr>
<td>15</td>
<td><strong>Final project presentations</strong></td>
<td>(11/30 - 12/5)</td>
</tr>
</tbody>
</table>

**Assigned Readings:** Each topic on the list below has assigned readings **(in bold)** plus supplemental suggested readings. Note that this list is not final – other papers may be added or substituted. There is no required textbook for the course. All papers listed below will be available on the course Canvas site.
Background: Statistics for hydrologists

**Topic 1 Water budgets**

**Topic 2 Partitioning water and energy**

**Topic 3 Hydroclimatic forcing**

**Topic 4 Hydrologic Response**

**Topic 5 Biogeochemical Response**


**Topic 6 Landscape Filtering**


**Topic 7 Heterogeneous Landscapes**


**Topic 8 Human Landscapes**


Ackland et al., 2007. Cultural hitchhiking on the wave of advance of beneficial technologies, *PNAS*, 104: 21, 8714–8719
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
Requirements for class attendance and make-up exams, assignments and other work are consistent
with university policies that can be found at:

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

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- University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu
- 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/next-level

**Student Complaints:**
- Online Course: http://www.distance.ufl.edu/student-complaint-process
Cover Sheet: Request 12955

Changing credit value of HUN6321

Info

<table>
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<tr>
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<th>Grad</th>
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<th>Status</th>
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<tr>
<td>Updated</td>
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Description of Changing credit value of HUN6321 to meet the needs of the department

Actions

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<th>User</th>
<th>Comment</th>
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<td>Susan Percival</td>
<td>I support this change in credit. It is now the same as most of our other graduate courses.</td>
<td>8/21/2018</td>
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<tr>
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<td>No document changes</td>
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</tbody>
</table>
Course|Modify for request 12955

Info

Request: Changing credit value of HUN6321
Description of request: Changing credit value of HUN6321 to meet the needs of the department
Submitter: Robin da Silva robindasilva@ufl.edu
Created: 8/21/2018 1:20:50 PM
Form version: 1

Responses
Current Prefix HUN
Course Level 6
Number 321
Lab Code None
Course Title Proteins and Amino acids in Nutrition
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? No

Change Transcript Title? No

Change Credit Hours? Yes
Current Credit Hours 4
Proposed Credit Hours 3
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? No

Change Prerequisites? No
Change Co-requisites? No

Rationale Reducing credit hours to meet departmental need.
HUN 6321
Proteins and Amino Acids in Nutrition
Fall 2018

Lecture: 4 Credits, Tuesday and Friday, Periods 2-3 (8:30-10:25 am) MAEB 0238

Instructor: Robin da Silva
FSHN - Room 449
Tel: (352) 294-3751
Email: robindasilva@ufl.edu

Office Hours: Monday and Wednesdays 2:00 – 4:00 pm

Prerequisites: HUN 3221 and BCH 3025 or equivalent

Description:
Nutritional aspects of proteins and amino acids, with emphasis on metabolism, nitrogen and amino acid requirements, assessment of protein quality, effects of deficiencies, toxicities and physiological stresses, and techniques for improving protein nutrition.

Format:
Two, two-hour classes per week. The general format will be a combination of lectures and discussions on current concepts in protein and amino acid nutrition in humans.

EXPECTED OUTCOMES:

Course Learning Objectives:

Demonstrate knowledge of the physiological, biochemical, and molecular factors that control protein and amino acid metabolism in humans.

Review and write literature related to amino acid and protein metabolism from a nutritional perspective

Develop independent critical thinking and conversational skills.

Required Textbooks: There is no required textbook for this course. Students will use relevant literature available through UF libraries (both physical and online).
Students will find some pertinent information in the most updated version of:
Lehninger’s Principles of Biochemistry 7th Edition Nelson, Cox

Recommended Materials: There are no additional fees for materials in this course.

Topics (Subject to change)
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction (1)</td>
</tr>
<tr>
<td>2</td>
<td>Basic Amino acid and Protein Metabolism</td>
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<tr>
<td>3</td>
<td>Protein Digestion</td>
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<td>4</td>
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<td>8</td>
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<td>9</td>
<td>Protein degradation</td>
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<td>10</td>
<td>Requirements Essential amino acids</td>
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<td>11</td>
<td>Inborn Errors of Amino Acid Metabolism</td>
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<tr>
<td>12</td>
<td>Presentations</td>
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<tr>
<td>13</td>
<td>Presentations</td>
</tr>
<tr>
<td>14</td>
<td>Thanksgiving</td>
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<tr>
<td>15</td>
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</tr>
</tbody>
</table>
Critical Dates:

Quiz 1 Sept 7th
Quiz 2 Sept 21st
Quiz 3 October 5th
Presentations: October to Late December
Major Assignment Due: November 10th

Evaluation Scheme:

There will be 3 quizzes, one major assignment and in class presentations

Major assignment: Each student will write a mini-review article on the topic of your choosing. The review should be related to amino acids or protein research. Students are encouraged to relate their review to their own research but must not focus on their specific work. This will be discussed further in class.

Presentations: Students will have to give a 50 minute presentation on

Quizzes 30%
Major Assignment 50%
Presentation 20%

UF Grading Policy:

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<td>90.0-93.3</td>
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<tr>
<td>86.7-89.9</td>
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<td>80.0-83.3</td>
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<td>66.7-69.9</td>
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<td>1.33</td>
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<tr>
<td>63.4-66.6</td>
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<td>60.0-63.3</td>
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<tr>
<td>0-599</td>
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</table>

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Class attendance and participation are mandatory in accordance with the University of Florida's policy on attendance that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Students will behave in an appropriate manner in class, taking care not to disrupt other students learning activities. Students are asked to be punctual and submit assignments on time.

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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/

Student Complaints:
The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy. More information can be found here: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
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Instructor: Robin da Silva
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Tel: (352) 294-3751
Email: robindasilva@ufl.edu
Office Hours: Monday and Wednesdays 2:00 – 4:00 pm
Prerequisites: HUN 3221 and BCH 3025 or equivalent

Description:
Nutritional aspects of proteins and amino acids, with emphasis on metabolism, nitrogen and amino acid requirements, assessment of protein quality, effects of deficiencies, toxicities and physiological stresses, and techniques for improving protein nutrition.

Format:
One three-hour classes per week. The general format will be a combination of lectures and discussions on current concepts in protein and amino acid nutrition in humans.

EXPECTED OUTCOMES:

Course Learning Objectives:

Demonstrate knowledge of the physiological, biochemical, and molecular factors that control protein and amino acid metabolism in humans.

Review and write literature related to amino acid and protein metabolism from a nutritional perspective

Develop independent critical thinking and conversational skills.

Required Textbooks: There is no required textbook for this course. Students will use relevant literature available through UF libraries (both physical and online). Students will find some pertinent information in the most updated version of:
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Critical Dates:

Presentations: October to Late December
Major Assignment Due: November 10th

Evaluation Scheme:

There will be 3 quizzes, one major assignment and in class presentations

Major assignment: Each student will write a mini-review article on the topic of your choosing. The review should be related to amino acids or protein research. Students are encouraged to relate their review to their own research but must not focus on their specific work. This will be discussed further in class.

Presentations: Students will have to give a 50 minute presentation on

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UF Grading Policy:

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

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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 Complaints:

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy. More information can be found here:

Cover Sheet: Request 12998

HOS 3XXX – Genetics and Breeding of Fruit Crops

Info

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Description of request: We request to create a new course titled HOS 3XXX – Genetics and Breeding of Fruit Crops

Actions

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No document changes

University Curriculum Committee

Statewide Course Numbering System

Office of the Registrar

Student Academic Support System

Catalog

College Notified

No document changes
Hi Rebecca,

I just got the syllabi yesterday and am using this email to convey my thoughts at this point.

First, I think that Rob and Ali need to review the syllabi and compare with our plant breeding course (AGR 4320) to determine the overlap and potential impact.

You are requiring AGR3303 as a prerequisite, but what about the Agronomy plant breeding course. If the intention is to replace AGR 4320, how many students do you anticipate taking your courses? We would need to know the impact on AGR 4320.

Right now, I am not too concerned about the medicinal plants course; but I am concerned about the fruit crops course and it directly competing with AGR 4320. At least half of the course is an overlap with AGR 4320. Does Mike Kane teach a micropropagation course? Some of this material might overlap; therefore, he and EH should review.

At a broader level, I am concerned about offering such specialized breeding courses for undergrads. It seems that specialized courses like these will devalue our graduate courses and graduate degrees. Does HS still teach the Breeding Perennial Crops graduate course? The fruit course appears to be an undergraduate version of this Perennial Breeding course formerly taught by Paul Lyrene (not sure if Olmstead taught the course). I will bring this up at next week’s Plant Breeders Working Group meeting. I would support both courses at the graduate level.

Perhaps a better approach would be for folks in HS to meet with Ali and provide him some fruit crop examples/case studies so that these can be integrated into AGR 4320. Ali’s class is probably heavy on agronomic crops, but could easily be tweaked to include other examples. Breeding methods are often similar. My turf breeding program is essentially the same as the blueberry program.

I could see a very useful course that could be developed that includes the other aspects of these two courses regarding the chemistry of medicinal plants and flavor in fruit crops. The incorporation of these traits in a breeding program could be a nice graduate course without having to include the breeding methods that would be taught in AGR 4320.

Thank you for giving us an opportunity to review the proposed courses.

Kevin

Kevin Kenworthy, Ph.D.
Professor, Plant Breeding
UF/IFAS Agronomy Department
2005 SW 23rd St
P.O. Box 110965
Gainesville, FL 32611

Cell: 352-262-8719
Email: kenworth@ufl.edu
Hi Kevin,

Have you and the other breeding faculty had a chance to look over the two proposed syllabi we sent? We’d like to incorporate any suggestions you have.

Thanks
Rebecca

> On Aug 4, 2018, at 3:50 PM, Darnell, Rebecca L <rld@ufl.edu> wrote:
> Hi Kevin
> I’m in Glacier right now. I sent Greg and Rob the syllabi with the original email. Can one of them forward that to you?
> Thanks
> Rebecca
> >> On Aug 2, 2018, at 8:50 AM, Kenworthy, Kevin E <kenworth@ufl.edu> wrote:
> >> Hi Rebecca,
> >> Sorry for my slow response. I am not back in the office.
> >> I will need the syllabi for the two proposed courses. I have copied other main campus Agronomy breeders so that they can also provide their input to me which I will then summarize for you. Please reply all with the syllabi attached. I see that you are out of the office so perhaps Greg can forward them to the group.
> >> Thank You,
> >> Kevin Kenworthy, Ph.D.
> >> Professor, Plant Breeding
> >> UF/IFAS Agronomy Department
> >> 2005 SW 23rd St
> >> P.O. Box 110965
> >> Gainesville, FL 32611
> >> Cell: 352-262-8719
> >> Email: kenworth@ufl.edu
> >>
> >> -----Original Message-----
> >> From: Darnell, Rebecca L
> >> Sent: Wednesday, July 25, 2018 1:01 PM
> >> To: MacDonald, Gregory E; Gilbert, Robert A
> >> Cc: Kenworthy, Kevin E
> >> Subject: RE: Proposed HOS courses in Medicinal Plants and Fruit Breeding
Thanks, Greg. I'll wait to hear back from Kevin.

Greg

---

Thanks, Greg. I just found out that the deadline to get the first course returned to the CALS curriculum committee is Aug. 8. It was submitted initially at the April 13, 2018 CALS meeting, at which time the committee asked us to get approval from several departments. If possible, can we hear back from you prior to that deadline?

Thanks!
Rebecca

---

I copied Kevin Kenworthy who works closely with the undergraduate plant breeding majors to gather his input on these courses.

Greg

---

Dear Greg and Rob,
Our department is proposing two new undergraduate courses: "Breeding and Production of Medicinal Plants and Herbs" and "Genetics and Breeding of Fruit Crops". We are reaching out to you to ensure there is minimal overlap between what we propose and any courses you currently offer at the undergraduate level. We propose that both courses have AGR 3303 as a prerequisite. If our proposed courses are agreeable to you, we would need an email to confirm your approval. I've attached the proposed syllabus. Please let me know if there are any concerns and/or comments. We would appreciate your response by August 13 so we can make any edits that are required. Feel free to contact me if there are questions.

Thank you.

Regards,

Rebecca

Rebecca Darnell
Professor & Associate Chair
Horticultural Sciences Dept.
University of Florida
Gainesville, FL 32611
CALS Curriculum Committee

Dear colleagues in the CALS curriculum committee,

I write this letter in support of our new course request for HOS 3XXX – Genetics and Breeding of Fruit Crops. This course is being created as a breeding elective for undergraduate students in our proposed Plant Biotechnology and Improvement specialization, and as a general elective for undergraduate students in our Organic Horticultural Systems and Science and Technology of Horticultural Crops specializations. The Horticultural Sciences Department is home to internationally recognized fruit breeding programs. We are excited to introduce undergraduates to the unique aspects of fruit crop species biology and genetics in the context of strategies for genetic improvement.

In response to the concerns expressed by the Agronomy Department, I would like to point out that our curriculum is designed to be synergistic with the Agronomy Department’s breeding and genetics courses. AGR3303 is a required course for all three of our proposed specializations, and students in the Plant Biotechnology and Improvement specialization are also required to take AGR4320. AGR3303 covers the foundational principles of genetics and AGR4320 covers foundational principles of plant breeding along with conventional and biotechnology approaches to plant improvement. The proposed new course applies these concepts to the unique biology of specialty crops. This is not to say that fundamental principles are not reviewed in the proposed new course, but here the focus is on their application to achieve desirable traits in horticultural crop plants and their high-value commodities.

Examples of topics with unique emphasis in HOS 3XXX Genetics and Breeding of Fruit Crops include:

- The history and importance of genetic improvement in fruit crops
- Reproductive biology of woody perennial species with emphasis on fruit development
- Genetic approaches of importance in woody perennial species such as rootstock breeding, bud sport selection and asexual propagation, and somatic cell hybridization and cybridization
- Commodity traits of importance in fruit crops such as color, taste, aroma, texture and post-harvest performance
- Plant breeding career tracks, the cultivar release process, and intellectual property protection strategies
- Breeding strategies in the current Horticultural Sciences Department peach, blueberry, citrus and tropical fruit breeding programs
We do not believe that introducing undergraduate students to the exciting opportunities and challenges in the genetic improvement of fruit crops in any way de-values our graduate courses or graduate degrees. One mission of our department is to prepare undergraduate students for the many possible careers in horticultural sciences. Our proposed course is well in line with that mission. Our colleagues at Driscoll's Berries and Fall Creek Nurseries often contact us about internship and employment opportunities for B.S. students and graduates with fruit breeding interests and expertise. The proposed course will enable us to better prepare students for these opportunities. Our programs strive to inspire the next generation of horticultural scientists to contribute to a future of improved food quality and security.

Sincerely,

Christine D. Chase
Professor and Interim Chair
Horticultural Sciences Department
Course|New for request 12998

Info

Request: HOS 3XXX - Genetics and Breeding of Fruit Crops
Description of request: We request to create a new course titled HOS 3XXX – Genetics and Breeding of Fruit Crops
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 1:38:30 PM
Form version: 1

Responses
Recommended Prefix HOS
Course Level 3
Number XXX
Category of Instruction Intermediate
Lab Code None
Course Title Genetics and Breeding of Fruit Crops
Transcript Title Genetics Breed Fruits
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No
Co-Listing Explanation Not applicable
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 The genetic improvement of perennial fruit crops presents unique challenges and opportunities to enhance traits of value to producers and consumers. This course explores the application of breeding, genetics, and biotechnology approaches to the improvement of woody perennial fruit crops and an analysis of the challenges in breeding these crops.

Prerequisites AGR 3303 or equivalent
Co-requisites None

Rationale and Placement in Curriculum Our industry stakeholders often contact us about internship and employment opportunities for B.S. students and graduates with fruit breeding interests and expertise.
This course is being created as a breeding elective for undergraduate students in our proposed Plant Biotechnology and Improvement specialization, and as a general elective for undergraduate students in our Organic Horticultural Systems and Science and Technology of Horticultural Crops specializations.

Course Objectives Upon successful completion of the course, students will be able to:
- Explain challenges for breeding woody perennial crops
- Discuss conventional and biotechnological approaches to fruit crop breeding
- Analyze and discuss published breeding approaches for fruit crops
- Identify and apply successful breeding strategies for various fruit crops

Course Textbook(s) and/or Other Assigned Reading There is no required textbook for this course. Links to reading materials will be made available via Canvas. Optional textbooks are listed below:
Weekly Schedule of Topics

**Week 1**
- History and importance of genetic improvement in fruit crops
- Asexual vs sexual reproduction

**Week 2**
- Reproductive biology and pollination in woody perennial crops

**Week 3**
- Review of Mendelian qualitative and quantitative inheritance
- Breeding strategies – sources of genetic variation

**Week 4**
- Breeding strategies – vegetative propagation; rootstocks; self-pollinated crops

**Week 5**
- Breeding strategies – cross-pollinated crops; interspecific hybridization and polyploidy
- Case discussion 1 - resistance to peach gummosis in peach-almond crosses

**Week 6**
- Breeding tools – genetic markers and maps; QTL mapping; marker assisted selection

**Week 7**
- Breeding tools – somatic cell hybridization and cybridization; genetic transformation
- Case discussion 2 - genetic transformation for papaya ringspot virus resistance - 18 years on

**Week 8**
- Breeding tools – plant genome projects ("RosBREED", International Grape Genome Program); genome editing; phenomics
- Midterm exam

**Week 9**
- Breeding targets – fruit crop traits and phenotypes; fruit traits and phenotypes; mechanical harvesting
- Case discussion 3 - influence of citrus rootstock on fruit size

**Week 10**
- Breeding targets – fruit postharvest traits and their evaluation
- Taste panel participation

**Week 11**
- Plant breeding careers – public and private

**Week 12**
- Cultivar release requirements and process
- Intellectual property protection

**Week 13**
- Overview – UF/IFAS HOS breeding programs – blueberry, peach, strawberry

**Week 14**
- Overview – UF/IFAS HOS breeding programs – citrus, tropical fruits
- Potential new fruit crops for Florida

**Week 15**
- Student breeding strategy presentations

**Links and Policies**
Grades and Grade Points: For information on current UF policies for assigning grade points, see catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

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Grading Scheme
Class attendance (10 pts)
Breeding strategy project (30 pts)
Each student will select a fruit crop, identify a current problem or trait that can be improved through a breeding, genetic or biotechnology approach, develop a written plan to achieve the desired genetic improvement (15 points), and make a 10 minute oral presentation covering the crop, breeding target and plan (15 points).

Breeding case discussions (30 pts)
Three published examples illustrating successful breeding approaches to production problems or trait improvement in fruit crops will be assigned for class discussion. Students will prepare and turn in written answers to questions about the case (5 points each), and then discuss them as a class (5 points each).

Exams (30 pts)
There will be a mid-term and final exam, each worth 15 points. The final will be given during final exam week.

Grading Scale (points)
A >99.4 - 100
B+ >84.4 - 89.4
B >79.4 - 84.4
C+ >75.4 - 79.4
C >69.4 - 75.4
B+ >65.4 - 69.4
D+ >59.5 - 65.4
D >59.5- 65.4
E <59.5

Instructor(s) TBD
Instructor: TBD

Office hours: TBD

Prerequisite: AGR 3303 or equivalent

Credit hours: 3

Meeting Times and Location: TBD

Course Description: The genetic improvement of perennial fruit crops presents unique challenges and opportunities to enhance traits of value to producers and consumers. This course explores the application of breeding, genetics, and biotechnology approaches to the improvement of woody perennial fruit crops and an analysis of the challenges in breeding these crops.

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

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

• Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Student Complaints

• Residential Courses: www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
• Online Course: www.distance.ufl.edu/student-complaint-process
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| 1    | History and importance of genetic improvement in fruit crops  
      | Asexual vs sexual reproduction |
| 2    | Reproductive biology and pollination in woody perennial crops |
| 3    | Review of Mendelian qualitative and quantitative inheritance  
      | Breeding strategies – sources of genetic variation |
| 4    | Breeding strategies – vegetative propagation; rootstocks; self-pollinated crops |
| 5    | Breeding strategies – cross-pollinated crops; interspecific hybridization and polyploidy  
      | **Case discussion 1** - resistance to peach gummosis in peach-almond crosses |
| 6    | Breeding tools – genetic markers and maps; QTL mapping; marker assisted selection |
| 7    | Breeding tools – somatic cell hybridization and cybridization; genetic transformation  
      | **Case discussion 2** - genetic transformation for papaya ringspot virus resistance - 18 years on |
| 8    | Breeding tools – plant genome projects ("RosBREED", International Grape Genome Program); genome editing; phenomics  
      | **Midterm exam** |
| 9    | Breeding targets – fruit crop traits and phenotypes; fruit traits and phenotypes;  
      | mechanical harvesting  
      | **Case discussion 3** - influence of citrus rootstock on fruit size |
| 10   | Breeding targets – fruit postharvest traits and their evaluation  
      | **Taste panel participation** |
| 11   | Plant breeding careers – public and private |
| 12   | Cultivar release requirements and process  
      | Intellectual property protection |
| 13   | Overview – UF/IFAS HOS breeding programs – blueberry, peach, strawberry |
| 14   | Overview – UF/IFAS HOS breeding programs – citrus, tropical fruits  
      | Potential new fruit crops for Florida |
| 15   | Student breeding strategy presentations |
Cover Sheet: Request 12997

HOS 3XXX – Innovations in Organic Agriculture

Info

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Course|New for request 12997

Info

Request: HOS 3XXX – Innovations in Organic Agriculture
Description of request: We request to create a new course titled HOS 3XXX – Innovations in Organic Agriculture.
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 1:04:58 PM
Form version: 1

Responses

Recommended Prefix HOS
Course Level 3
Number XXX
Category of Instruction Intermediate
Lab Code None
Course Title Innovations in Organic Agriculture
Transcript Title Innovation Organic Ag
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No
Co-Listing Explanation Not applicable
Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 1

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 1
Course Description As a rapidly developing production system worldwide, organic farming plays a unique role in promoting sustainable agriculture development. This course provides a critical analysis of organic agriculture growth and regulations, and discusses transdisciplinary advancements and innovations in organic agriculture towards enhancing environmental, economic, and social sustainability of food production.
Prerequisites Junior standing
Co-requisites None

Rationale and Placement in Curriculum This course complements our existing courses in organic horticulture by focusing on current and emerging technologies and regulations that affect organic agriculture. This course will be required in our Organic Horticultural Systems specialization and elective for students in other specializations in the BS in Horticultural Sciences.
Course Objectives Upon successful completion of this course, students will be able to:
• Explain the systems approach used in organic production.
• Evaluate the dynamics of organic agriculture regulations at both national and international levels.
• Analyze the key aspects of interdisciplinary innovations in organic farming for advancing sustainable agriculture and food systems.
• Identify major challenges in organic agriculture development to address food security.
• Discuss critical areas for future innovations in organic farming for long-term sustainability.
Course Textbook(s) and/or Other Assigned Reading There are no required textbooks for this course. Journal articles, websites, videos, and other materials will be collectively used.
Weekly Schedule of Topics Week 1
Introduction and course requirements; Effective use of library resources
Week 2
History of organic agriculture
Week 3
The National Organic Program and organic certification
Week 4
Growth of organic markets and consumer demand
Week 5
Sustainable agriculture framework
Week 6
Organic crop production system overview (case study report #1 due)
Week 7
Organic animal production system overview
Week 8
International organic movement and the organic debate
Week 9
Organic innovation 1.0
Week 10
Organic innovation 2.0 (case study report #2 due)
Week 11
Organic innovation 3.0
Week 12
Organic farming and food security
Week 13
A virtual meeting with innovative organic farmers
Week 14
The organic struggle (case study report #3 due)
Week 15
The future of organic agriculture
Final exams week
(Organic agriculture innovation video due)

Links and Policies
Attendance and Make-up Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

• UF Attendance policy, www.catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

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
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- Groups and Workshops
- Outreach and Consultation
- Self-Help Library
- Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university's on-campus resources.

- Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Course Evaluation Process
Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you 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:

- Course evaluations, www.evaluations.ufl.edu

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

- Evaluations summary, www.evaluations.ufl.edu/results

Student Complaints
You can file and resolve any complaints about your experience in this course in the following site:

- Student complaints in residential courses, www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Grading Scheme 1. Quizzes (150 points)
There will be ten online open-book quizzes during the semester. Students will take each of the 15-point quizzes within 20 minutes on E-learning between Thursday and the following Monday after the quiz is posted in E-learning. Students must work individually.

2. Case study reports (150 points)
Each student will conduct three case studies and complete the analytical reports for each case study during the semester. In each case study, students will choose a specific area to critically analyze the role of organic agriculture innovations in developing sustainable food systems as well as potential challenges and issues.

3. Organic agriculture innovation video (100 points)
Each student will produce a 5-minute video to discuss major advancements and challenges in organic agriculture development and identify directions for future innovations to overcome those challenges.

4. Class Participation (50 points)
At the beginning of every class, students will be chosen at random and asked to provide a 1-minute verbal summary of the previous lecture. Additionally, throughout the course there will be opportunities for students to ask or answer questions. Class interaction and class summaries will be graded out of 25 points according to the rubrics below. The sum of your class summary and class interaction scores will be used as your participation grade.
- Participation frequency will be rated between Never (5 points) and Always (25 points). Participation quality will be rated between poor (5 points) and Excellent (25 points).

All points earned in the course will be summed to calculate your final grade. Letter grades will be based on the performance of each student relative to the following standard percentages (%) out of a
total of 450 points:
100- 93 A
<93-90 A-
<90-87 B+
<87-83 B
<83-80 B-
<80-77 C+
<77-73 C
<73-70 C-
<70-67 D+
<67-63 D
<63-60 D-
<60  E

Instructor(s) Xin Zhao
INSTRUCTOR
Dr. Xin Zhao
1235 Fifield Hall
(352) 273-4773
Email: zxin@ufl.edu

Office hours: MW 1:50-2:30 PM. If you are unable to meet me at this time, feel free to email me to request an appointment.

PRE-REQUISITES:
Junior standing

COURSE DESCRIPTION
As a rapidly developing production system worldwide, organic farming plays a unique role in promoting sustainable agriculture development. This course provides a critical analysis of organic agriculture growth and regulations, and discusses transdisciplinary advancements and innovations in organic agriculture towards enhancing environmental, economic, and social sustainability of food production.

LEARNING OBJECTIVES
Upon successful completion of this course, students will be able to:
- Explain the systems approach used in organic production.
- Evaluate the dynamics of organic agriculture regulations at both national and international levels.
- Analyze the key aspects of interdisciplinary innovations in organic farming for advancing sustainable agriculture and food systems.
- Identify major challenges in organic agriculture development to address food security.
- Discuss critical areas for future innovations in organic farming for long-term sustainability.

TEXTBOOK: There are no required textbooks for this course. Journal articles, websites, videos, and other materials will be collectively used. E-learning (http://elearning.ufl.edu/) is also used in this course to post lectures, assignments, reading materials, useful websites, video clips, study guides, and grades.

COURSE GRADE
1. Quizzes 150 points
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Each student will conduct three case studies and complete the analytical reports for each case study during the semester. In each case study, students will choose a specific area to critically analyze the role of organic agriculture innovations in developing sustainable food systems as well as potential challenges and issues.

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<th>Participation frequency</th>
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<td>Sometimes</td>
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<td>Often</td>
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<td>Always</td>
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- 100-93 A
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- <87-83 B
- <83-80 B-
- <80-77 C+
- <77-73 C
- <73-70 C-
- <70-67 D+
- <67-63 D
- <63-60 D-
- <60 E

Please feel free to discuss your grades with the instructor at any time during the semester. Additional information on current UF grading policies for assigning grade points can be found here:

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Cover Sheet: Request 13001

HOS 4XXX C – Principles of Postharvest Horticulture

Info

Process: Course/New/Grad/Pro
Status: Pending at CALS - College of Agricultural and Life Sciences
Submitter: Gerardo Nunez Villeagas g.nunez@ufl.edu
Created: 9/5/2018 3:41:52 PM
Updated: 9/5/2018 3:44:05 PM
Description of request:
We request to create a new course titled HOS 4XXX C – Principles of Postharvest Horticulture

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Course|New for request 13001

Info

Request: HOS 4XXX C – Principles of Postharvest Horticulture
Description of request: We request to create a new course titled HOS 4XXX C – Principles of Postharvest Horticulture
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 3:25:16 PM
Form version: 1

Responses
Recommended Prefix HOS
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code C
Course Title Principles of Postharvest Horticulture
Transcript Title Postharvest Hort
Degree Type Baccalaureate

Delivery Method(s) Online
Co-Listing No
Co-Listing Explanation Not applicable
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 Biological principles involved in harvesting, grading, packaging, transportation, and marketing horticultural crops, and their effects on quality maintenance. Commercial postharvest practices explained in relation to general procedures and technologies as well as the recommended postharvest best handling practices and optimum postharvest conditions for different types of horticultural crops.
Prerequisites HOS4304
Co-requisites None

Rationale and Placement in Curriculum Horticulture does not end at harvest. Postharvest horticulture is an important aspect of horticultural production quality and efficiency. This course will be required in the Organic Horticultural Systems and Science and Technology of Horticultural Crops specializations (BS in Horticultural Sciences). Additionally, this course will be an elective in the Plant Biotechnology and Improvement specialization (BS in Horticultural Sciences).

Course Objectives Upon completion of the course, students will be prepared to,
1. Recognize the factors related to quality deterioration and wastage of horticultural commodities after harvest, including physiological, biochemical, and pathological considerations, as well as compositional and physical changes occurring during maturation and deterioration.
2. Relate commercial procedures for harvesting, preparation, packaging, transportation, and storage of horticultural crops to the biological principles and individual commodity requirements and responses.
3. Evaluate postharvest handling systems and recommend improved practices that will better maintain product quality during the postharvest period.

Course Textbook(s) and/or Other Assigned Reading No textbook is required for the course. However, the following supplemental reading sources may be helpful during this course.
- Postharvest: An Introduction to the Physiology and Handling of Fruit and Vegetables 6th
Weekly Schedule of Topics

Week 1
Introduction - Postharvest deterioration and losses
Morphology, structure, growth and development

Week 2
Composition of horticultural crops
Compositional changes during maturation & ripening

Week 3
Ethylene & other plant hormones - role in senescence
Ethylene and fruit ripening

Week 4
Respiration - introduction, measurement
Respiration - internal and environmental factors

Week 5
Transpiration & water loss
Physiological disorders

Week 6
Postharvest pathology - host-parasite interactions
Postharv. pathol. - environmental factors & control

Week 7
Maturity and quality standards
Food safety & quarantine treatments

Week 8
Harvesting, handling and packinghouse operations
Temp. management - cooling methods & principles

Week 9
Commercial storage; modified & controlled atmospheres
Transportation & the distribution system

Week 10
Subtropical fruits
Tropical fruits

Week 11
Small fruits
Pome & Stone fruits

Week 12
Vegetables – leafy & succulent
Vegetables – storage organs

Week 13
Vegetables – immature & mature fruits
Fresh-cut vegetables & fruits

Week 14
Cut flowers & potted plants

Week 15
Review and Final Exam

Links and Policies

Grading Policy
Additional information on current UF grading policies for assigning grade points can be found here:
- Grading policy, https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Attendance and Make-up Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

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/scc/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 when appropriate.

Services for Students with Disabilities
Students with disabilities requesting accommodations should first register with the Disability Resource Center 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.

• Disability Resource Center, 0001 Reid Hall, (352) 392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources
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• Counseling and Wellness Center, 3190 Radio Road, 392-1575, www.counseling.ufl.edu
• Counseling Services

Groups and Workshops
Outreach and Consultation
Self-Help Library
Wellness Coaching
• U Matter We Care, www.umatter.ufl.edu

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university’s on-campus resources.

• Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Course Evaluation Process
Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you 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:

• Course evaluations, www.evaluations.ufl.edu

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

• Evaluations summary, www.evaluations.ufl.edu/results

Student Complaints
You can file and resolve any complaints about your experience in this course in the following site:

- Student complaints in residential courses,
  www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

Grading Scheme

1. Midterm 1 100 points
2. Midterm 2 100 points
3. Final Exam 200 points
4. Laboratory reports 100 points
Total 500 points

Exams will be open book with 1 week to complete.
Students will conduct laboratory exercises during the semester and create PowerPoint reports for other students to view. Detailed instructions for the laboratory exercises will be distributed separately.

GRADING SCALE

A (4.0) = 470 - 500 points (94-100%)
A- (3.67) = 450 - <470 points (90-93%)
B+ (3.33) = 435 - <450 points (87-89%)
B (3.0) = 415 - <435 points (83-86%)
B- (2.67) = 400 - <415 points (80-82%)
C+ (2.33) = 385 - <400 points (77-79%)
C (2.0) = 365 - <385 points (73-76%)
C- (1.67) = 350 - <365 points (70-72%)
D+ (1.33) = 335 - <350 points (67-69%)
D (1.0) = 315 - <335 points (63-66%)
D- (0.67) = 300 - <315 points (60-62%)
E (0) = < 300 points (<60%)

Instructor(s) Jeffrey K. Brecht
Mark Ritenour
MEETING TIMES AND LOCATION

Students view web-based lecture and demonstration materials and participate in a weekly discussion session (day/time TBD) conducted either in-person or by videoconferencing according to student needs.

INSTRUCTORS

Dr. Jeffrey K. Brecht  
1217 Fifield Hall  
(352) 273-4778  
jkbrecht@ufl.edu

Dr. Mark Ritenour  
IRREC – Ft. Pierce  
(772) 201-5548  
ritenour@ufl.edu

Office hours Mondays 3:00PM- 5:00PM, but students are encouraged to contact instructors via e-mail or phone outside of office hours whenever questions are encountered.

PRE-REQUISITES

HOS 4304 – Horticultural Physiology

COURSE DESCRIPTION

Biological principles involved in harvesting, grading, packaging, transportation, and marketing horticultural crops, and their effects on quality maintenance. Commercial postharvest practices explained in relation to general procedures and technologies as well as the recommended postharvest best handling practices and optimum postharvest conditions for different types of horticultural crops.

LEARNING OBJECTIVES

Upon completion of the course, students will be prepared to,

1. Recognize the factors related to quality deterioration and wastage of horticultural commodities after harvest, including physiological, biochemical, and pathological considerations, as well as compositional and physical changes occurring during maturation and deterioration.

2. Relate commercial procedures for harvesting, preparation, packaging, transportation, and storage of horticultural crops to the biological principles and individual commodity requirements and responses.

3. Evaluate postharvest handling systems and recommend improved practices that will better maintain product quality during the postharvest period.
COURSE GRADE

1. Midterm 1  
   100 points
2. Midterm 2  
   100 points
3. Final Exam  
   200 points
4. Laboratory reports  
   100 points

Total  
500 points

Exams will be open book with 1 week to complete.

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GRADING SCALE

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<td>B (3.0)</td>
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COURSE MATERIALS

TEXTBOOK

No textbook is required for the course. However, the following supplemental reading sources may be helpful during this course.


Syllabus - 02

Page 100 of 193
COURSE POLICIES

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# PRINCIPLES OF POSTHARVEST HORTICULTURE

## Course Schedule

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<th>Lecture Topic</th>
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<td><strong>I. BIOLOGICAL CONSIDERATIONS</strong></td>
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<tr>
<td>1</td>
<td>MAR</td>
<td>Introduction - Postharvest deterioration and losses</td>
<td>Kader Ch. 4; Wills Ch. 1</td>
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<tr>
<td>2</td>
<td>JKB</td>
<td>Morphology, structure, growth and development</td>
<td>Wills Ch. 2</td>
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<td><strong>Discussion date #1:</strong> (Lec. 1-2) Date TBD - Week 1</td>
<td>Kays &amp; Paull Ch. 2</td>
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<tr>
<td>3</td>
<td>JKB</td>
<td>Composition of horticultural crops</td>
<td>Florkowski Ch. 5</td>
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<td>4</td>
<td>JKB</td>
<td>Compositional changes during maturation &amp; ripening</td>
<td>Wills Ch. 3 &amp;</td>
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<td>5</td>
<td>JKB</td>
<td>Ethylene &amp; other plant hormones - role in senescence</td>
<td>Bartz &amp; Brecht Ch. 3</td>
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<td>6</td>
<td>JKB</td>
<td>Ethylene and fruit ripening</td>
<td>Bartz &amp; Brecht Ch. 10</td>
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<td>7</td>
<td>MAR</td>
<td>Respiration - introduction, measurement</td>
<td>Bartz &amp; Brecht Ch. 2</td>
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<td>8</td>
<td>MAR</td>
<td>Respiration - internal and environmental factors</td>
<td>Kays &amp; Paull Ch. 3</td>
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<td>Transpiration &amp; water loss</td>
<td>Bartz &amp; Brecht Ch. 5</td>
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<td>10</td>
<td>JKB</td>
<td>Physiological disorders</td>
<td>Wills Ch. 8</td>
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<td>Bartz &amp; Brecht Ch. 19</td>
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<td><strong>MIDTERM EXAM</strong> - through physiological disorders (lectures 1-10)</td>
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<td>11</td>
<td>Bartz</td>
<td>Postharvest pathology - host-parasite interactions</td>
<td>Bartz &amp; Brecht Ch. 24</td>
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<td>12</td>
<td>Bartz</td>
<td>Postharv. pathol. - environmental factors &amp; control</td>
<td>Bartz &amp; Brecht Ch. 20-23</td>
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<td><strong>Discussion date #6:</strong> (Lec. 11-12) Date TBD - Week 6</td>
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<td><strong>II. COMMERCIAL PRACTICES</strong></td>
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<td>13</td>
<td>JKB</td>
<td>Maturity and quality standards</td>
<td>Florkowski Ch. 8 &amp; 14, Kader Ch. 6 &amp; 23</td>
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<td>14</td>
<td>MAR</td>
<td>Food safety &amp; quarantine treatments</td>
<td>Kader Ch. 19 &amp; 24</td>
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Discussion date #7: (Lec. 13-14) Date TBD - Week 7

15 MAR Harvesting, handling and packinghouse operations Bartz & Brecht Ch. 16
16 MAR Temp. management - cooling methods & principles Bartz & Brecht Ch. 8

Discussion date #8: (Lec. 15-16) Date TBD - Week 8

17 JKB Commercial storage; modified & controlled atmospheres Wills Ch. 6&7
18 MAR Transportation & the distribution system Kader Ch. 20

Discussion date #9: (Lec. 17-18) Date TBD - Week 9

MIDTERM EXAM - Postharvest pathology through distribution and marketing (lectures 11-18)
Posting date: Friday of Week 9; Due date: Friday of Week 10

III. COMMODITY REQUIREMENTS

19 MAR Subtropical fruits Kader Ch. 30
20 JKB Tropical fruits Kader Ch. 31

Discussion date #10: (Lec. 19-20) Date TBD - Week 10

21 MAR Small fruits Kader Ch. 29
22 JKB Pome & Stone fruits Kader Ch. 27-28

Discussion date #11: (Lec. 21-22) Date TBD - Week 11

23 JKB Vegetables – leafy & succulent Bartz & Brecht Ch. 25
24 JKB Vegetables – storage organs Bartz & Brecht Ch. 26

Discussion date #12: (Lec. 23-24) Date TBD - Week 12

25 JKB Vegetables – immature & mature fruits Bartz & Brecht Ch. 27-28
26 JKB Fresh-cut vegetables & fruits Bartz & Brecht Ch. 29

Discussion date #13: (Lec. 25-26) Date TBD - Week 13

27 MAR Cut flowers & potted plants Kader Ch. 25

Discussion date #14: (Lec. 27) Date TBD - Week 14
Review Session: 12/4. Final Exam distributed afterwards, due 1 week later.

December X – Last Day of Classes
Dec. X & Y – Reading Days

FINAL EXAM – Cumulative (50%), but focusing on lectures 19–27 (50%)
Posting date: Last class meeting; Due date: 1 week later
## HOS 4XXXC
### PRINCIPLES OF POSTHARVEST HORTICULTURE
#### Laboratory Schedule

<table>
<thead>
<tr>
<th>Lab. #</th>
<th>Periods</th>
<th>Laboratory Topic</th>
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<tr>
<td>1.</td>
<td>1</td>
<td>Introduction - tour of postharvest laboratory facilities; methods for measuring respiration and ethylene; quality evaluation systems.</td>
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<td>2.</td>
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<td>Factors affecting respiration, ethylene production and deterioration:</td>
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<td>1. Commodity type</td>
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<td>2. Time and temperature</td>
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<td>3. Modified/controlled atmospheres</td>
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<td>4. Ethylene</td>
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<td>5. Physical damage</td>
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<td>Factors affecting transpiration and water loss:</td>
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<td>1. Water vapor pressure difference</td>
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<td>2. Air velocity</td>
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<td>3. Product surface to volume ratio and surface properties</td>
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<td>4. Water vapor barriers (films and coatings)</td>
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<td>4.</td>
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<td>USDA grade standards</td>
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<td>5.</td>
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<td>Physiological disorders:</td>
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<td>1. Low temperature (chilling) injury</td>
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<td>2. High temperature injury</td>
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<td>Pathological considerations:</td>
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<td>1. Physiological state of the commodity</td>
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<td>2. Temperature and moisture</td>
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<td>3. Surface barriers</td>
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<td>4. Chemical control</td>
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<td>7.</td>
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<td>Field trip to observe harvesting, packinghouse, storage and transport operations.</td>
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<td>8.</td>
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<td>Field trip to a wholesale produce distribution center.</td>
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Syllabus - 08
Page 106 of 193
Cover Sheet: Request 13002

HOS 4XXX – Horticultural Sciences Capstone

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No document changes
Course|New for request 13002

Info

Request: HOS 4XXX – Horticultural Sciences Capstone
Description of request: We request to create a new course titled HOS 4XXX – Horticultural Sciences Capstone
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 4:30:14 PM
Form version: 1

Responses
Recommended Prefix HOS
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Horticultural Sciences Capstone
Transcript Title Hort Sci Capstone
Degree Type Baccalaureate

Delivery Method(s) On-Campus, Online
Co-Listing No
Co-Listing Explanation Not applicable
Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit Variable
If variable, # min 2
If variable, # max 4
S/U Only? Yes
Contact Type Directed Individual Studies

Weekly Contact Hours Not applicable
Course Description This course focuses on executing service learning, scientific research, cooperative extension, or industry liaison projects designed during students’ capstone planning. Students will also perfect their professional portfolio and present the outcomes of their capstone project.

Prerequisites HOS 4XXX – Capstone Planning in Horticultural Sciences
Co-requisites None

Rationale and Placement in Curriculum This is the second in a two-course capstone sequence for all students in the Horticultural Sciences major. This course focuses on executing and socializing student capstone projects.

Course Objectives Upon successful completion of this course, students will be able to:
• Execute their individual capstone plan
• Apply knowledge gained in horticultural sciences courses and related disciplines to a ‘real life’ service learning, academic research, cooperative extension, or industry R&D project
• Synthesize and present their capstone experience using graphic/audiovisual media and live presentation
• Create or perfect a professional website that includes items from their e-portfolio

Course Textbook(s) and/or Other Assigned Reading There is no required textbook for this course. Links to additional reading materials (tutorials, websites, general knowledge, and scientific articles) will be provided through canvas.

Weekly Schedule of Topics Online lectures available starting on week 1 of the semester
Lecture 1: Creating a scientific poster
Lecture 2: Creating a narrated slideshow
Lecture 3: Creating a compelling video using mobile phones and free Apps
Lecture 4: Creating a professional website

Links and Policies
Grading policy
Additional information on current UF grading policies for assigning grade points can be found here:

Attendance and Make-up Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

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 when appropriate.

Services for Students with Disabilities
Students with disabilities requesting accommodations should first register with the Disability Resource Center 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
- Disability Resource Center, 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.
- Counseling and Wellness Center, 3190 Radio Road, 392-1575, www.counseling.ufl.edu
- Counseling Services
- Groups and Workshops
- Outreach and Consultation
- Self-Help Library
- Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university’s on-campus resources.
- Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Course Evaluation Process
Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you 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:

- Course evaluations, www.evaluations.ufl.edu

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

- Evaluations summary, www.evaluations.ufl.edu/results

Student Complaints
You can file and resolve any complaints about your experience in this course in the following site:

- Student complaints in residential courses, www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

**Grading Scheme**

1. Weekly updates (45 points)
   Students will upload weekly updates about their project in the course canvas site. Weekly updates can be short essays (400 words), short videos (2-5 minutes), recordings (2-5 minutes), or work-in-progress files that document the lessons learned, challenges faced, and opportunities encountered during the execution of the capstone project. Students are encouraged to upload a mix of different media. Weekly updates will be due in canvas by 11:59 PM every Sunday of the semester. Each update will be worth 3 points.

2. Horticultural Sciences Day (45 points)
   Students will prepare graphic (scientific poster) or audiovisual (slideshow, video, etc.) media that illustrate their individual capstone experience. Online tutorials for graphic and audiovisual media creation will be available in canvas starting on week 1 of the semester. Students will submit draft media by week 10 of the semester and receive instructor feedback (20 points). Students will present their graphic or audiovisual media during the Horticultural Sciences Day (25 points).

3. Professional website and e-portfolio (10 points)
   Students will update and refine existing elements in their e-portfolio by week 7 of the semester. Additionally, students will participate in a "picture day" where they will have a professional portrait taken (week 2). Then, students will create a professional website that includes their portrait, resume, and at least two elements of their e-portfolio. Online tutorials for website design will be available in canvas starting on week 1 of the semester. Links to draft (week 4) and final website designs (week 7) will be submitted via canvas by 11:59 PM on the mentioned weeks. For the purposes of assigning a grade, students who complete all the online deliverables and execute a capstone that takes 3 hours per week will register for 2 credit hours. Students executing capstone projects that require a greater time commitment can register for additional credit hours up to 4 credit hours.

**GRADING SCALE**

- = 80%
- = < 80%

**Instructor(s)** Gerardo Nunez
**HOS 4XXX – Horticultural Sciences Capstone**

**VARIABLE 2-4 CREDITS**

**MEETING TIMES AND LOCATION**

This is a ‘blended’ course that combines independent student work, web-based deliverables through canvas, and a face-to-face presentation during the Horticultural Sciences day. The Horticultural Sciences day will be held in Fifield Hall rooms 1304, 1306, and 1308, and in the Horticultural Sciences Teaching Garden.

**INSTRUCTOR**

Gerardo Nunez, Ph.D.  
g.nunez@ufl.edu  
1113 Fifield Hall  
(352) 273-4765  
Office hours: Tuesday 2:00 PM to 3:00PM

**PRE-REQUISITES**

HOS 4XXX – Capstone Planning in Horticultural Sciences

**COURSE DESCRIPTION**

This course focuses on executing service learning, scientific research, cooperative extension, or industry liaison projects designed during students’ capstone planning. Students will also perfect their professional portfolio and present the outcomes of their capstone project.

**LEARNING OBJECTIVES**

Upon successful completion of this course, students will be able to:

- Execute their individual capstone plan
- Apply knowledge gained in horticultural sciences courses and related disciplines to a ‘real life’ service learning, academic research, cooperative extension, or industry R&D project
- Synthesize and present their capstone experience using graphic/audiovisual media and live presentation
- Create or perfect a professional website that includes items from their e-portfolio

**COURSE MATERIALS**

Textbook

There is no required textbook for this course. Links to additional reading materials (tutorials, websites, general knowledge, and scientific articles) will be provided through canvas.
COURSE GRADE

1. Weekly updates 45 points
   Students will upload weekly updates about their project in the course canvas site. Weekly updates can be short essays (400 words), short videos (2-5 minutes), recordings (2-5 minutes), or work-in-progress files that document the lessons learned, challenges faced, and opportunities encountered during the execution of the capstone project. Students are encouraged to upload a mix of different media. Weekly updates will be due in canvas by 11:59 PM every Sunday of the semester. Each update will be worth 3 points.

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3. Professional website and e-portfolio 10 points
   Students will update and refine existing elements in their e-portfolio by week 7 of the semester. Additionally, students will participate in a “picture day” where they will have a professional portrait taken (week 2). Then, students will create a professional website that includes their portrait, resume, and at least two elements of their e-portfolio. Online tutorials for website design will be available in canvas starting on week 1 of the semester. Links to draft (week 4) and final website designs (week 7) will be submitted via canvas by 11:59 PM on the mentioned weeks.

For the purposes of assigning a grade, students who complete all the online deliverables and execute a capstone that takes 3 hours per week will register for 2 credit hours. Students executing capstone projects that require a greater time commitment can register for additional credit hours up to 4 credit hours.

GRADING SCALE

S = ≥ 80%  
U = < 80%

Additional information on current UF grading policies for assigning grade points can be found here:
- Grading policy, [www.catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx](http://www.catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx)

COURSE POLICIES

Attendance and Make-up Policy

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:
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Academic Honesty

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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.

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Software Use

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Services for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center 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.

- Disability Resource Center, 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.

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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*

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university’s on-campus resources.

•  *Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level*

Course Evaluation Process

Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you 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:

•  *Course evaluations, www.evaluations.ufl.edu*

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

•  *Evaluations summary, www.evaluations.ufl.edu/results*

Student Complaints

You can file and resolve any complaints about your experience in this course in the following site:

•  *Student complaints in residential courses, www.dso.ufl.edu/documents/UF_Complaints_policy.pdf*

**Online lectures available starting on week 1 of the semester**

Lecture 1:  Creating a scientific poster
Lecture 2:  Creating a narrated slideshow
Lecture 3:  Creating a compelling video using mobile phones and free Apps
Lecture 4:  Creating a professional website
## Cover Sheet: Request 13000

**HOS 4XXX – Supervised Teaching Experience in Horticultural Sciences**

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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 13000

Info

Request: HOS 4XXX – Supervised Teaching Experience in Horticultural Sciences
Description of request: We request to create a new course titled HOS 4XXX – Supervised Teaching Experience in Horticultural Sciences
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 3:04:28 PM
Form version: 1

Responses
Recommended Prefix HOS
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Supervised Teaching Experience in Horticultural Sciences
Transcript Title Supervised Teaching
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No
Co-Listing Explanation Not applicable
Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? Yes
If repeatable, # total repeatable credit allowed 3
Amount of Credit Variable
If variable, # min 0
If variable, # max 3
S/U Only? Yes
Contact Type Supervision of Teaching/Research
Weekly Contact Hours 1

Course Description Teaching experience in horticultural sciences under the supervision of a faculty member. Topics include lesson planning and delivery, assessment design and grading, and professional conduct in a teaching environment.

Prerequisites Junior standing or higher
Co-requisites None

Rationale and Placement in Curriculum Our curriculum currently includes courses in supervised research and supervised extension. This course aims to provide a venue for advanced undergraduate students interested in teaching experience.

Course Objectives Upon successful completion of this course, students will be able to:
• Plan and deliver one or more 30-minute lessons in a horticultural sciences course
• Design one or more assignments for a horticultural sciences course
• Employ a grading rubric to grade one or more assignments in a horticultural sciences course
• Discuss the elements of professional conduct in a teaching environment

Course Textbook(s) and/or Other Assigned Reading There is no required textbook for this course. Links to additional reading materials will be provided via email. The following book is a recommended reference source.
• Methods of Teaching Agriculture (3rd Edition) – L. H. Newcomb
  ISBN-10: 0131134183

Weekly Schedule of Topics
Week 1 Course learning objectives and lecture learning objectives
Week 2 Developing student learning outcomes
Week 3 Developing visual aids
Week 4-5 Developing engaging lectures
Week 6-7 Independent work on lecture planning
Week 8 Lecture planning feedback
Week 9-10  Planning assessments  
Week 11-15  Individual work on assignment planning and lecture delivery  

Links and Policies  
Grading Policy  
Additional information on current UF grading policies for assigning grade points can be found here: 
Attendance and Make-up Policy  
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Self-Help Library  
Wellness Coaching  
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Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university's on-campus resources.  
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Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

- Evaluations summary, www.evaluations.ufl.edu/results

Student Complaints
You can file and resolve any complaints about your experience in this course in the following site:

- Student complaints in residential courses, www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

**Grading Scheme**

1. Lecture planning and delivery (75 points)
   Students will plan and deliver at least one 30-minute lecture. Lecture planning includes developing student learning outcomes (20 points), slideshows or visual aids (20 points), and a lecture rehearsal (20 points). The faculty member will review and provide feedback on the lecture planning by week 7 of the semester. Lecture delivery will take place in an undergraduate horticultural sciences course (15 points) after week 8 of the semester. The faculty member will be present during lecture delivery and assists the student with questions, examples, or additional information.

2. Assignment design and grading (25 points)
   Students will design and grade an assignment (quiz, short essay, etc.) where they assess learning in the lecture they delivered. The student and the faculty member will decide the impact that the student-generated assessment will have on the course being taught. Grading of additional assignments might be part of the student’s responsibilities.

For the purposes of assigning a grade, planning and delivery of one lecture and design and grading of one assignment are considered equivalent to 1 credit hour. Students who plan and deliver additional lectures or design and grade additional assignments can receive additional credit hours up to 3 credit hours per semester and 3 credit hours in total in the Horticultural Sciences program of study.

**GRADING SCALE**

Satisfactory (S) or unsatisfactory (U) grades will be assigned based on these standard percentages.

- S = ≥ 80%
- U = < 80%

**Instructor(s)** To be determined (multiple)
HOS 4XXX – Supervised Teaching Experience in Horticultural Sciences
VARIABLE 0-3 CREDITS

MEETING TIMES AND LOCATION
Meeting times to be arranged with the instructor.

INSTRUCTOR
TBD
Office hours TBD

PRE-REQUISITES
Junior standing or higher

COURSE DESCRIPTION
Teaching experience in horticultural sciences under the supervision of a faculty member. Topics include lesson planning and delivery, assessment design and grading, and professional conduct in a teaching environment.

LEARNING OBJECTIVES
Upon successful completion of this course, students will be able to:
- Plan and deliver one or more 30-minute lessons in a horticultural sciences course
- Design one or more assignments for a horticultural sciences course
- Employ a grading rubric to grade one or more assignments in a horticultural sciences course
- Discuss the elements of professional conduct in a teaching environment

COURSE MATERIALS
Textbook
There is no required textbook for this course. Links to additional reading materials will be provided via email. The following book is a recommended reference source.
- Methods of Teaching Agriculture (3rd Edition) – L. H. Newcomb

Syllabus - 01
Page 119 of 193
COURSE GRADE

1. Lecture planning and delivery 75 points
   Students will plan and deliver at least one 30-minute lecture. Lecture planning includes developing student learning outcomes (20 points), slideshows or visual aids (20 points), and a lecture rehearsal (20 points). The faculty member will review and provide feedback on the lecture planning by week 7 of the semester. Lecture delivery will take place in an undergraduate horticultural sciences course (15 points) after week 8 of the semester. The faculty member will be present during lecture delivery and assist the student with questions, examples, or additional information.

2. Assignment design and grading 25 points
   Students will design and grade an assignment (quiz, short essay, etc.) where they assess learning in the lecture they delivered. The student and the faculty member will decide the impact that the student-generated assessment will have on the course being taught. Grading of additional assignments might be part of the student’s responsibilities.

For the purposes of assigning a grade, planning and delivery of one lecture and design and grading of one assignment are considered equivalent to 1 credit hour. Students who plan and deliver additional lectures or design and grade additional assignments can receive additional credit hours up to 3 credit hours per semester and 3 credit hours in total in the Horticultural Sciences program of study.

GRADING SCALE

Satisfactory (S) or unsatisfactory (U) grades will be assigned based on these standard percentages.

\[
S \geq 80\% \\
U < 80\%
\]

Additional information on current UF grading policies for assigning grade points can be found here:

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Schedule of Topics

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics for discussion with the faculty member</th>
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<tr>
<td>Week 1</td>
<td>Course learning objectives and lecture learning objectives</td>
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<td>Week 2</td>
<td>Developing student learning outcomes</td>
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<td>Week 3</td>
<td>Developing visual aids</td>
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<td>Week 4-5</td>
<td>Developing engaging lectures</td>
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<td>Week 6-7</td>
<td>Independent work on lecture planning.</td>
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<td>Week 8</td>
<td>Lecture planning feedback</td>
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<td>Week 9-10</td>
<td>Planning assessments</td>
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<tr>
<td>Week 11-15</td>
<td>Individual work on assignment planning and lecture delivery</td>
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# Cover Sheet: Request 12999

**HOS 4XXX -- Capstone Planning in Horticultural Sciences**

## Info

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<td>Gerardo Nunez Vilegas, <a href="mailto:g.nunez@ufl.edu">g.nunez@ufl.edu</a></td>
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Course|New for request 12999

Info

Request: HOS 4XXX – Capstone Planning in Horticultural Sciences
Description of request: We request to create a new course titled HOS 4XXX – Capstone Planning in Horticultural Sciences
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 1:57:46 PM
Form version: 1

Responses
Recommended Prefix HOS
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Capstone Planning in Horticultural Sciences
Transcript Title Capstone Planning HS
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No
Co-Listing Explanation Not applicable
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 This course focuses on planning service learning, scientific research, cooperative extension, or industry liaison projects for students' Horticultural Sciences capstone. Additionally, this course aims to foster reflection of the students' academic and professional development in the major.

Prerequisites HOS 4933
Co-requisites None

Rationale and Placement in Curriculum This is the first in a two-course capstone sequence for all students in the Horticultural Sciences major. This course focuses on planning the capstone project.

Course Objectives Upon successful completion of this course, students will be able to:
• Identify a capstone mentor in the university, local, or global horticulture community
• Develop a capstone plan that leverages individual skills and interests
• Create a milestone schedule for their capstone project
• Explain in general terms how service learning, academic research, cooperative extension, and industry R&D operate in horticulture
• Assess their individual interpersonal and technical skills

Course Textbook(s) and/or Other Assigned Reading The following book is required for the course in digital, print, or audiobook format. Links to additional learning materials will be provided through canvas.
• The Omnivore’s Dilemma – Michael Pollan (ISBN-10: 0143038583)

Weekly Schedule of Topics Week 1 Defining the capstone experience
Week 2 Careers in Horticultural Sciences
Week 3 Discussion: Chapter 1: The Plant: Corn’s Conquest, Chapter 2: The Farm, Chapter 9: Big Organic
Week 4 Personal motivation and success
Week 5-6 Scientific research projects
G. Nunez & Center for Undergraduate Research
Week 7-8 Service learning projects
G. Nunez & David and Wanda Brown Center for Leadership and Service
Week 9-10 Industry, teaching, and cooperative extension projects
G. Nunez, TBD (Driscoll’s Berries), TBD (American Society for Plant Biologists)
Week 11 Elements of a meaningful capstone
Week 12 Goal setting
Week 13 Skill building vs. task completion
Week 14 Essential tasks and Gantt charts
Week 15 Capstone planning in your e-portfolio

Links and Policies
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Grading Scheme
1. Book discussion (10 points)
We will use select chapters of The Omnivore’s Dilemma as discussion prompts. Discussions will start in canvas with a 200-word position statement (5 points). We will follow with an in-class conversation (5 points) where we discuss the economic, social, and environmental dimensions of horticulture, and how each individual horticulturist can find his/her calling within the industry. Discussions will be graded using the following rubric.
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2. Personal reflection (20 points)
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3. Capstone Plan (60 points)
This assessment will have multiple deliverables. First, students will identify a domain for their Horticultural Sciences Capstone (for example: service learning, scientific research, cooperative extension, or industry liaison) and write a 200-word statement of personal motivation. Then, students will update the resume they developed in HOS4933 to reflect their domain of interest. Following, students will identify a capstone mentor in the university, local, or global horticulture community. The instructor, the David & Wanda Brown Center for Leadership and Service, and the Center for Undergraduate Research will serve as liaisons to identify a capstone mentor. This process will likely entail a phone or personal interview between the student and the prospective mentor. Finally, students will develop a capstone plan where they outline the scope, goals, and milestones for a Horticultural Sciences capstone project to be carried out before graduation. A draft plan will be due by week 12 of the semester, and a final plan will be due on week 15. This is how each deliverable will contribute to the final grade:
Deliverable (Due date) Points
Statement of personal motivation (Week 6) 10
Updated resume (Week 7) 10
Capstone mentor identification (Week 10) 10
Draft capstone plan (Week 12) 10
Final capstone plan (Week 15) 20

GRADING SCALE

S

= 80%  
= < 80%

Instructor(s) Gerardo Nunez
HOS 4XXX – Capstone Planning in Horticultural Sciences

1 CREDIT

MEETING TIMES AND LOCATION

Mondays

6th period 12:50PM – 1:40PM
Fifield Hall room 2318

INSTRUCTOR

Gerardo Nunez, Ph.D.
g.nunez@ufl.edu
1113 Fifield Hall
(352) 273-4765
Office hours: Tuesday 2:00 PM to 3:00PM

PRE-REQUISITES

HOS 4933 – Professional Development in Horticulture

COURSE DESCRIPTION

This course focuses on planning service learning, scientific research, cooperative extension, or industry liaison projects for students’ Horticultural Sciences capstone. Additionally, this course aims to foster reflection of the students’ academic and professional development in the major.

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Upon successful completion of this course, students will be able to:

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Syllabus - 02
Page 129 of 193
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\[ S = \geq 80\% \quad U = < 80\% \]

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<td>Discussion: Chapter 1: The Plant: Corn's Conquest, Chapter 2: The Farm, Chapter 9: Big Organic</td>
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<td>Personal motivation and success</td>
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<td>G. Nunez &amp; Center for Undergraduate Research</td>
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<td>G. Nunez &amp; David and Wanda Brown Center for Leadership and Service</td>
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<td>Week 9</td>
<td>Industry, teaching, and cooperative extension projects</td>
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<td>G. Nunez, TBD (Driscoll's Berries), TBD (American Society for Plant Biologists)</td>
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<td>Elements of a meaningful capstone</td>
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<td>Goal setting</td>
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<td>Skill building vs. task completion</td>
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<td>Week 14</td>
<td>Essential tasks and Gantt charts</td>
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<td>Capstone planning in your e-portfolio</td>
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### Cover Sheet: Request 12981

**HOS4XXX Organic Weed Management**

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<td>HOS6932 - Weed Management for Organic and Sustainable Cropping Systems has been taught for many years in alternate years in spring for graduate students. For interested undergraduate students it has been made available as HOS4932 - Organic Weed Management. A permanent course number is being requested as part of a proposed undergraduate curriculum revision by the Horticultural Sciences Department to allow inclusion as a core course for the Specialization in Organic Horticultural Systems (BS Horticultural Science).</td>
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Course|New for request 12981

Info

Request: HOS4XXX Organic Weed Management
Description of request: HOS6932 - Weed Management for Organic and Sustainable Cropping Systems has been taught for many years in alternate years in spring for graduate students. For interested undergraduate students it has been made available as HOS4932 - Organic Weed Management. A permanent course number is being requested as part of a proposed undergraduate curriculum revision by the Horticultural Sciences Department to allow inclusion as a core course for the Specialization in Organic Horticultural Systems (BS Horticultural Science).

Submitter: Cariene Chase cachase@ufl.edu
Created: 8/30/2018 4:38:07 PM
Form version: 3

Responses
Recommended Prefix HOS
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Organic Weed Management
Transcript Title Organic Weed Mgt
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing Yes
Co-Listing Explanation The weighting of quizzes for undergraduate students is double that for graduate students. Undergraduate students prepare a written laboratory report based on an experiment conducted over an 8-week period. Graduate students are required to serve as discussion moderators. Graduate students develop a grant proposal on a sustainable and/or organic weed management problem formatted for submission to the Southern Sustainable Agriculture Research and Education graduate student grant program. A ten-minute PowerPoint presentation is also required.
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 Ecological principles can be applied in agroecosystems to manage weeds sustainably. Alternative weed management approaches that are less dependent on herbicides and utilize ecological processes detrimental to weeds and their propagules will be emphasized. Students will learn actively by critically analyzing pertinent literature and participating in discussions of supplemental reading.
Prerequisites HOS 3020C - Principles of Horticultural Crop Production or ALS 3153 Agricultural Ecology or equivalent.
Co-requisites None.
Rationale and Placement in Curriculum Students need an understanding of plant biology and knowledge of crop production to perform at a high level in this course. Reading and discussion of journal articles can be better appreciated by upper-division undergraduate students.
Course Objectives Students will learn how ecological approaches can be utilized to manage weeds in a sustainable manner. In addition, students will develop or improve skills for critically analyzing scientific literature by participating in discussions of current weed science journal article with peers.
Students will polish their research and writing skills by preparing a laboratory report based on a field or greenhouse weed science experiment.

**Course Textbook(s) and/or Other Assigned Reading**

**Recommended Texts**


**Supplemental Materials**


**Weekly Schedule of Topics**

**Week 1**
1. Introduction and Orientation
2. Weeds – Ecological Definition, Adverse Effects and Utility
3. Ecological Weed Management

**Week 2**
1. Weed Life History
2. Preventive Measures

**Week 3**
1. The National Organic Rule - Permitted Practices
2. Herbicides permitted in organic cropping systems
3. Weed-Crop Interactions, Competition

**Week 4**
1. Weed-Crop Competition Greenhouse Experiment Initiated
3. Allelopathy

**Week 5**
1. Biofumigation
2. Cultural Weed Management
3. Examination 1

**Week 6**
1. Cultural Weed Management
2. Quiz. Cultural Weed Management (Student-Moderated Discussion)
3. Cultural Weed Management

Week 7
1. Physical Weed Control – Mulches
2. Quiz. Physical Weed Control – Soil Solarization (Student-Moderated Discussion)
3. Physical Weed Control – Thermal methods

Week 8
1. Physical Weed Control – Grits
2. Anaerobic Soil Disinfestation
3. Mechanical Weed Control – Tillage

Week 9 NO CLASS – Spring Break

Week 10
1. Mechanical Weed Control – Cultivation
2. Quiz. Automated Weed Control (Student-Moderated Discussion)
3. Examination 2

Week 11
1. Introduction to Biological Control of Weeds
2. Quiz. Weed Seed Predation (Student-Moderated Discussion)
3. Biological Control Using Microorganisms/Bioherbicides

Week 12
1. Final data collection from Weed-Crop Competition experiment
2. Livestock for Weed Management
3. Quiz. Livestock for Weed Management (Student-Moderated Discussion)

Week 13
1. Chemical Weed Control – Soil fumigants (Proposal Drafts and Lab Introduction are due)
2. Chemical Weed Control – Synthetic Herbicides

Week 14
1. Herbicide resistance
2. Quiz. Sustainability of Herbicide-Resistant Crops (Student-Moderated Discussion)
3. Unmanned aerial vehicle use for weed management

Week 15
1. Integrated Weed Management vs Ecological Weed Management
2. Assess Graduate Student Grant Proposal Presentations
3. Submit laboratory report

Week 16
1. Review for Exam
2. Examination 3

Links and Policies
Policies: Attendance and participation in moderating and discussions are required. Students are urged to arrive on time to avoid disrupting class. Late assignments and make-up exams are permitted only for excused absences. Acceptable documents for an excused absence include a doctor's note or a funeral program. Mobile phones must be turned off during class. Discourse during discussions must be polite and respectful.

Academic Honesty: Students are expected to adhere to the University of Florida Honor Code: We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity. Please refer to conduct regulations at http://www.dso.ufl.edu/STG. Violations of Academic Honesty Guidelines and the Honor code, which include cheating, plagiarism, bribery, misrepresentation, conspiracy, and fabrication, will not be tolerated.

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.

Counseling and Wellness Center: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling and Wellness Center provides confidential counseling services at no cost for currently enrolled students. 3190 Radio Road, 392-1575, www.counseling.ufl.edu/cwc.

Students Requiring Accommodations: 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. 001 Reid Hall, 392-8565, www.dso.ufl.edu/drc/.

Course Evaluation: Constructive feedback from students via course evaluation is requested to contribute to enhancing course quality. Students are requested to complete online evaluations at https://evaluations.ufl.edu when advised that the evaluation system is open.

Grading Scheme Examinations (3) - 60%

These require a mix of short answers and long format answers.

Quizzes on journal articles (best 4 of 6) - 20%.

To ensure students prepare adequately for the discussion of the journal articles, short quizzes are administered on information that would be readily apparent if the reading was completed.

Lab report - 20%

Introduction (15 points)
Clearly identifies the subject and defines the research problem; provides an advanced accounting of previous work; clearly explains general approach and objectives

Materials and Methods (5 points)
Written as prose; written in sufficient detail that the experiment could be repeated; explains how data were collected, assembled, interpreted.

Results and Discussion (25 points total)
All figures and tables are referenced in the text; key findings clearly and logically presented; discussion clearly relates results to the objectives of the study; discussion contains a clear accounting of how the results relate to previous findings; discussion includes conclusions clearly supported by the evidence gathered.

Literature Cited (5 points total)
Literature is referenced in text using the name-year system; the reference list contains at least 5 information sources appropriately formatted; each reference cited is listed in the Literature Cited and each reference is used at least once in the report.

Instructor(s) Carlene A. Chase
HOS4XXX – Organic Weed Management
3 CREDITS
Spring Semester 20XX
MWF Period 2, 8:30 to 9:20 AM
2316 Fifield Hall

OFFICE HOURS
Thursdays 10 am -12 pm
Fridays 1 pm - 3 pm or by appointment.

COURSE DESCRIPTION

Ecological principles can be applied in agroecosystems to manage weeds sustainably. Alternative weed management approaches that are less dependent on herbicides and utilize ecological processes detrimental to weeds and their propagules will be emphasized. Students will learn actively by critically analyzing pertinent literature and participating in discussions of supplemental reading.

LEARNING OBJECTIVES

Upon successful completion of this course, students will be able to:
• Describe how ecological approaches can be utilized to manage weeds in a sustainable manner
• Select and recommend ecological weed management practices that are approved for use in organic cropping systems.
• Critically analyze and discuss weed science journal articles.
• Prepare a laboratory report based on a field or greenhouse weed science experiment.

TEXTBOOKS: There is no required textbook.

Recommended Texts


Supplemental Materials


COURSE GRADE

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<td>answer responses.</td>
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<td>laboratory report based</td>
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<td>on a field or greenhouse</td>
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<td>weed science experiment.</td>
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<td>The report will include:</td>
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<td>title, objective,</td>
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<td>procedure, results and</td>
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<td>discussion, and references (Minimum of 5).</td>
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TOTAL 1000

GRADING SCALE

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Additional information on current UF grading policies for assigning grade points can be found here:

COURSE POLICIES

Attendance and Make-up Policy

You are encouraged to attend every lecture and complete quizzes and assignments by the posted deadlines. Absences will be excused and late assignments will be graded only for documented emergencies as per UF’s attendance policy.

Additional information on class attendance and make-up exams, assignments and other work can be found here:

- UF Attendance policy, [www.catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx](http://www.catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx)

Technical Difficulties

If you are experiencing technical difficulties with Canvas, you should immediately contact the UF Help Desk. This will generate a ticket number, which documents the date and time of your technical difficulty. Any requests to make-up late work due to technical difficulties must be accompanied by this ticket number.

- UF Help Desk, HUB 132, (352) - 392 - 4357, [www.lss.at.ufl.edu/help.shtml](http://www.lss.at.ufl.edu/help.shtml)

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](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 when 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.

- Disability Resource Center, 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.

- Counseling and Wellness Center, 3190 Radio Road, 392-1575, www.counseling.ufl.edu
  Counseling Services
  Groups and Workshops
  Outreach and Consultation
  Self-Help Library
  Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university’s on-campus resources.

- Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Course Evaluation Process

Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you 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:

- Course evaluations, www.evaluations.ufl.edu

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

- Evaluations summary, www.evaluations.ufl.edu/results
**Student Complaints**

You can file and resolve any complaints about your experience in this course at the following site:
- *Student complaints in residential courses,* [www.dso.ufl.edu/documents/UF_Complaints_policy.pdf](http://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)

**COURSE SCHEDULE**

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<tr>
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<th>Topics/Learning Experiences</th>
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| Week 1 | 1. Introduction and Orientation  
2. Weeds – Ecological Definition, Adverse Effects and Utility  
3. Ecological Weed Management |
| Week 2 | 1. Weed Life History  
2. Preventive Measures |
| Week 3 | 1. The National Organic Rule - Permitted Practices  
2. Herbicides permitted in organic cropping systems  
3. Weed-Crop Interactions, Competition |
| Week 4 | 1. Weed-Crop Competition Greenhouse Experiment Initiated  
3. Allelopathy |
| Week 5 | 1. Biofumigation  
2. Cultural Weed Management  
3. **Examination 1** |
| Week 6 | 1. Cultural Weed Management  
2. **Quiz. Cultural Weed Management (Graduate Student-Moderated Discussion)**  
3. Cultural Weed Management |
| Week 7 | 1. Physical Weed Control – Mulches  
2. **Quiz. Physical Weed Control – Soil Solarization (Graduate Student-Moderated Discussion)**  
3. Physical Weed Control – Thermal methods |
| Week 8 | 1. Physical Weed Control – Grits  
2. Anaerobic Soil Disinfestation  
3. Mechanical Weed Control – Tillage |
| **NO CLASS – Spring Break** | |
| Week 9 | 1. Mechanical Weed Control – Cultivation  
2. **Quiz. Automated Weed Control (Graduate Student-Moderated Discussion)**  
3. **Examination 2** |
| Week 10 | 1. Introduction to Biological Control of Weeds  
2. **Quiz. Weed Seed Predation (Student-Moderated Discussion)**  
3. Biological Control Using Microorganisms/Bioherbicides |
| Week 11 | 1. Final data collection from Weed-Crop Competition experiment  
2. Livestock for Weed Management |
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<tr>
<th>Week 12</th>
<th>1. Chemical Weed Control – Soil fumigants (Lab Report Introductions are due)</th>
<th>2. Chemical Weed Control – Synthetic Herbicides</th>
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<td>Week 13</td>
<td>1. Herbicide resistance</td>
<td>2. <strong>Quiz.</strong> Sustainability of Herbicide-Resistant Crops (<em>Graduate Student-Moderated Discussion</em>)</td>
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<td>3. Unmanned aerial vehicle use for weed management</td>
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<td>Week 14</td>
<td>1. Integrated Weed Management vs Ecological Weed Management</td>
<td>2. Assess Graduate Student Grant Proposal Presentations</td>
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<td>3. Submit laboratory report</td>
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<td>Week 15</td>
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<td>2. <strong>Examination 3</strong></td>
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Cover Sheet: Request 12932

MCB4xxx Probiotics

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Course|New for request 12932

Info

Request: MCB4xxx Probiotics
Description of request: New course
Submitter: Graciela Lorca glorca@ufl.edu
Created: 8/13/2018 1:27:03 PM
Form version: 1

Responses
Recommended Prefix MCB
Course Level 4
Number xxx
Category of Instruction Joint (Ugrad/Grad)
Lab Code None
Course Title Probiotics
Transcript Title Probiotics
Degree Type Baccalaureate

Delivery Method(s) Online
Co-Listing Yes
Co-Listing Explanation For the graduate level course, the students are required to complete all the activities and tests offered in the undergraduate course (70% of the grade). In addition, the students in the graduate level course have to write a Topics review paper based on at least five peer reviewed research articles (30% of the grade).
Effective Term Spring
Effective Year 2018
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description MCBxxx is an upper division course on probiotics. This course will cover the use of microorganisms to promote a health status in the host. This course will provide a conceptual background in microbiology and immunology for the use of microorganisms for the prevention or treatment of animal and human diseases.
Prerequisites MCB3020 or MCB3023
Co-requisites None

Rationale and Placement in Curriculum These new courses (first sections taught Spring 2018) were created in response to the growing interest (among students and the public) on the use of microorganisms in the prevention and/or treatment of some human and animal diseases, as well as their use to promote a healthy status. To my knowledge, these are the first comprehensive courses available on the topic of probiotics. These courses provide a conceptual background in microbiology and immunology for the use of microorganisms in the prevention or treatment of animal and human diseases. These courses are based on peer reviewed scientific literature. It is proposed as an elective.

Course Objectives After successful completion of this course, students will be able to:
- Understand the history of probiotics
- Compare and contrast the use of lactic acid bacteria, Bifidobacterium and Propionibacterium as probiotics
- Understand the range of proposed probiotics and the challenges in ensuring their safety and efficacy
- Compare and contrast the mechanisms used by probiotic microorganisms to modulate the host immune responses in the animal and in the human host
- List the proposed uses of probiotic microorganisms for the prevention or treatment of animal and human diseases
- Compare and contrast the applications of prebiotics, probiotics and symbiotics
- Discuss current research efforts and proposed applications of probiotics for animal and human health

**Course Textbook(s) and/or Other Assigned Reading**
- Textbook: no textbook is required, this course is based on peer reviewed papers either available for free through the links provided or through the UF library (ejournals).
- Suggested readings: For each module, suggested readings will be posted as pdf documents on Canvas or as links to download them from PUBMED (see working list at the end of the document). Students are instructed to connect to UF through VPN (if outside campus) before accessing the journals (https://connect.ufl.edu/iUwiki/pages/glvpn.aspx).

**Weekly Schedule of Topics**

<table>
<thead>
<tr>
<th>Date</th>
<th>Unit</th>
<th>Module, Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-Jan*</td>
<td>1</td>
<td>Definitions and History</td>
</tr>
<tr>
<td>29-Jan</td>
<td>2.1</td>
<td>Classification and physiology: Lactic acid bacteria (LAB)</td>
</tr>
<tr>
<td>29-Jan</td>
<td>2.2</td>
<td>Classification and physiology: Bifidobacterium and Propionibacterium</td>
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<tr>
<td>29-Jan</td>
<td>3.1</td>
<td>Impact of genomics on the characterization of probiotics _Intro to genomics</td>
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<tr>
<td>29-Jan</td>
<td>3.2</td>
<td>Impact of genomics on the characterization of probiotics _LAB part 1</td>
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<td>3.3</td>
<td>Impact of genomics on the characterization of probiotics _LAB part 2</td>
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<td>29-Jan</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Date</th>
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<th>Module, Topic</th>
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<tbody>
<tr>
<td>5</td>
<td>2</td>
<td>The uses of LAB in food fermentation -part 1</td>
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<tr>
<td>5</td>
<td>2</td>
<td>The uses of LAB in food fermentation -part 2</td>
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<td>6</td>
<td>2</td>
<td>Antimicrobials components of LAB</td>
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<td>2</td>
<td>Bacteriophages from LAB</td>
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<td>8</td>
<td>2</td>
<td>Nutraceutics and high value metabolites produced by LABs</td>
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<td>12-Feb</td>
<td>2</td>
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<tr>
<td>14-Feb</td>
<td>3</td>
<td>Test 1</td>
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<tr>
<th>Date</th>
<th>Unit</th>
<th>Module, Topic</th>
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<tbody>
<tr>
<td>16-Feb*</td>
<td>3</td>
<td>Overview on the adaptive and innate immune response - Part 1</td>
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<td>16-Feb*</td>
<td>3</td>
<td>Overview on the adaptive and innate immune response - Part 2</td>
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<tr>
<td>16-Feb*</td>
<td>4</td>
<td>Immunomodulatory properties of probiotics: bacterial surface proteins</td>
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<tr>
<td>16-Feb*</td>
<td>5</td>
<td>Immunomodulatory properties of probiotics: interactions with the immune system</td>
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<td>2-Mar</td>
<td>4</td>
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<td>2-Apr</td>
<td>5</td>
<td>14. Safety considerations on probiotics</td>
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<tr>
<td>4-Apr*</td>
<td>5</td>
<td>15. Environmental factors influencing the efficacy of probiotics</td>
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<td>5</td>
<td>16. Efficacy of probiotics in Human Subjects: Part 1</td>
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<td>4-Apr*</td>
<td>5</td>
<td>16. Efficacy of probiotics in Human Subjects: Part 2</td>
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<td>16. Efficacy of probiotics in Human Subjects: Part 3</td>
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<td>4-Apr*</td>
<td>5</td>
<td>16. Efficacy of probiotics in Human Subjects: Probiotics by design</td>
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<td>4-Apr*</td>
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<td>17. Probiotics in Animal Production and Health</td>
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<td>30-Mar</td>
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<td>2-Apr</td>
<td>6</td>
<td>Test 2</td>
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<td>6</td>
<td>New frontiers in the probiotic’s field</td>
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<tr>
<td>4-Apr*</td>
<td>6</td>
<td>18. Overview on the microbiome – Part 1</td>
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<tr>
<td>4-Apr*</td>
<td>6</td>
<td>18. Overview on the microbiome – Part 2</td>
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<td>4-Apr*</td>
<td>6</td>
<td>19. Manipulation of the microbiome with probiotics</td>
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<tr>
<td>4-Apr*</td>
<td>6</td>
<td>20. Microbiome based new probiotic microorganisms</td>
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<tr>
<td>4-Apr*</td>
<td>6</td>
<td>21. Fecal transplants as probiotics</td>
</tr>
<tr>
<td>4-Apr*</td>
<td>6</td>
<td>22. Probiotics, prebiotics and symbiotic</td>
</tr>
</tbody>
</table>
20-Apr
23-Apr
2-May

23. Psychobiotics and the Manipulation of Bacteria-Gut-Brain Signals

Assignment 5 due – EXTRA CREDIT

Test 3

Optional Final

*Release date for the Unit on Canvas

**Links and Policies**

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**Health and Wellness**

- U Matter. We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352-392-1575 so that a team member can reach out to the student.
- Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575;
- Sexual Assault Recovery Services (SARS) at the Student Health Care Center, 392-1161.
- For emergencies call: University Police Department, 392-1111 (or 9-1-1 for emergencies).
  http://www.police.ufl.edu/

**Academic Resources**

- E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. https://lss.at.ufl.edu/help.shtml.
- Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.
  http://www.crc.ufl.edu/
- Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.
- Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
  http://teachingcenter.ufl.edu/
- Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
  http://writing.ufl.edu/writing-studio/

**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/.

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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.

**Netiquette guide for online courses**

It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

**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://sccr.dso.ufl.edu/process/honor-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.

Additional comments regarding academic integrity:
Students are encouraged to discuss material with each other from the course, help each other understand concepts, study together, and even discuss assessment questions with each other once the quiz window is closed. However, the following is considered academic dishonesty, and I expect that no student will ever do any of the following:

- Have another person complete a quiz in this course
- Copy another student’s quiz in this course
- Collaborate with anyone during a quiz in this course
- Discuss the questions and answers of a quiz with other students while the quiz window is still open
- Manipulate and/or distribute any materials provided in this course for any purpose (including course lecture slides).
- Use any materials provided by a previous student in the 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.

Microsoft Office 365 Software is free for UF students
http://www.it.ufl.edu/gatorcloud/free-office-365-downloads/
Other free software is available at:
http://www.software.ufl.edu/
To check for availability of the media and technical requirements, contact the UF Computing Help Desk at (352)392-HELP(4357).

University of Florida Complaints Policy and Student Complaint Process
Most problems, questions and concerns about the course will be resolved by professionally communicating with the instructor or the TAs.

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy.

If a problem really cannot be resolved by communicating with the instructor or the TAs you can contact
- Residential Course:

University of Florida Complaints Policy and Student Complaint Process
The University of Florida and most instructors believe strongly in the ability of students to express concerns regarding their experiences at the University. Most problems, questions and concerns about courses can be resolved by professionally communicating with the instructor. Please try to meet your instructor in person, make an appointment to call, or try to set up a remote meeting through Skype or other media.

If this does not help the University encourages the students who wish to file a written complaint to submit that complaint directly to the department that manages that course. If a problem really persists and cannot be resolved by communicating with the instructor and the department, contact... for
Online Course: http://www.distance.ufl.edu/student-complaint-process

This said, professionalism is a two-way-street. Unprofessional behavior of students includes, among other things: lack of communication, blaming other people or external factors, lying, affecting others negatively in a group or in the class, not accepting criticism and not being proactive in solving problems or seeking help. Furthermore, faculty often have family and other obligations to tend to. Over the weekend, replies to your inquiries or questions maybe delayed.

If a student is lacking professionalism repeatedly, the instructor has the rights to file formal complaint against the student through the Dean of Student office.

Grading Scheme Assessment of learning
- Assignments (250 points): Activities will be assigned by Unit. The activities include online
research on diverse topics such as "co-evolution of beneficial bacteria and its hosts", "GMO's and probiotics", "Market claims: is there scientific evidence?". The activities are mandatory and count towards the final grade. They should be completed by the deadline indicated on Canvas.

- Exams (750 points): Exams will assess your knowledge of the concepts covered during the lectures. Students must sign up on ProctorU at least 72 hours in advance. The assessment will be performed in Three Mandatory Mid-term exams. The student will be given the option to take a final cumulative exam to improve the grade obtained through the mid-term exams.

- Mid-terms (750 points): There will be three 50 minutes proctored mid-term exams (250 points each) with multiple choice questions, true/false, fill in the blanks questions and short answers questions. All exams are mandatory and will count towards the final grade. Exams will test learning and understanding of material presented in lectures, assigned readings and in assignments.

- Optional Final to replace ONE test (with the lowest grade) will be available during Finals Week. The students MUST have taken all three tests to qualify for the Optional Final. This cumulative test will include all the content included in Units 1 to 5 and will be worth 250 points.

Grading Scale (Total 1000 points)
A  900 or above
A- 860-899
B+ 830-859
B  790-829
B- 750-780
C+ 720-749
C  690-719
C- 660-689
D+ 630-659
D  600-629
D- 570-599
E  560 or below

Instructor(s) Instructor: Dr. Graciela L Lorca

Office: Genetics Institute, Room 307
MCB4934: Probiotics (3 credits)
Spring 2018

MCB4934 is an upper division course on probiotics. This course will cover the use of microorganisms to promote a health status in the animal and human host. This course will provide a conceptual background in microbiology and immunology for the use of microorganisms for the prevention or treatment of animal and human diseases.

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

- Understand the history of probiotics
- Compare and contrast the use of lactic acid bacteria, Bifidobacterium and Propionibacterium as probiotics
- Understand the range of proposed probiotics and the challenges in ensuring their safety and efficacy
- Compare and contrast the mechanisms used by probiotic microorganisms to modulate the host immune responses in the animal and in the human host
- List the proposed uses of probiotic microorganisms for the prevention or treatment of animal and human diseases
- Compare and contrast the applications of prebiotics, probiotics and symbiotics
- Discuss current research efforts and proposed applications of probiotics for animal and human health

Lectures: Online through Canvas
Instructor: Dr. Graciela L Lorca
Office: Genetics Institute, Room 307
WebPage: Canvas (https://ufl.instructure.com/). Please select MCB4934

On line help with classroom technology: http://helpdesk.ufl.edu/
Pre-requisite: MCB3020 or MCB3023

Communication: for questions regarding class and textbook content use the Discussion Board, for issues on Home Work Assignments, class organization check first the syllabus, the announcements and calendar on Canvas, then post your questions on the discussion board. For all other issues contact Dr. Graciela Lorca.

VIRTUAL OFFICE HOURS: will be available every week through the BLUE BUTTON tool in Canvas. To participate go to Conferences in the left of your screen and join! You will receive a weekly remainder by email.
Students in Gainesville can also come for in person office hours:
Fridays 2-3 PM at Genetics Institute, Room 307.

All students: If you cannot make it to office hours you can request an appointment. Send an email with three suggested times and I will choose one for us to meet.

Contact Information: Use TEACHER in your emails through Canvas ONLY (personal emails should only be used in a case of emergency)

Dr. Graciela L Lorca:

Email (the most efficient): ONLY use Canvas e-mail (If you do not have access to the e-learning platform and need to contact me for an emergency, use glorca@ufl.edu)

Phone: 273 8090 (please leave a message).

Office hours: Fridays 2-3 PM at Genetics Institute, Room 307. By appointment: (only if you cannot make it to office hours) send an email with three suggested times and I will choose one for us to meet.

- Discussion Board: A discussion board is available in Canvas. It is very useful, please post and answer your questions on class content and organization there. Postings and answers are monitored by the instructor to make sure no mistakes get propagated. There are several discussion themes. Please post your questions in the adequate section.

Material

- Textbook: no textbook is required, this course is based on peer reviewed papers either available for free through the links provided or through the UF library (ejournals).

- Suggested readings: For each module, suggested readings will be posted as pdf documents on Canvas or as links to download them from PUBMED (see working list at the end of the document). Remember to connect to UF through VPN (if outside campus) before accessing the journals (https://connect.ufl.edu/it/wiki/pages/glvpn.aspx).

Assessment of learning

- Assignments (250 points): Activities will be assigned by Unit. The activities include online research on diverse topics such as “co-evolution of beneficial bacteria and its hosts”, “GMO’s and probiotics”, “Market claims: is there scientific evidence?”. The activities are mandatory and count towards the final grade. They should be completed by the deadline indicated on Canvas.

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The assessment will be performed in Three Mandatory Mid-term exams. The student will be given the option to take a final cumulative exam to improve the grade obtained through the mid-term exams.

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- **Optional Final to replace ONE test (with the lowest grade) will be available during Finals Week.** The students MUST have taken all three tests to qualify for the Optional Final. This cumulative test will include all the content included in Units 1 to 5 and will be worth 250 points.

**Make-Up policy:** Make-up exams will ONLY be allowed with a VALID justification. If one exam is missed, it will result in a score of 0 for the test (see below for "Excused absences").

**Excused absences:**

Documentation MUST be provided for absences caused by serious illness, accident, jury duty, or death in the immediate family. You must contact the instructor **IN ADVANCE (as soon as possible)** of the missed exam and I will arrange an alternative time for the exam.

**After the exam:** The grades will be available on Canvas five days after the exam, unless notified by an announcement. Test questions will be made available through Canvas. **After we release the questions, the student will have 5 days to submit questions about the test or claim mistakes in grading. No claims will be considered after that time.**

**Grading:** Straight scale

**Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>900 or above</td>
</tr>
<tr>
<td>A-</td>
<td>860-899</td>
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<td>Date</td>
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<td>8-Jan*</td>
<td>Unit 1</td>
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Assignment 5 due – EXTRA CREDIT
23-Apr
Test 3
2-May
Optional Final

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• Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.
• Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. http://teachingcenter.ufl.edu/

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Additional comments regarding academic integrity:
Students are encouraged to discuss material with each other from the course, help each
other understand concepts, study together, and even discuss assessment questions with each other once the quiz window is closed. However, the following is considered academic dishonesty, and I expect that no student will ever do any of the following:

- Have another person complete a quiz in this course
- Copy another student's quiz in this course
- Collaborate with anyone during a quiz in this course
- Discuss the questions and answers of a quiz with other students while the quiz window is still open
- Manipulate and/or distribute any materials provided in this course for any purpose (including course lecture slides).
- Use any materials provided by a previous student in the 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.

**Microsoft Office 365 Software is free for UF students**

http://www.it.ufl.edu/gatorcloud/free-office-365-downloads/

**Other free software is available at:**
http://www.software.ufl.edu/

To check for availability of the media and technical requirements, contact the UF Computing Help Desk at (352)392-HELP(4357).

University of Florida Complaints Policy and Student Complaint Process
Most problems, questions and concerns about the course will be resolved by professionally communicating with the instructor or the TAs.

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy.

If a problem really cannot be resolved by communicating with the instructor or the TAs you can contact
- Residential Course: [https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)
- Online Course: [http://www.distance.ufl.edu/student-complaint-process](http://www.distance.ufl.edu/student-complaint-process)

University of Florida Complaints Policy and Student Complaint Process
The University of Florida and most instructors believe strongly in the ability of students
to express concerns regarding their experiences at the University. Most problems, questions and concerns about courses can be resolved by professionally communicating with the instructor. Please try to meet your instructor in person, make an appointment to call, or try to set up a remote meeting through Skype or other media.

If this does not help the University encourages the students who wish to file a written complaint to submit that complaint directly to the department that manages that course. If a problem really persists and cannot be resolved by communicating with the instructor and the department, contact... for

Residential Course: https://www.dso.ufl.edu/documents/UF_Compaints_policy.pdf
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This said, professionalism is a two-way-street. Unprofessional behavior of students includes, among other things: lack of communication, blaming other people or external factors, lying, affecting others negatively in a group or in the class, not accepting criticism and not being proactive in solving problems or seeking help. Furthermore, faculty often have family and other obligations to tend to. Over the weekend, replies to your inquiries or questions maybe delayed.

If a student is lacking professionalism repeatedly, the instructor has the rights to file formal complaint against the student through the Dean of Student office.

Suggested Readings and Sources

Unit 1. Probiotics: definitions, history and classification

Module 1. Definitions and History


Module 2. Classification and physiology: Lactic acid bacteria (LAB)

Module 3. Classification and physiology: *Bifidobacterium* and *Propionibacterium*


Module 4. Impact of genomics on the characterization of probiotics


Unit 2. Biotechnological applications of Lactic acid bacteria

Module 5. The uses of LAB in food fermentation

Module 6. Antimicrobials components of LAB


Module 7. Bacteriophages from LAB


Module 8. Nutraceutics and high value metabolites produced by LABs


Unit 3. Interactions of probiotics with the host immune system

Module 10. Immunomodulatory properties of probiotics: bacterial surface proteins

Module 11. Immunomodulatory properties of probiotics: interactions with the immune system


Module 12. Engineering LAB and Bifidobacterium for mucosal delivery of health-associated molecules


Unit 4. Probiotics safety and efficacy

Module 13. FAO/WHO Guidelines on Probiotics

Module 14. Safety considerations on probiotics


Module 15. Environmental factors influencing the efficacy of probiotic bacteria


Module 16. Efficacy of probiotics in Human Subjects


Module 17. Probiotics in Animal Production and Health


Unit 5. New frontiers in probiotic's development

Module 18. Overview on the microbiome

- Workshop Slides - JCVI Blog - J. Craig Venter Institute


- Human Microbiome Project https://commonfund.nih.gov/hmp/initiatives

Module 19. Manipulation of the microbiome by probiotics


Module 20. Microbiome research to identify new probiotic microorganisms


Module 21. Fecal transplants as probiotics


Module 22. Probiotics, prebiotics and symbiotics


Module 23. Psychobiotics: manipulation of bacteria–gut–brain signals


Cover Sheet: Request 12996

PLS 3XXX C - Hydroponic Systems

**Description of Request:** We request to create a new course titled PLS 3XXX C - Hydroponic Systems.

**Info**

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<th>Course/New/Grad/Pro</th>
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</tr>
<tr>
<td>Submitter</td>
<td>Gerardo Nunez Villegas <a href="mailto:g.nunez@ufl.edu">g.nunez@ufl.edu</a></td>
</tr>
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<td>Created</td>
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<tr>
<td>Updated</td>
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**Description**

We request to create a new course titled PLS 3XXX C - Hydroponic Systems.

**Actions**

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<th>Group</th>
<th>User</th>
<th>Comment</th>
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<tr>
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<td>CALS - Horticultural Sciences</td>
<td>Christine Chase</td>
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<td>9/5/2018</td>
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<td>Syllabus PLS 3XXX C - Hydroponic systems - Final.pdf</td>
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No document changes

University

Curriculum

Committee

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 12996

Info
Request: PLS 3XXX C - Hydroponic Systems
Description of request: We request to create a new course titled PLS 3XXX C - Hydroponic Systems
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 12:43:44 PM
Form version: 2

Responses
Recommended Prefix PLS
Course Level 3
Number XXX
Category of Instruction Intermediate
Lab Code C
Course Title Hydroponic Systems
Transcript Title Hydroponic Systems
Degree Type Baccalaureate

Delivery Method(s) On-Campus, Online
Co-Listing No
Co-Listing Explanation Not applicable
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 This course offers students foundational information and hands-on experience on hydroponic and soilless cultivation of horticultural crops. Production practices, growing systems, new technologies and current challenges are discussed.
Prerequisites HOS 3020C or PLS 3004C

Co-requisites None
Rationale and Placement in Curriculum Hydroponic systems are fundamental tools in horticulture. This course leverages the strengths of faculty in two departments to train students in the principles and practices involved in using hydroponic systems. This course will be an approved elective for students in the Horticultural Sciences and Plant Science programs.

Course Objectives Upon successful completion of this course, students will be able to:
- Describe essential components of single-pass and recirculating hydroponic systems
- Compare different substrates and hydroponic system designs
- Interpret water quality analysis results and recommend corrections
- Create nutrient solutions using salts or mixed fertilizers
- Evaluate the importance of water quality, dissolved oxygen, salinity, and pH management for hydroponic production
- Select hydroponic systems for production of leafy greens, herbs, solanaceous crops, and woody ornamentals
- Apply solution chemistry knowledge and plant biology concepts to manage hydroponic systems

Course Textbook(s) and/or Other Assigned Reading There is no required textbook for this course. These two textbooks are valuable reference sources.
- How to hydroponics – Keith Roberto ISBN 0-96-72026-0-4

Weekly Schedule of Topics Week 1: Controlled Environment Agriculture and hydroponics: Past, present, and future; Advantages and disadvantages of hydroponics; Uses of hydroponic systems;
Hydroponic crops

Week 2: Basic production principles; Growing substrates; Growing systems; System components; Practicum: Assembling and operating NFT and DWC systems

Week 3: Alkalinity and pH; Alkalinity corrections using AlkCalc; Electrical conductivity; toxic elements, biological contaminants; Water sampling; Practicum: Assembling and operating ebb & flood and vertical systems

Week 4: Introduction to nutrient solutions; Fertilizers and labels; Mixing nutrient solutions; Practicum: Mixing a custom-made nutrient solution

Week 5: Fertilizer injectors and practical problems; Basic principles of organic nutrition; Organic hydroponics; Practicum: Assembling and operating aeroponics and fogponics systems

Week 6: Introduction to aquaponics; Aquaponic systems and components; Sanitation; Common errors with hydroponic production; Practicum: Cleaning and sanitizing hydroponics systems

Links and Policies
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Student Complaints:
• Online Course: http://www.distance.ufl.edu/student-complaint-process

Grading Scheme

1) Weekly quizzes (250 points)
Each quiz will be worth 50 points, and there will be 5 quizzes during the semester. Each quiz will be timed to 30 minutes, and it can only be taken once. Each quiz will consist of eight multiple-choice questions, as well as two essay-style questions. Students can refer to personal notes, websites, or any reference materials to complete the quiz. However, each student must work individually. Make up quizzes will be provided in accordance with the policy described below.

2) Weekly discussion (250 points)
Hydroponic and soilless growth systems are buzzworthy these days. During weeks 1-5, the instructors will post an article from popular media that highlights an advantage, challenge, or opportunity faced by the industry. Students will write a 150-word reaction piece (by Wednesday each week), and comment on two reaction pieces from classmates (by Sunday each week). Both the reaction piece and the comment are to be submitted in the Discussions tab in canvas.

Participation in the discussion will be graded on a weekly basis using the following rubrics:

Reaction piece grading criteria to be scored out of 5 points:
- The reaction piece reflects that the student read and understood the assigned article.
- The reaction piece has a clear purpose: inform, persuade, or raise an interesting question.
- The reaction piece was written following the instructions (minimum word requirement).
- The reaction piece is engaging and moves the conversation forward.
- The reaction piece is written using professional grammar, punctuation, and vocabulary.

Peer comments grading criteria to be scored out of 5 points:
- Comments are substantive and reflect that the student read and understood classmates’ reaction pieces.
- Comments are engaging and move the conversation forward.
- Comments indicate agreement with a classmate’s post or offer an alternative viewpoint.
- Comments address classmates and instructors in a respectful, professional manner.
- Comments are written using professional grammar, punctuation, and vocabulary.

3) Nutrient solution formulation exercise (150 points)
The calculations necessary to mix a nutrient solution are critical for hydroponic production. This take-home exercise will test your quantitative skills to formulate a nutrient solution. The assignment will be posted on July 23rd and it is due on July 29th at 11:59PM. You can refer to personal notes, websites, or any reference materials, but you must work individually. You must show all calculations either through a scanned document or a spreadsheet. If your calculations are carried out by hand, please write as legibly as possible.

4) Hydroponic systems practicum (150 points)
This course includes five hands-on practical activities where students get to assemble, operate, disassemble, and sanitize hydroponic systems. Each week, there will be assigned reading materials that must be completed before the lab session. We will meet in Field 2316 to receive instructions and carry out demonstrations for the practicum. Then, the class moves to greenhouse 441 east in the Horticultural Sciences Teaching Garden, where the practical activities will happen. We will work in teams of 3 students. Participation in the practical activities will be evaluated by your peers and the instructor after each activity using the following rubric. Peer evaluation scores from each activity will be averaged and added to the instructor score. The sum of scores in all activities will be your total score for the practicum.

Performance criteria to be scored out of 5 points:
- The student is able to identify and describe necessary basic concepts for completion of the project.
- The student contributed to completing the task according to the instructions.
- The student is responsible for an element of the team’s success.

5) Final exam (200 points)
The final exam will be a take-home comprehensive test. Students will be presented with a hydroponic production scenario and asked to select among available technologies, strategies, and tradeoffs. The final exam will be posted on August 6th and it is due on August 10th at 11:59PM. The final exam can be submitted as a .doc or .pdf file in Canvas. Students can use reference materials (class slides, textbooks, etc.), but they must work individually and cite their sources as appropriate.

Grading scale
895-1000 A
865-<895 B+
795-<865 B
765-<795 C+
695-<765 C
665-<695 D+
595-<665 D
<595 E

Instructor(s) Gerardo Nunez (Horticultural Sciences)
Celina Gomez (Environmental Horticulture)
PLS 3XXX C: HYDROPONIC SYSTEMS
3 credits
Summer B

MEETING TIMES AND LOCATION
Lecture: Online asynchronous
Practicum: Wednesday 2nd-3rd period
Fifield Hall room 2316 and Horticultural Sciences Teaching Garden

INSTRUCTORS
Dr. Gerardo Nunez g.nunez@ufl.edu
Horticultural Sciences Dept. 1113 Fifield Hall
Office hours Wednesdays 1:00pm to 3:00PM

Dr. Celina Gómez cgomezv@ufl.edu
Environmental Horticulture Dept. 2543 Fifield Hall
Office hours: Wednesdays 1:00pm to 3:00PM

PRE-REQUISITES
HOS 3020C or PLS 3004C

COURSE DESCRIPTION
This course offers students foundational information and hands-on experience in hydroponic and soilless cultivation of horticultural crops. Production practices, growing systems, new technologies, and current challenges are discussed.

COURSE FORMAT
This course is taught through asynchronous online lectures delivered through Canvas and a hands-on practicum. Lectures, learning materials, and assessments go “live” every Monday at 9:00 AM. Most assignments in this course are due at 11:59 PM on Sundays. Assignments are due every week of the semester.

LEARNING OBJECTIVES
Upon successful completion of this course, students will be able to:
- Describe essential components of single-pass and recirculating hydroponic systems
- Compare different substrates and hydroponic system designs
- Interpret water quality analysis results and recommend corrections
- Create nutrient solutions using salts or mixed fertilizers
- Evaluate the importance of water quality, dissolved oxygen, salinity, and pH management for hydroponic production
- Select hydroponic systems for production of leafy greens, herbs, solanaceous crops, and woody ornamentals
- Apply solution chemistry knowledge and plant biology concepts to manage hydroponic systems
COURSE MATERIALS

There is no required textbook for this course. These two textbooks are valuable reference sources.
- **Hydroponics for the Home Grower** – Howard M. Resh  
- **How to hydroponics** – Keith Roberto  
  ISBN 0-96-72026-0-4

Digital copies of this syllabus, as well as handouts, videos, and other instructive materials will be delivered via canvas. Maps to all locations relevant to the course will also be available here.
- **E-Learning in Canvas**, www.elearning.ufl.edu

This is a summer course in Florida. Sun protection and hydration should be your personal priorities. More information on sun protection can be found here.

COURSE GRADE

1. **Weekly quizzes**  
   Each quiz will be worth 50 points, and there will be 5 quizzes during the semester. Each quiz will be timed to 30 minutes, and it can only be taken once. Each quiz will consist of eight multiple-choice questions, as well as two essay-style questions. Students can refer to personal notes, websites, or any reference materials to complete the quiz. However, each student must work individually. Make up quizzes will be provided in accordance with the policy described below.

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Participation in the discussion will be graded on a weekly basis using the following rubrics:

<table>
<thead>
<tr>
<th>Reaction piece</th>
<th>Strongly disagree</th>
<th>Neither agree or disagree</th>
<th>Strongly agree</th>
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<tr>
<td>The reaction piece reflects that the student read and understood the assigned article.</td>
<td>1-2</td>
<td>3</td>
<td>4-5</td>
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<tr>
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<td>D</td>
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<tr>
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# HYDROPONIC SYSTEMS

## Summer B

<table>
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| Week 1   | **Controlled Environment Agriculture and hydroponics: Past, present, and future**  
Advantages and disadvantages of hydroponics  
Uses of hydroponic systems  
Hydroponic crops |
|          | **Practicum:** Assembling and operating NFT and DWC systems |
| Week 2   | Basic production principles  
Growing substrates  
Growing systems  
System components  
**Practicum:** Assembling and operating NFT and DWC systems |
|          | **Practicum:** Assembling and operating ebb & flood and vertical systems |
| Week 3   | Alkalinity and pH  
Alkalinity corrections using AlkCalc  
Electrical conductivity, toxic elements, biological contaminants  
Water sampling  
**Practicum:** Assembling and operating ebb & flood and vertical systems |
|          | **Practicum:** Mixing a custom-made nutrient solution |
| Week 4   | Introduction to nutrient solutions  
Fertilizers and labels  
Mixing nutrient solutions – part 1  
Mixing nutrient solutions – part 2  
**Practicum:** Mixing a custom-made nutrient solution |
|          | **Practicum:** Assembling and operating aeroponics and fogponics systems |
| Week 5   | Fertilizer injectors  
Practical problems with fertilizer injectors  
Basic principles of organic nutrition  
Organic hydroponics  
**Practicum:** Assembling and operating aeroponics and fogponics systems |
|          | **Practicum:** Cleaning and sanitizing hydroponics systems |
| Week 6   | Introduction to aquaponics  
Aquaponic systems and components  
Sanitation  
Common errors with hydroponic production  
**Practicum:** Cleaning and sanitizing hydroponics systems |

**Instructor**

- Celina Gómez
- Gerardo Nunez
Cover Sheet: Request 12995

HOS 3020C – Principles of Horticultural Crop Production

Info

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No document changes
Course|Modify for request 12995

Info

Request: HOS 3020C – Principles of Horticultural Crop Production
Description of request: We request to change HOS3020 from 3 to 4 credit hours, and from L code to C code.
Submitter: Gerardo Nunez Villegas g.nunez@ufl.edu
Created: 9/5/2018 1:07:05 PM
Form version: 3

Responses

Current Prefix HOS
Course Level 3
Number 020
Lab Code None
Course Title Principles of Horticulture Crop Production
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? Yes
Current Lab Code None
Proposed Lab Code C
Change Course Title? Yes
Current Course Title Principles of Horticulture Crop Production
Proposed Course Title Principles of Horticultural Crop Production
Change Transcript Title? No

Change Credit Hours? Yes
Current Credit Hours 3
Proposed Credit Hours 4
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? Yes
Current Course Description Provides a basic understanding of the world fruit and vegetable industry. Emphasizes world, U.S. and Florida production regions, biology, soils, nutrition, terminology, types of fruits and vegetables, site selection and more.
Proposed Course Description (50 words max) This course introduces students to concepts and practices used to produce fruit and vegetable crops in Florida, the U.S., and globally. Topics covered
include production regions, crop biology, crop nutrition and types of fruits and vegetables, disease and pest management, and marketing. This course includes a hands-on practicum.

**Change Prerequisites?** Yes

**Current Prerequisites** None

**Proposed Prerequisites** Junior standing

**Change Co-requisites?** No

**Rationale** We propose to change HOS3020 from 3 to 4 credit hours, and from L code to C code. This change reflects instructor and program interest in increasing and enhancing experiential learning activities in the course. Additionally, student evaluations for this course have consistently called for more hands-on activities in the teaching garden.
HOS 3020C – Principles of Horticultural Crop Production

4 CREDITS

MEETING TIMES AND LOCATION
Mondays and Wednesdays 9:35 AM to 10:25 AM
Fridays 9:35 AM to 11:30 AM
Fifield Hall 2316 and Horticultural Sciences Teaching Garden

INSTRUCTORS
Dr. Xin Zhao 1235 Fifield Hall
352-273-4773
zxin@ufl.edu
MW 2:00PM – 2:50PM

Dr. Gerardo Nunez 1113 Fifield Hall
352-273-4765
g.nunez@ufl.edu
T 2:00PM – 4:00PM

PRE-REQUISITES
Junior standing

COURSE DESCRIPTION
This course introduces students to concepts and practices used to produce fruit and vegetable crops in Florida, the U.S., and globally. Topics covered include production regions, crop biology, crop nutrition and types of fruits and vegetables, disease and pest management, and marketing. This course includes a hands-on practicum.

LEARNING OBJECTIVES
Upon successful completion of this course, students will be able to:

- Discuss growth and development patterns for fruit and vegetable species.
- Explain production conditions and practices for fruit and vegetable crops and compare the various cultural systems.
- Develop management plans for soil fertility, irrigation, and pest control in fruit and vegetable production.
- Critically analyze data from the fruit and vegetable industries at the regional, national, and global levels.
- Discuss and evaluate different marketing strategies for fruit and vegetable crops.
• Apply irrigation, fertilization, pruning, transplanting, and harvesting techniques in fruit and vegetable production.

COURSE MATERIALS

Textbooks

There is not a required textbook for this course. Lectures will be presented in PowerPoint available on the course website. The following textbooks are optional reference materials. They are placed on Course Reserve at Marston Science Library:


COURSE GRADE

1. Exams 400 points

   There will be four non-cumulative exams in the semester, two in the vegetables section and two in the fruits section. Exams 1-3 will take place during scheduled class periods. Exam 4 will take place during finals week. All exams will take 50 minutes. Each exam will be graded out of 100 points.

2. Quizzes 80 points

   There will be eight online quizzes in the semester, four in the vegetables section and four in the fruits section. Each quiz will be timed to 10 minutes and can only be taken once. Students can refer to personal notes, slideshows, and other reference materials, but they must work individually. Each quiz will be graded out of 10 points.

3. Class Participation 50 points

   At the beginning of every class, students will be chosen at random and asked to provide a 2-minute verbal summary of the previous lecture. Additionally, throughout the course there will be opportunities for students to ask or answer questions. Class interaction and class summaries will be graded out of 25 points according to the rubrics below. The sum of your class summary and class interaction scores will be used as your participation grade.
4. **Horticultural Production Practicum**

Hands-on application of the concepts covered in lecture will focus on the design and maintenance of fruits and vegetable production plots in the Horticultural Sciences Teaching Garden. Students will work in teams of 6 to grow fruits and vegetables for the duration of the semester. Your contribution to your team's plot will be evaluated every two weeks based on your performance acceptability and reflective essays. Performance acceptability points (maximum 10 points) will be allocated by the instructor according to the rubric below.

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Reflective essays (maximum 10 points) will be short (200 words), well-written pieces that summarize the lessons learned in each activity. Reflective essays are due on canvas at 11:59PM on Sundays starting on week 3 of the semester. Ten additional points will be earned by preparing and delivering a short presentation (2 minutes, one visual aid) for the fall open house scheduled for week 14 of the semester. Additional guidelines for the presentation will be provided in class.

5. **E-portfolio**

Reflective essays are a good way to document your professional skills as a horticulturist. Students are encouraged to improve their reflective essays based on instructor feedback. Then, students are encouraged to deposit their fruit and vegetable production plan, season extension plan, and fruit tree grafting reports in an electronic portfolio. E-portfolios can be created using wordpress.com or wix.com. A tutorial on how to create a professional e-portfolio will be conducted in class. All students are encouraged to create an e-portfolio. Horticultural Sciences students must submit a link to their e-portfolio in the Canvas site for the major. Horticultural Sciences students will update and enhance this e-portfolio throughout their program of study.

All points earned in the course will be summed to calculate your final grade. Letter grades will be based on the performance of each student relative to the following standard percentages (%):
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<tr>
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<td>&gt; 89.9 - 87</td>
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<td>B</td>
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Additional information on current UF grading policies for assigning grade points can be found here:

- Grading policy, [www.catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx](http://www.catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx)

**COURSE POLICIES**

**Attendance and Make-up Policy**

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

- UF Attendance policy, [www.catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx](http://www.catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx)

**Technical Difficulties**

If you are experiencing technical difficulties with Canvas, you should immediately contact the UF Help Desk. This will generate a ticket number, which documents the date and time of your technical difficulty. Any requests to make-up late work due to technical difficulties must be accompanied by this ticket number.

- UF Help Desk, HUB 132, (352) 392-4357, [www.lss.at.ufl.edu/help.shtml](http://www.lss.at.ufl.edu/help.shtml)

**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 when appropriate.

Services for Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center 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.

• Disability Resource Center, 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.

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

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

Additionally, if you would like orientation on choosing a major, finding an internship, or planning your career, I encourage you to use the university’s on-campus resources.

• Career Resource Center, CR-100 Reitz Union, 392-1601, www.crc.ufl.edu/next-level

Course Evaluation Process
Student assessment of instruction is an important part of the effort to improve teaching and learning. At the end of the semester, you 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:

- **Course evaluations**, [www.evaluations.ufl.edu](http://www.evaluations.ufl.edu)

Evaluations are typically open during the last two or three weeks of the semester. You will be notified of the specific times when evaluations for this course are open. Summary results of these assessments are available to students at:

- **Evaluations summary**, [www.evaluations.ufl.edu/results](http://www.evaluations.ufl.edu/results)

**Student Complaints**

You can file and resolve any complaints about your experience in this course in the following site:

- **Student complaints in residential courses**, [www.dso.ufl.edu/documents/UF_Complaints_policy.pdf](http://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf)
### HOS 3020C – Principles of Horticultural Crop Production

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<td>Classifying vegetables; Quality attributes</td>
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<td>Week 4</td>
<td>Vegetable growing conditions and patterns; Plasticulture</td>
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<td>Field planting and transplanting; Vegetable grafting lab</td>
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<td>Soil management and fertilization</td>
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Syllabus - 07

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**Cover Sheet: Request 12959**

**Wildlife Forensic Sciences and Conservation**

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Certificate Close-Modify for request 12959

Info

Request: Wildlife Forensic Sciences and Conservation
Description of request: Wildlife Forensic Sciences and Conservation graduate certificate change from 9 hours to 15 hours.
Submitter: Jason Byrd jhbyrd@ufl.edu
Created: 8/23/2018 9:58:09 AM
Form version: 1

Responses

Current Certificate Name Wildlife Forensic Sciences and Conservation
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 Wildlife Forensic Sciences and Conservation
Change Certificate Name on Transcript? No
Current Transcript Name Wildlife Forensic Sciences and Conservation
Proposed Transcript Name (21 char. max) Wildlife Forensic Sci
Change Credit Hours? Yes
Current Credit Hours 9
Proposed Credit Hours more than 12 (please detail in description how many credits)
Change Certificate Description? No
Current Certificate Description Provides a graduate education from an accredited institution in the application of the forensic sciences and medicine to the field of wildlife conservation. The establishment of graduate education will improve the current level of investigation performed in crimes against wildlife and illegal take of protected species.
Proposed Certificate Description (50 word max) Provides a graduate education from an accredited institution in the application of the forensic sciences and medicine to the field of wildlife conservation. The establishment of graduate education will improve the current level of investigation performed in crimes against wildlife and illegal take of protected species.
Change Certificate Prerequisites? No
Current Prerequisites None
Proposed Prerequisites None
Change Certificate Requirements? Yes
Current Requirements WIS 6548- Wildlife Crime Scene Processing. Letter grade - 3 credits
WIS 6559- Contemporary Issues in Animal Protection. Letter grade - 3 credits
WIS 6557- Wildlife Conservation Laws and Legislation. Letter grade - 3 credits
Proposed Requirements WIS 6546- Wildlife Crime Scene Processing. Letter grade - 3 credits
WIS 6559- Contemporary Issues in Animal Protection. Letter grade - 3 credits
WIS XXX - U.S. Wildlife Law, Policy and Ethics
OR
WIS 6557 International Wildlife Conservation Law, Policy and Ethics
AND
SUR 6934 GIS Fundamentals
OR
STA 6093 Introduction to Applied Statistics fro Agriculture and Life Sciences
AND
WIS 6576 Human-Wildlife Conflict
OR
WIS 5562 Conservation Medicine
Impact on Program None anticipated.
Rationale for Proposed Change(s) Expansion of the certificate from 9 to 15 credit hours will provide a more broad-based education on the topic of wildlife forensic sciences and conservation.

Assessment Data Review The program goal was to provide students with access to either SUR 6934 GIS Fundamentals OR STA 6093 Introduction to Applied Statistics for Agriculture and Life Science and to allow those courses to be taken as a certificate course and not limited to students in the new MS concentration.

Academic Assessment Plan Changes There are no modifications to the current assessment plan for the certificate.
### Cover Sheet: Request 12972

**Terminating Personal and Financial Planning undergraduate certificate**

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<tr>
<td>Office of the Registrar</td>
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<td>Academic Assessment Committee Notified</td>
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<td>College Notified</td>
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No document changes
Certificate|Close-Modify for request 12972

Info

Request: Terminating Personal and Financial Planning undergraduate certificate
Description of request: Due to lack of undergraduate interest in obtaining the certificate and lack of faculty FTE in this field, we are seeking to terminate this Undergraduate certificate.
Submitter: Kathryn Ivey kbeaty@ufl.edu
Created: 8/28/2018 12:36:40 PM
Form version: 1

Responses

Current Certificate Name: Personal and Family Financial Planning
Effective Term: Earliest Available
Effective Year: Earliest Available
Requested Action: Terminate Certificate
Change Certificate Name? No
Proposed Certificate Name: N/A
Change Certificate Name on Transcript? No
Current Transcript Name: N/A
Proposed Transcript Name (21 char. max): N/A
Change Credit Hours? No
Current Credit Hours: more than 12 (please detail in description how many credits)
Proposed Credit Hours: more than 12 (please detail in description how many credits)
Change Certificate Description? No
Current Certificate Description: This certificate creates a foundation in personal and family financial planning and addresses the Certified Financial PlannerTM (CFP) Board of Standards education requirement for the certification examination, including insurance, personal investing, retirement planning, tax planning, behavioral finance and financial planning practice management. Students can sit for the exam upon completion of the certificate.
Proposed Certificate Description (50 word max): N/A
Change Certificate Prerequisites? No
Current Prerequisites: With an overall minimum 2.5 GPA

Course List

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<th>Code</th>
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<td>ACG 2021</td>
<td>Introduction to Financial Accounting</td>
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<td>AEB 2014</td>
<td>Economic Issues, Food and You</td>
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<tr>
<td>3</td>
<td></td>
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<tr>
<td>ECO 2013</td>
<td>Principles of Macroeconomics</td>
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<td>Principles of Microeconomics</td>
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<td>STA 2023</td>
<td>Introduction to Statistics 3</td>
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</table>

Proposed Prerequisites: N/A
Change Certificate Requirements? No
Current Requirements: FYC 4003 Personal & Family Financial Counseling 3
FYC 4004 Personal & Family Tax Planning 3
FYC 4007
3 FYC 4102 Personal & Family Retirement & Est Plan
3 FYC 4905 Individual Study in FYCS
3 FYC 4930 Personal & Family Financial Plan Cap

Total Credits 18
Proposed Requirements N/A
Impact on Program No students enrolled in required courses since 2012
Rationale for Proposed Change(s) The department no longer has the faculty in the department to sustain the certificate.
Assessment Data Review No students enrolled in required certificate courses other than FYC4003 which serves as an elective for our undergraduate majors. The others are not offered due to lack of faculty to support them. The prerequisite courses are also considered Universal/Critical Tracking for the major.

Academic Assessment Plan Changes N/A