CALS Curriculum Committee Meeting
August 19, 2022
McCarty Hall D Rm. 1044/1045
1:00 p.m.

Via Zoom: https://ufl.zoom.us/j/355458614
Meeting ID : 355458614

Members: S. Ahn, J. Brendemuhl, D. Coenen, J. Czipulis, K. Fogarty, D. Gabriel, V. Hull, P. Inglett, J. Larkin (Chair), T. Martin, G. Nunez, E. Pappo, C. Prince, J. Scheffler, B. Schutzman, M. Sharp, M. Sowcik, A. Watson, J. Weeks, A. Wysocki

Agenda and Index for Materials

Approve Minutes from April 22, 2022 meeting

Dr. Brendemuhl: Update from UCC

Graduate New Course Proposals

1. FOR 6XXX – Science Communication and Public Education (req. #17382)

2. FOR 6XXX – Ecology and Restoration of Invaded Ecosystems (req. #17550)

3. WIS 6XXX – Introduction to the Quantitative Analysis of Animal Populations (req. #17301)

Graduate Course Change Proposal

4. FAS 5203C – Biology of Fishes (req. #17552)

Undergraduate Course Change Proposal

5. ANS 2005 – The Role of Animals in Human History (req. #17411)

Certificate

6. Proposal for a new Fertilizer Science and Technology Graduate Certificate (req. #17381)

CALS Curriculum Committee Meeting
April 22, 2022
Submitted by James Fant

Members Present: J. Brendemuhl, D. Coenen, K. Fogarty, V. Hull, J. Larkin, L. Lietzenmayer, L. Lundy, C. Prince, J. Scheffler, M. Sharp, J. Weeks

Substitutes: Kristina Haselier for T. Martin

Visitors: Jason Byrd, Luiz Roesch, Susan Underkoffler

Call to Order: The College of Agricultural and Life Sciences Curriculum Committee met via Zoom on April 22, 2022. Dr. Larkin called the meeting to order at 1:02 p.m.

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

Approval of Minutes: A motion was made by Dr. Coenen to approve the minutes from the March 25, 2022, 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.

Links: Grades – https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/
For Graduate Grades: https://catalog.ufl.edu/graduate/regulations/#text
Syllabus Statements – https://cals.ufl.edu/content/PDF/Faculty_Staff/CALS-Syllabus-Policy.pdf
Absences & Make-Ups – https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx
Writing Learning Objectives - https://cals.ufl.edu/content/PDF/Faculty_Staff/cals-course-objectives.pdf.

Update from UCC: 1) Here are the items that were **APPROVED** at the 04/19/22 UCC meeting. A. Proposed changes to the Food Science major; B. Proposed changes to the Nutritional Sciences minor; C. Revised Curriculum Maps for both the BA and BS in the Environmental Science degrees; D. Revision to the graduate certificate in Environmental Education and Communication; E. New course – HOS 3XXXC – Breeding and Production of Medicinal Plants and Herbs; F. Course revisions – FOS 4427C – Principles of Food Processing and WIS 4203C – Landscape Ecology and Conservation; G. New joint courses – FAS 4XXXC – Spatial Sciences for Marine Environmental Characterization and SUR 4XXX – Marine Geomatics; H. Three Graduate courses were also approved – DIE 6940, FYC 6026 and SUR 6355. Other items noted were related to recent legislature bills, specifically SB 7744 and HB 7.

Graduate Course Change Proposal

1. BSC 5438 – R for Functional Genomics (req. #17259)

This item was reviewed with item #2. All comments apply to both items unless otherwise stated. **Please be sure to make all requested changes to both the UCC form and syllabus if necessary.** A motion was made by Dr. Sharp to approve this item with changes required. The motion was approved. The committee requests that the submitter consider additional course title options. Provide an outside consult from Agronomy. Also, consult with the IFAS Statistics Group and get their input.

Undergraduate Course Change Proposal

2. MCB 4325C – R for Functional Genomics (req. #17258)

See item #1

Certificate

3. Proposed Change in Credit Hours for the Wildlife Forensic Sciences Graduate Certificate (req. #15007)

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

Recycled Items

4. WIS 6XXX – Bird Language (req. #16557)

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

5. WIS 6XXX – Wildlife Tracks and Sign (req. #16558)

Please be sure to make all requested changes to both the UCC form and syllabus if necessary. A motion was made by Dr. Prince to approve this item with edits required. The motion was approved. The current learning objectives need to be replaced with verbs appropriate to the graduate level. Since there is no office, you need to indicate available via Zoom.

Additional Agenda Item

6. Credits exclusive to minors. Can approved advisor/departmental electives count as exclusive? Vote to be held on proposed document provided by Dr. Brendemuhl.

This item had to be tabled due to loss of a quorum.

The meeting was adjourned at **1:53** p.m.

Cover Sheet: Request 17382

FOR 6XXX Science Communication & Public Education

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Jennifer Vogel alpha32605@ufl.edu
Created	5/17/2022 2:37:29 PM
Updated	5/18/2022 8:36:46 AM
Description of request	Requesting a permanent course number for a new online, asynchronous graduate level 3 credit course as part of the School of Forestry, Fisheries and Geomatic Science's Environmental Education and Communication graduate certificate

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	SFRC - Forest Resources and Conservation 60460000	Terrell Baker III		5/18/2022
FOR 6934 Science Communication Public Education04_29_2022.docx External-Consult_Biology_Science Communication.pdf CALS CC Checklist_Sci Comm Public Ed.pdf					5/17/2022 5/17/2022 5/17/2022
College	Pending	CALS - College of Agricultural and Life Sciences			5/18/2022
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 17382

Info

Request: FOR 6XXX Science Communication & Public Education
Description of request: Requesting a permanent course number for a new online, asynchronous graduate level 3 credit course as part of the School of Forestry, Fisheries and Geomatic Science's Environmental Education and Communication graduate certificate
Submitter: Jennifer Vogel alpha32605@ufl.edu
Created: 5/17/2022 2:13:14 PM
Form version: 1

Responses

Recommended Prefix FOR
Course Level 6

Course Number XXX
Lab Code None
Category of Instruction Intermediate
Course Title Science Communication & Public Education
Transcript Title Science Comm & Public Edu
Degree Type Graduate

Delivery Method(s) Online
Co-Listing No

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
Course Type Lecture
Weekly Contact Hours 3
Course Description This course will provide an introduction to science communication, environmental education, and public outreach. The course will focus on strategic message framing and how to convey scientific research to the public. The public outreach portion will focus on general audiences as well as K-12 specific outreach.
Prerequisites Junior or senior standing
Co-requisites n/a
Rationale and Placement in Curriculum Science Communication and Public Education is designed for graduate students engaged in research who want to learn more about how to better communicate their research to the public. Students will learn strategic message framing and how to design outreach activities that help the audience engage with their work. This course is one of the two required courses for the School of Forestry, Fisheries and Geomatic Science's Environmental Education and Communication graduate certificate.
Course Objectives • Describe the process of strategic message framing.
• Frame their research for communication with the public.
• Describe different types of public outreach.
• Discuss the unique challenges of K-12 outreach.
• Utilize NAAEE Guidelines for Excellence for K-12 Environmental Education, Professional Development of Environmental Educators, and Nonformal Environmental Education Programs.
• Translate their research into a public outreach experience for the general public or K-12 audiences.
Course Textbook(s) and/or Other Assigned Reading Burns, T. W., O'Connor, D. J., & Stocklmayer, S. M. (2003). Science communication: a contemporary definition. Public Understanding of Science,

12(2), 183-202.
Druckman, J. N., & Lupia, A. (2017). Using frames to make scientific communication more effective. The Oxford handbook of the science of science communication, 243-252.
Volmert, A., Kendall-Taylor, N., Simon, A., Bunten, A. (2014). The Value of Explanation: Using Values and Causal Explanations to Reframe Climate and Ocean Change. Report by the Frameworks Institute. https://www.frameworksinstitute.org/publication/the-value-of-explanation-using-values-and-causal-explanations-to-reframe-climate-and-ocean-change/
Olson, M. E., Arroyo-Santos, A., & Vergara-Silva, F. (2019). A user's guide to metaphors in ecology and evolution. Trends in Ecology & Evolution, 34(7), 605-615.
Anderson, J. (2016). Angling toward solutions in climate change education. Informal Learning Review, 136(January/February), 3-8.
Expanding Our Repertoire: Why and How to Get Collective Climate Solutions in the Frame. Report by the Frameworks Institute. frameworksinstitute.org/publication/expanding-our-repertoire-why-and-how-to-get-collective-climate-solutions-in-the-frame/
Raja, F. (2017). Anxiety Level in Students of Public Speaking: Causes and Remedies. Journal of Education and Educational Development, 4(1), 94-110.
9 Tips for becoming a great public speaker: https://collegeinfogeek.com/public-speaking-tips/
Virtual Speaking: https://www.forbes.com/sites/maryabbajay/2020/04/20/best-practices-for-virtual-presentations-15-expert-tips-that-work-for-everyone
Optional article: https://www.fearlesspresentations.com/101-public-speaking-tips/
Carmi, N., Arnon, S., & Orion, N. (2015). Transforming environmental knowledge into behavior: The mediating role of environmental emotions. The Journal of Environmental Education, 46(3), 183-201.
Optional: Buijs, A., & Lawrence, A. (2013). Emotional conflicts in rational forestry: towards a research agenda for understanding emotions in environmental conflicts. Forest Policy and Economics, 33, 104-111
Bonanno, A., Ennes, M., Hoey, J. A., Moberg, E., Nelson, S. M., Pletcher, N., & Tanner, R. L. (2021). Empowering hope-based climate change communication techniques for the Gulf of Maine. Elementa, 9(1), 00051.
Andrews, E., Weaver, A., Hanley, D., Shamatha, J., & Melton, G. (2005). Scientists and public outreach: Participation, motivations, and impediments. Journal of Geoscience Education, 53(3), 281-293.
Monroe, M. C., & Oxarart, A. (2019). Integrating Research and Education: Developing Instructional Materials to Convey Research Concepts. BioScience, 69(4), 282-291.
Owoade, O. A., Abiola, A. O., & Oluremi, O. A. (2017). Reinvigorating Environmental Education for Actualisation of Sustainable Development Goals. International Journal of Geography and Environmental Management, 3(1), 1-12.
Tbilisi Declaration: https://naaee.org/eepro/learning/eelearn/history-ee/lesson-3/tbilisi-declaration
Guidelines for Excellence: K-12 Environmental Education
https://cdn.naaee.org/sites/default/files/eepro/products/files/k-12_ee.lr_.pdf
Two Hats: https://www.eenorthcarolina.org/documents/files/two-hats/open
Morris, T. H. (2020). Experiential learning–a systematic review and revision of Kolb's model. Interactive Learning Environments, 28(8), 1064-1077.

Weekly Schedule of Topics Topic | Readings | Assignments and notes
Week 1: (Jan 5-9) Introduction to Science Communication and Public Education
- Syllabus
- Burns, T. W., O'Connor, D. J., & Stocklmayer, S. M. (2003). Science communication: a contemporary definition. Public Understanding of Science, 12(2), 183-202. •
- Watch the weekly PowerPoint
- Read the syllabus and post at least 1 question you have using Perusall (5 points, due Friday)
- Complete your introduction to the class and reply to at least two people you don't know (2 points, initial post due Friday replies due Sunday)
- Read Burns et al in Perusall and annotate with questions and comments (5 points, due Friday)
- Canvas Discussion Post (15 points, initial post due Friday replies due Sunday)

Week 2: (Jan 10-16) Introduction to Framing
- Druckman, J. N., & Lupia, A. (2017). Using frames to make scientific communication more effective. The Oxford handbook of the science of science communication, 243- 252.
- The Swamp
- Navigating the Swamp with Bridging & Pivoting Brief
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due

Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 3: (Jan 17-23, Holiday Jan 17) Values
- Value of Explanations
- Framing with Values
- Examples of Universal Values
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 4: (Jan 24-30) Metaphors and Explanatory Chains
- Olson, M. E., Arroyo-Santos, A., & Vergara-Silva, F. (2019). A user's guide to metaphors in ecology and evolution. Trends in Ecology & Evolution, 34(7), 605-615.
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 5: (Jan 31-Feb 6) Solutions
- Anderson, J. (2016). Angling toward solutions in climate change education. Informal Learning Review, 136(January/February), 3-8.
- Expanding Our Repertoire: Why and How to Get Collective Climate Solutions in the Frame.
- Framing with Solutions
- Solutions examples: https://www.drawdown.org/s olutions/table-of-solutions
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 6: (Feb 7-13) Public Speaking 101
- Raja, F. (2017). Anxiety Level in Students of Public Speaking: Causes and Remedies. Journal of Education and Educational Development, 4(1), 94-110.
- 9 Tips for becoming a great public speaker: https://collegeinfogeek.com/p ublic-speaking-tips/
- Virtual Speaking: https://www.forbes.com/sites/maryabbajay/2020/04/20/bes t-practices-for-virtual- presentations-15-expert-tips- that-work-for-everyone
- Optional article: https://www.fearlesspresentat ions.com/101-public-speaking-tips/

- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post Thursday replies due Sunday)

Week 7: (Feb 14-20) Social and Emotional Work of Science Communication
- Carmi, N., Arnon, S., & Orion, N. (2015). Transforming environmental knowledge into behavior: The mediating role of environmental emotions. The
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and Journal of Environmental Education, 46(3), 183-201.
- Optional: Buijs, A., & Lawrence, A. (2013). Emotional conflicts in rational forestry: towards a research agenda for understanding emotions in environmental conflicts. Forest Policy and Economics, 33, 104-111 comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 8: (Feb 21-27) Framing Your Research for the Public
- Reading: Bonanno, A., Ennes, M., Hoey, J. A., Moberg, E., Nelson, S. M., Pletcher, N., & Tanner, R. L. (2021). Empowering hope- based climate change communication techniques for the Gulf of Maine. Elementa, 9(1), 00051.
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Review your previous discussion posts framing your research. Read the feedback from the

instructor and your peers. Finalize edits to your talk then record yourself giving your framing talk. Post your video and the written transcript in the discussion. Watch and respond to at least two other presentations. You will evaluate one another and offer constructive feedback using the attached rubric. Your initial post is due by midnight EST on Thursday and you must reply to at least two of your peers by Sunday. (30 points)

Week 9: (Feb 27-March 6) Science Standards

- Andrews, E., Weaver, A., Hanley, D., Shamatha, J., & Melton, G. (2005). Scientists and public outreach: Participation, motivations, and impediments. Journal of Geoscience Education, 53(3), 281-293.
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Friday before spring break)

March 5-13 Spring Break

Week 10: (Mar 14-20) Presentation for the Scientist in Every Florida School's Science Segments

- Monroe, M. C., & Oxarart,A. (2019). Integrating Research and Education: Developing Instructional Materials to Convey Research Concepts. BioScience, 69(4), 282-291.

- You will create a video for the Scientist in Every Florida School's SEFS Segments Program. Watch an example here: https://tinyurl.com/SEFSSegments. In this short (3-5 minute) video you should answer the following questions:

Who are you and what is your title?

What do you research and why is it important?

Can you please explain [the Florida Sunshine learning standard related to your research]?

- You can film this in any format you'd like. Feel free to be creative and use any video software such as PowToon, Loom, Moovly, Animaker, iMovie, Zoom, etc. Your initial post is due by midnight on Thursday replies due Sunday. (30 points)
- See attached rubric for grading

Week 11: (Mar 21-27) Introduction to Environmental Education and Experiential Learning

- Owoade, O. A., Abiola, A. O., & Oluremi, O. A. (2017). Reinvigorating Environmental Education for Actualisation of Sustainable Development Goals. International Journal of Geography and Environmental Management, 3(1), 1-12.
- Tbilisi Declaration: https://naaee.org/eepro/learni ng/eelearn/history-ee/lesson- 3/tbilisi-declaration
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 12: (Mar 28-Apr 3) NAAEE Guidelines

- Guidelines for Excellence: K-12 Environmental Education
- Two Hats: https://www.eenorthcarolina.org/documents/files/two- hats/open

- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments. You do not have to read the full guidelines. Find the sections that match your research area and audience. (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 13: (Apr 4-10) Assessment and Evaluation

- Morris, T. H. (2020). Experiential learning–a systematic review and revision of Kolb's model. Interactive Learning Environments, 28(8), 1064-1077.
- Watch the weekly PowerPoint
- Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)
- Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday)
- Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)

Week 14: (Apr 11-17)

Developing Your Presentation Review previous readings and PowerPoints

- Complete this week's icebreaker

• Canvas Discussion Post: This week you will record yourself teaching your lesson. Feel free to "teach" it virtually to someone and record yourself via Zoom. Post your video to the discussion. Please watch at least two others' lesson and give constructive feedback using the attached rubric. Your initial post is due by midnight on Thursday replies due Sunday. (30 points)
• See attached rubric for grading

Week 15: (Apr 18-24)

Classes end April 20) Final Exam Review previous readings and PowerPoints

Please create a final reflection for this course. You can answer the following in any format (Mural, Jamboard, Prezi, PowToon, Essay, etc)

• If you were to explain to someone the importance of science communication public education, what information would you share? Cite at least three articles from this course.

Grading Scheme Icebreakers: 30 pts

To build community, we will have an online icebreaker activity each week. This activity will allow you to receive 2 points for participation for each week for a total of 30 points over the semester.

Readings: 65 pts

Each week's reading is worth 5 points. You may opt out of the readings for one week with no penalties.

Discussion Posts: 195 pts

Most weekly readings will have an associated Canvas Discussion worth 15 points. You may opt out of the discussion post for one week with no penalties.

Assignments: 240 pts

In weeks 8, 10, 14-15, you will have larger assignments that pull together the skills you have learned over the semester. Each of these will be detailed on Canvas. These assignments are worth 30 points each. You may not opt out of any of these activities.

Coffee and Conversations: 26 pts

Each student is expected to attend Coffee and Conversations at least twice over the course of the semester. These virtual meetings will be held via Zoom Tuesdays 11-12 and Wednesdays 1-2 EST. Occasional evening sessions will be added over the course of the semester. Attending is worth 13 points each time for a total of 26 points.

Instructor(s) Dr. Megan Ennes
Attendance & Make-up Yes
Accomodations Yes
UF Grading Policies for assigning Grade Points Yes
Course Evaluation Policy Yes

CALS Curriculum Committee
Submission Checklist

NOTE: This checklist must be included with all course and certificate submissions.

The checklist below is intended to facilitate course and certificate submissions to the University of Florida Academic Approval Tracking System (https://approval.ufl.edu/). The checklist consists of the most common items that can cause a submission to require changes or be recycled. Contrary to information provided on the UF approval site, the CALS Curriculum Committee requires a syllabus be submitted with each new course or course modification request. Please note that submitters are encouraged to attend the CALS CC meeting at which their item is being reviewed. This allows the submitter to answer any potential questions that may arise that could cause the item to not be approved. Also, be aware that when completing the UCC form the section Description of Request is asking for a brief statement about what you are doing. This is **not** the place for a course description. A statement such as "Proposal of a new undergraduate course" is all that is needed. Please do not submit documents in pdf format. All documents should be submitted in Word to facilitate editing on our end if necessary.

CHECKLIST: PLEASE INITIAL OR MARK N/A FOR EACH STATEMENT TO INDICATE YOUR COMPLIANCE.

__x_ It is required when making a submission that you consult your department's representative to the CALS CC. A list of current members can be found on the committee site located at: https://cals.ufl.edu/faculty-staff/committees/.

__x_ You MUST comply with the CALS Syllabus Policy, including items 1 through 8 and all standard syllabus statements. This document can be viewed at the committee site(https://cals.ufl.edu/faculty-staff/committees/) by clicking on the Curriculum Committee – Information & Documents heading and scrolling down to Forms, Checklists, and Other documents. The other items included here are all very helpful when making a curriculum submission. Some will be mentioned in other checklist items below.

n/a_ Joint course submissions must include both graduate and undergraduate syllabuses and a separate statement outlining the substantial (more than one) differences in assignments between the two courses. These assignments must account for at least a 15% difference in graded material between the two levels. If this is a new course submission both courses must be submitted for approval simultaneously.

__x_ The course description on the UCC form and in the syllabus must match. Any other information you wish to include needs to be under a different heading such as background or additional information.

__x_ The course learning objectives must be consistent with Bloom's taxonomy. Please see the following link at the CALS Curriculum site. (https://cals.ufl.edu/content/PDF/Faculty_Staff/cals-course-objectives.pdf). Do not use the words demonstrate or understand when listing learning objectives.

_x__ The course schedule should be concise and include the appropriate number of weeks in the semester.

__x_ All graduate course submissions must include a reading list if a textbook is not required. The reading list should include at least some current readings (within the last 5 years). All readings do not need to be current.

__x_ Outside consultations are required if there is a possibility of the proposed course covering material taught in another department or college on campus. There must be a consult form completed by the chair of the department from who you are seeking the consult. Instructors may provide additional consults. The form can be found at: https://registrar.ufl.edu/pdf/uccconsult.pdf.

n/a_ Prerequisite courses are required for 3000 and 4000 level courses. This line of the approval form cannot be "none" or left blank. Junior or senior standing is an acceptable option. A phrase such as "a course in basic biology" is not acceptable.

_x__ Decimal points must be included in the grading scale if grade cut-offs are based on percentages. While this is not a university policy it is a CALS standard practice to avoid any confusion when final grades for the course are determined.

__x_ The attendance and make-up policy in a syllabus cannot contradict the university's policy. Do not include any additional wording to this policy. A statement and link regarding this is included in the CALS Syllabus Statements. For the approval process the college suggests a less is more view when it comes to this policy.

_x__ The most recent version of the CALS Syllabus Statements boiler plate must be included in all syllabuses. This document is included in the CALS Syllabus Policy and can be copied and pasted to the syllabus. Do not use the boilerplate statements from an old syllabus as they are likely to be out of date.

Certificates

If proposing a new undergraduate or graduate level certificate that includes any courses outside of the submitters department a statement regarding any possible impact on those courses needs to be included. An email from the instructor is acceptable. Also, any courses required for the certificate must have permanent prefixes and course numbers. The submission must include intended catalog copy. (Contact Dr. Joel Brendemuhl (brendj@ufl.edu) for further instruction)

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

Department	Name and Title
Biology	Chris Johns and Dylan Kempler
Phone Number	**E-mail**
352-328-6300	johns.chris.a@ufl.edu

Comments

It seems that our offering of the course below was a one-off in 2016. It was taught by a visiting scholar and a grad student. So, I think you are free to proceed.

W. Brad Barbazuk PhD.
Professor and Chair,
University of Florida Department of Biology

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

Comments

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

Comments

FOR 6934: Science Communication and Public Education

Instructor: Megan Ennes
Email: megan.ennes@ufl.edu
Phone: 352-273-2006
Office: 201 McGuire Hall

Classroom: Online
Meeting time: Asynchronous
Course Prerequisites: None
Course Credits: 3

Office Hours
Tuesdays 11-12 and Wednesdays 1-2

Course Description

This course will provide an introduction to science communication, environmental education, and public outreach. The course will focus on strategic message framing and how to convey scientific research to the public. The public outreach portion will focus on general audiences as well as K-12 specific outreach.

Course Objectives

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

- Explain the process of strategic message framing.
- Frame their research for communication with the public.
- Describe different types of public outreach.
- Evaluate the unique challenges of K-12 outreach.
- Utilize NAAEE Guidelines for Excellence for K-12 Environmental Education, Professional Development of Environmental Educators, and Nonformal Environmental Education Programs.
- Translate their research into designing a public outreach experience for the general public or K-12 audiences.

Students will demonstrate their mastery by creating framed discussion of their research, a public outreach component related to their research, and a short video using the skills learned in this class for the Scientist in Every Florida School's Science Segments.

Attendance:

While this course is asynchronous, science communication and public education are skills that improve with time and experience. It is my expectation that you participate in our discussions and activities. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: https://gradcatalog.ufl.edu/graduate/regulations/

Grading:

This class will include a wide range of activities over the course of the semester. For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at: https://gradcatalog.ufl.edu/graduate/regulations/

Icebreakers:

To build community, we will have an online icebreaker activity each week. This activity will allow you to receive 2 points for participation for each week for a total of 30 points over the semester. Icebreakers will be due by Wednesday at midnight eastern time. You may opt out of the icebreaker one time with no penalties except in week 1.

Readings:

- Readings will be posted each week. At least one article will be hosted online in Perusall. You will open the reading from Canvas and use Perusall to annotate the article as you read it. Annotations can include questions, comments, related resources, etc. This will be done collaboratively so you can see your classmates' questions and comments. Please see the Perusall section on Canvas to help you get started. Each week's reading is worth 5 points and due by Wednesday at midnight eastern time. You may opt out of the readings for one week with no penalties.

Discussion Posts:

- Most weekly readings will have an associated Canvas Discussion worth 15 points. See the discussion rubric for the breakdown of points. You may opt out of the discussion post for one week with no penalties.

Assignments:

- In weeks 8, 10, 14-15, you will have larger assignments that pull together the skills you have learned over the semester. Each of these will be detailed on Canvas. These assignments are worth 30 points each. See the rubrics for point breakdown of each assignment. **You may not opt out of any of these activities**.

Coffee and Conversations:

- Each student is expected to attend Coffee and Conversations **at least twice** over the course of the semester. These virtual meetings will be held via Zoom Tuesdays 11-12 and Wednesdays 1-2 EST. Occasional evening sessions will be added over the course of the semester for students who cannot attend during the day. These meetings will offer you a chance to ask questions about any of the materials, gain clarification, and meet with the professor and other students. Attending is worth 13 points each time for a total of 26 points.

These assignments will be worth 400 points total.

Grading Scale

A 93-100%
A- 90-92.99%
B+ 87-89.99%
B 83-86.99%
B- 80-82.99%
C+ 77-79.99%
C 73-76.99%
C- 70-72.99%
D+ 67-69.99%
D 63-66.99%
D- 60-62.99%
F <60%

Weekly Schedule of Topics

Topic	Readings	Assignments and notes
Week 1: (Jan 5-9) Introduction to Science Communication and Public Education	• Syllabus • Burns, T. W., O'Connor, D. J., & Stocklmayer, S. M. (2003). Science communication: a contemporary definition. *Public Understanding of Science*, 12(2), 183-202.	• Watch the weekly PowerPoint • Read the syllabus and post at least 1 question you have using Perusall (5 points, due Friday) • Complete your introduction to the class and reply to at least two people you don't know (2 points, initial post due Friday replies due Sunday) • Read Burns et al in Perusall and annotate with questions and comments (5 points, due Friday) • Canvas Discussion Post (15 points, initial post due Friday replies due Sunday)
Week 2: (Jan 10-16) Introduction to Framing	• Druckman, J. N., & Lupia, A. (2017). Using frames to make scientific communication more effective. *The Oxford handbook of the science of science communication*, 243-252. • The Swamp • Navigating the Swamp with Bridging & Pivoting Brief	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
Week 3: (Jan 17-23, Holiday Jan 17) Values	• Value of Explanations • Framing with Values • Examples of Universal Values	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
Week 4: (Jan 24-30) Metaphors and Explanatory Chains	• Olson, M. E., Arroyo-Santos, A., & Vergara-Silva, F. (2019). A user's guide to metaphors in ecology and evolution. *Trends in Ecology & Evolution*, 34(7), 605-615.	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and

Topic	Readings	Assignments and notes
		comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
Week 5: (Jan 31-Feb 6) Solutions	• Anderson, J. (2016). Angling toward solutions in climate change education. *Informal Learning Review*, 136(January/February), 3-8. • Expanding Our Repertoire: Why and How to Get Collective Climate Solutions in the Frame. • Framing with Solutions • Solutions examples: https://www.drawdown.org/solutions/table-of-solutions	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
Week 6: (Feb 7-13) Public Speaking 101	• Raja, F. (2017). Anxiety Level in Students of Public Speaking: Causes and Remedies. *Journal of Education and Educational Development*, 4(1), 94-110. • 9 Tips for becoming a great public speaker: https://collegeinfogeek.com/public-speaking-tips/ • Virtual Speaking: https://www.forbes.com/sites/maryabbajay/2020/04/20/best-practices-for-virtual-presentations-15-expert-tips-that-work-for-everyone • Optional article: https://www.fearlesspresentations.com/101-public-speaking-tips/	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post Thursday replies due Sunday)
Week 7: (Feb 14-20) Social and Emotional Work of Science Communication	• Carmi, N., Arnon, S., & Orion, N. (2015). Transforming environmental knowledge into behavior: The mediating role of environmental emotions. *The*	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and

Topic	Readings	Assignments and notes
	Journal of Environmental Education, 46(3), 183-201. • Optional: Buijs, A., & Lawrence, A. (2013). Emotional conflicts in rational forestry: towards a research agenda for understanding emotions in environmental conflicts. *Forest Policy and Economics*, 33, 104-111	comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
<u>Week 8: (Feb 21-27)</u> Framing Your Research for the Public	• Reading: Bonanno, A., Ennes, M., Hoey, J. A., Moberg, E., Nelson, S. M., Pletcher, N., & Tanner, R. L. (2021). Empowering hope-based climate change communication techniques for the Gulf of Maine. *Elementa*, 9(1), 00051.	• Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Review your previous discussion posts framing your research. Read the feedback from the instructor and your peers. Finalize edits to your talk then record yourself giving your framing talk. Post your video and the written transcript in the discussion. Watch and respond to at least two other presentations. You will evaluate one another and offer constructive feedback using the attached rubric. Your initial post is due by midnight EST on Thursday and you must reply to at least two of your peers by Sunday. (30 points)
<u>Week 9: (Feb 27-March 6)</u> Science Standards	• Andrews, E., Weaver, A., Hanley, D., Shamatha, J., & Melton, G. (2005). Scientists and public outreach: Participation, motivations, and impediments. *Journal of Geoscience Education*, 53(3), 281-293.	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due **Friday before spring break**)

Topic	Readings	Assignments and notes
March 5-13	Spring Break	
Week 10: (Mar 14-20) Presentation for the Scientist in Every Florida School's Science Segments	• Monroe, M. C., & Oxarart, A. (2019). Integrating Research and Education: Developing Instructional Materials to Convey Research Concepts. *BioScience*, 69(4), 282-291.	• You will create a video for the Scientist in Every Florida School's SEFS Segments Program. Watch an example here: https://tinyurl.com/SEFSSegments. In this short (3-5 minute) video you should answer the following questions: o Who are you and what is your title? o What do you research and why is it important? o Can you please explain [the Florida Sunshine learning standard related to your research]? • You can film this in any format you'd like. Feel free to be creative and use any video software such as PowToon, Loom, Moovly, Animaker, iMovie, Zoom, etc. Your initial post is due by midnight on Thursday replies due Sunday. (30 points) • See attached rubric for grading
Week 11: (Mar 21-27) Introduction to Environmental Education and Experiential Learning	• Owoade, O. A., Abiola, A. O., & Oluremi, O. A. (2017). Reinvigorating Environmental Education for Actualisation of Sustainable Development Goals. *International Journal of Geography and Environmental Management*, 3(1), 1-12. • Tbilisi Declaration: https://naaee.org/eepro/learning/eelearn/history-ee/lesson-3/tbilisi-declaration	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
Week 12: (Mar 28-Apr 3) NAAEE Guidelines	• Guidelines for Excellence: K-12 Environmental Education • Two Hats: https://www.eenorthcarolina.	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday)

Topic	Readings	Assignments and notes
	org/documents/files/two-hats/open	• Read the article and annotate in Perusall with questions and comments. You **do not** have to read the full guidelines. Find the sections that match your research area and audience. (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
Week 13: (Apr 4-10) Assessment and Evaluation	• Morris, T. H. (2020). Experiential learning–a systematic review and revision of Kolb's model. *Interactive Learning Environments*, 28(8), 1064-1077.	• Watch the weekly PowerPoint • Complete this week's icebreaker (2 points, initial post due Wednesday replies due Sunday) • Read the article and annotate in Perusall with questions and comments (5 points, due Wednesday) • Canvas Discussion Post (15 points, initial post due Thursday replies due Sunday)
Week 14: (Apr 11-17) Developing Your Presentation	Review previous readings and PowerPoints	• Complete this week's icebreaker • Canvas Discussion Post: This week you will record yourself teaching your lesson. Feel free to "teach" it virtually to someone and record yourself via Zoom. Post your video to the discussion. Please watch at least two others' lesson and give constructive feedback using the attached rubric. Your initial post is due by midnight on Thursday replies due Sunday. (30 points) • See attached rubric for grading
Week 15: (Apr 18-24) Classes end April 20) Final Exam	Review previous readings and PowerPoints	Please create a final reflection for this course. You can answer the following in any format (Mural, Jamboard, Prezi, PowToon, Essay, etc) • If you were to explain to someone the importance of science communication public education, what information would you share? Cite at least three articles from this course.

Topic	Readings	Assignments and notes
		• Thinking back to your first day of class, what concerns did you have about science communication and public education? • What skills did you learn this semester to help you address those concerns? • What skills do you wish you had learned that would have helped you address these concerns? • How do you envisioning using the skills you learned in this class in your future career? b. Your initial post is due by midnight on **Wednesday** replies due Sunday. (30 points)

Course Textbook

There will be no required textbook. Weekly reading assignments will be available on Canvas.

Recommended resource:

National Research Council. 2009. Learning Science in Informal Environments: People, Places, and Pursuits. Washington, DC: The National Academies Press. https://doi.org/10.17226/12190.

Links and Policies

Class Demeanor

Students are expected to behave in a manner that is respectful to the instructor and to fellow students. Opinions held by other students should be respected in discussions. Please review the discussion etiquette document on Canvas prior to engaging in the discussion forum. Additionally, **emails sent to the instructor must follow professional etiquette** (e.g. https://www.indeed.com/career-advice/career-development/how-to-write-a-professional-email).

Class Recording

All lectures will be recorded and available to students on Canvas. However, please refer to the publication portion of the University's recording policy below:

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited.

Specifically, students may not publish recorded lectures without the written consent of the instructor.

A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Inclusive Learning Environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads, The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act. If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: http://multicultural.ufl.edu.

Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting disability.ufl.edu/students/get-started. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester. Faculty can expect to receive a student's accommodation letter within the first 3 weeks of classes; however, if a student registers with the DRC later in the semester faculty are still obligated to facilitate accommodations. Neither faculty nor administrators may independently deny a request for accommodation that is approved by the Disability Resource Center.

UF Honesty Code

Plagiarism will not be tolerated in this class, as it constitutes intellectual theft and academic dishonesty. I will use TurnItIn to check all materials for plagiarism.

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 (sccr.dso.ufl.edu/process/student-conduct-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.

All students must conform to UF's Honesty Code regarding cheating, plagiarism, and the use of copyrighted materials, which you can find at: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/

Plagiarism includes but is not limited to:

1. Stealing, misquoting, insufficiently paraphrasing, or patch-writing.
2. Self-plagiarism, which is the reuse of the Student's own submitted work, or the simultaneous submission of the Student's own work, without the full and clear acknowledgment and permission of the Faculty to whom it is submitted.
3. Submitting materials from any source without proper attribution.
4. Submitting a document, assignment, or material that, in whole or in part, is identical or substantially identical to a document or assignment the Student did not author.

Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

Technical Help

Coursework will require ongoing use of a computer and a broadband connection to the Internet. Please see the university's student computing requirements here: https://it.ufl.edu/policies/student-computing-requirements/

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

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

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.

Health and Wellness

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit umatter.ufl.edu/ to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit counseling.ufl.edu or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit shcc.ufl.edu/.

University Police Department: Visit police.ufl.edu/ or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; ufhealth.org/emergency-room-trauma-center.

Academic Resources

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601, or https://career.ufl.edu/. Career assistance and counseling services.

Library Support: https://cms.uflib.ufl.edu/ask.Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010, to make an appointment 352- 392-6420, or https://teachingcenter.ufl.edu. General study skills and tutoring.

Writing Studio: 2215 Turlington Hall, 352-846-1138, or https://writing.ufl.edu/writing-studio/. Help brainstorming, formatting, and writing papers.

Student Complaint Process

The School of Forest, Fisheries, & Geomatics Sciences cares about your experience and we will make every effort to address course concerns. We request that our online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered. You can submit feedback anytime at: https://ffgs.ifas.ufl.edu/contact. If you have a more urgent concern, your first point of contact should be the Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to the University Ombuds ombuds@ufl.edu.

Students in face-to-face courses: https://sccr.dso.ufl.edu/policies/student-honor-code- student-conduct-code/

Cover Sheet: Request 17550

FOR6XXX Ecology and Restoration of Invaded Ecosystems

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Jennifer Vogel alpha32605@ufl.edu
Created	8/4/2022 9:28:43 AM
Updated	8/11/2022 1:45:39 PM
Description of request	Creation of a new graduate course

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	SFRC - Forest Resources and Conservation 60460000	Terrell Baker III		8/4/2022
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			8/4/2022
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 17550

Info

Request: FOR6XXX Ecology and Restoration of Invaded Ecosystems
Description of request: Creation of a new graduate course
Submitter: Jennifer Vogel alpha32605@ufl.edu
Created: 8/4/2022 8:45:07 AM
Form version: 1

Responses

Recommended Prefix FOR
Course Level 6

Course Number XXX
Lab Code None
Category of Instruction Advanced
Course Title Ecology and Restoration of Invaded Ecosystems
Transcript Title Ecol/Restor Invaded Ecosystems
Degree Type Graduate

Delivery Method(s) Online
Co-Listing No

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
Course Type Lecture
Weekly Contact Hours 3
Course Description This advanced course will explore the ecological basis of biological invasions, with emphasis on plant invasions in managed forests and natural ecosystems. Management tools and techniques will be discussed, along with the restoration of formerly invaded systems. Plant invasions from Florida and around the world will be used as case studies. It will be based on an online discussion format, with recorded lectures and relevant assigned readings from a textbook and primary literature.
Prerequisites na
Co-requisites na
Rationale and Placement in Curriculum The course covers management tools and techniques for invasion ecology with an emphasis on plant invasions and natural ecosystems. These topics are pertinent to our graduate degree-seeking and certificate-seeking students interested in ecosystem restoration.
Course Objectives By the end of this course, students should be able to:

Be able to interpret and critically assess theories related to invasion mechanisms, biotic interactions and ecological succession
Identify major invasive plant species of concern and their ecological and economic impacts in managed forests and natural, terrestrial ecosystems
Understand how to use modern tools and methods to prevent and control plant invasions and to restore formerly invaded ecosystems
Demonstrate how to integrate ecological concepts into management efforts
Be able to critically assess scientific literature and implications of results for practical management

Course Textbook(s) and/or Other Assigned Reading Required Text
1. Invasion Ecology 2nd ed. JL Lockwood, MF Hoopes and MP Marchetti. 2013. Blackwell Publishing, 303 p. 978-1444333657

Readings
I. Introduction (Why Invasive Species Are a Problem)
Module 1: Introduction
A. Required Text: Lockwood et al, Chapter 1, An Introduction to Invasion Ecology
B. Article: van Kleunen, Mark, Oliver Bossdorf, and Wayne Dawson. "The ecology and evolution of alien plants." Annual Review of Ecology, Evolution, and Systematics 0 (2018).
C. Article: Ricciardi, Anthony, and Rachael Ryan. "The exponential growth of invasive species denialism." Biological Invasions 20, no. 3 (2018): 549-553.
D. Article: Sagoff, Mark. "Invasive species denialism: a reply to Ricciardi and Ryan." Biological Invasions (2018): 1-7.

Module 2: Critically Evaluating Invasive Species Literature
A. Article: Frazier, Jesse E., Ajay Sharma, Daniel J. Johnson, Michael G. Andreu, and Kimberly K. Bohn. "Group selection silviculture for converting pine plantations to uneven-aged stands." Forest Ecology and Management (2020): 118729.

Module 3: Impacts to Individuals, Species and Communities
A. Required Text: Lockwood et al, Chapter 9 through page 233, Ecological Impacts of Invasive Species
B. Article: Liebhold, Andrew M., Eckehard G. Brockerhoff, Susan Kalisz, Martin A. Nuñez, David A. Wardle, and Michael J. Wingfield. "Biological invasions in forest ecosystems." Biological invasions 19, no. 11 (2017): 3437-3458.
C. Student-led article: Tarasi, Dennis D., and Robert K. Peet. "The native-exotic species richness relationship varies with spatial grain of measurement and environmental conditions." Ecology 98, no. 12 (2017): 3086-3095.

Module 4: Impacts to Ecological Processes and Economics
A. Required Text: Lockwood et al, finish Chapter 9, Ecological Impacts of Invasive Species
B. Article: Pimentel, David, Rodolfo Zuniga, and Doug Morrison. "Update on the environmental and economic costs associated with alien-invasive species in the United States." Ecological economics 52, no. 3 (2005): 273-288.
C. Student-led article: Januchowski-Hartley, Stephanie R., Vanessa M. Adams, and Virgilio Hermoso. "The need for spatially explicit quantification of benefits in invasive-species management." Conservation Biology 32, no. 2 (2018)

II. Invasion Theory (How They Become and Cause These Problems)

Module 5: Dispersion and the Invasion Process
A. Required text Lockwood et al. Chapters 2, Transport Vectors and Pathways; and Chapter 4, Propagules.
B. Article: Harvey, Rebecca G., and Frank J. Mazzotti. "The invasion curve: A tool for understanding invasive species management in south Florida." IFAS Publication Number WEC347. Gainesville, FL: University of Florida. edis. ifas. ufl. edu/uw392(2014).
C. Student-led article: Gordon, Doria R., Deah Lieurance, and S. Luke Flory. "Predicted versus actual invasiveness of climbing vines in Florida." Biological Invasions 19, no. 8 (2017): 2375-2384.
D. Optional text: Lockwood et al. Chapter 8, Ecological Processes and the Spread of Non-native Species

Module 6: Disturbances and How They Impact Invasions
A. Required Text: Lockwood et al, Chapter 5, Disturbance; and Chapter 6, Establishment Success: The Influence of Biotic Interactions

B. Article: Xiao, Sa, Ragan M. Callaway, Ryan Graebner, Jose L. Hierro, and Daniel Montesinos. "Modeling the relative importance of ecological factors in exotic invasion: The origin of competitors matters, but disturbance in the non-native range tips the balance." Ecological modelling 335 (2016): 39- 47.
C. Student-led article: Pearson, Dean E., Yvette K. Ortega, Diego Villarreal, Ylva Lekberg, Marina

C. Cock, Özkan Eren, and José L. Hierro. "The fluctuating resource hypothesis explains invasibility, but not exotic advantage following disturbance." Ecology 99, no. 6 (2018): 1296-1305.

III. Management Planning (How to Limit or Remove These Problems)

Module 7: Management Planning- Assessment (What Do You Have?)
A. Article: Gordon, Doria R., S. Luke Flory, Deah Lieurance, Philip E. Hulme, Chris Buddenhagen, Barney Caton, Paul D. Champion et al. "Weed risk assessments are an effective component of invasion risk management." Invasive Plant Science and Management 9, no. 1 (2016): 81-83.
B. Article: Lieurance, D. "Protocols for testing the invasiveness of plants in Florida." In Proceedings of the 2015 Annual Meeting of the International Plant Propagators' Society 1140, pp. 279-284. 2015.
C. Optional text: Lockwood et al. Chapter 12, Predicting and Preventing Invasion

Module 8: Management Planning- Assessment (Biology and Control)
A. Required Text: Chapter 13, Lockwood et al. Ecological Processes and the Spread of Non-native Species

Module 9:
A. Student-led article: Pecl, Gretta T., Miguel B. Araújo, Johann D. Bell, Julia Blanchard, Timothy C. Bonebrake, I-Ching Chen, Timothy D. Clark et al. "Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being." Science 355, no. 6332 (2017).
B. Optional article: Beaury, Evelyn M., Emily J. Fusco, Michelle R. Jackson, Brittany B. Laginhas, Toni Lyn Morelli, Jenica M. Allen, Valerie J. Pasquarella, and Bethany A. Bradley. "Incorporating climate change into invasive species management: insights from managers." Biological Invasions 22, no. 2 (2020): 233-252.

Module 10: Management Planning- Desired Future Conditions (What Do You Want?)
A. Article: Messier, Christian, Klaus Puettmann, Robin Chazdon, K. P. Andersson, Virginie A. Angers, L. Brotons, E. Filotas, Rebecca Tittler, Lael Parrott, and Simon A. Levin. "From management to stewardship: viewing forests as complex adaptive systems in an uncertain world." Conservation Letters 8, no. 5 (2015): 368-377.
B. Optional text: Lockwood et al. Chapter 14, Global Climate Change and Invasive Species

Module 11:
A. Online readings posted on Canvas
B. Student-led article: Wallingford, Piper D., Toni Lyn Morelli, Jenica M. Allen, Evelyn M. Beaury, Dana
M. Blumenthal, Bethany A. Bradley, Jeffrey S. Dukes et al. "Adjusting the lens of invasion biology to focus on the impacts of climate-driven range shifts." Nature Climate Change (2020): 1-8.

Module 12: Management Planning- Building a Treatment Plan (How Do You Get There?)
A. Article: Stone, Deborah, and Michael Andreu. "Direct Application of Invasive Species Prioritization: The Spatial Invasive Infestation and Priority Analysis Model." Ecological Restoration 35, no. 3 (2017): 255-265.

B. Student-led article: Baker, Christopher M. "Target the source: optimal spatiotemporal resource allocation for invasive species control." Conservation Letters 10, no. 1 (2017): 41-48.
C. Student-led article: Moody, Michael E., and Richard N. Mack. "Controlling the spread of plant invasions: the importance of nascent foci." Journal of Applied Ecology (1988): 1009-1021.

Module 13: Management Planning- Finalizing and Implementing Your Management Plan (Adaptive Management)
A. Article: Prior, Kirsten M., Damian C. Adams, Kier D. Klepzig, and Jiri Hulcr. "When does invasive species removal lead to ecological recovery? Implications for management success." Biological invasions 20, no. 2 (2018): 267-283.

Weekly Schedule of Topics I. Introduction (Why Invasive Species Are a Problem)

Module 1: Introduction

Quiz

Discussion - Invasive Species Denialism?

Module 2: Critically Evaluating Invasive Species Literature

Discussion - Critical Evaluation of Publications

Module 3: Impacts to Individuals, Species and Communities

Quiz

Student-led discussion

Module 4: Impacts to Ecological Processes and Economics

Quiz

Student-led discussion

II. Invasion Theory (How They Become and Cause These Problems)

Module 5: Dispersion and the Invasion Process

Quiz

Student-led discussion

Module 6: Disturbances and How They Impact Invasions

Quiz

Student-led discussion

III. Management Planning (How to Limit or Remove These Problems)

Module 7: Management Planning- Assessment (What Do You Have?)

Interrupted Case Study 1 discussion

Module 8: Management Planning- Assessment (Biology and Control)

Interrupted Case Study 2 discussion

Homework Site Selection

Module 9: Site Assessment

Student-led discussion

Homework Site Assessment

Module 10: Management Planning- Desired Future Conditions (What Do You Want?)

Interrupted Case Study 3 discussion

Module 11: Desired Future Condition

"The Game"

Peer Review of Site Assessment homework

Student-led discussion

Module 12: Management Planning- Building a Treatment Plan (How Do You Get There?)

Interrupted Case Study 4 discussion

Module 13: Management Planning- Finalizing and Implementing Your Management Plan (Adaptive Management)

Interrupted Case Study 5 discussion

Module 14: Final Papers

Student led discussion of final papers
Grading Scheme A (93-100), A- (90-92.99), B+ (86-89.99), B (83-85.99), B- (80-82.99), C+(76-79.99), C (73-75.99), C-(70-72.99), D+(66-69.99), D (63-65.99), D- (60-62.99), E (<60)
Instructor(s) Michael G Andreu
Attendance & Make-up Yes
Accomodations Yes
UF Grading Policies for assigning Grade Points Yes
Course Evaluation Policy Yes

CALS Curriculum Committee
Submission Checklist

NOTE: This checklist must be included with all course and certificate submissions.

The checklist below is intended to facilitate course and certificate submissions to the University of Florida Academic Approval Tracking System (https://approval.ufl.edu/). The checklist consists of the most common items that can cause a submission to require changes or be recycled. Contrary to information provided on the UF approval site, the CALS Curriculum Committee requires a syllabus be submitted with each new course or course modification request. Please note that submitters are encouraged to attend the CALS CC meeting at which their item is being reviewed. This allows the submitter to answer any potential questions that may arise that could cause the item to not be approved. Also, be aware that when completing the UCC form the section Description of Request is asking for a brief statement about what you are doing. This is **not** the place for a course description. A statement such as "Proposal of a new undergraduate course" is all that is needed. Please do not submit documents in pdf format. All documents should be submitted in Word to facilitate editing on our end if necessary.

CHECKLIST: PLEASE INITIAL OR MARK N/A FOR EACH STATEMENT TO INDICATE YOUR COMPLIANCE.

_x__ It is required when making a submission that you consult your department's representative to the CALS CC. A list of current members can be found on the committee site located at: https://cals.ufl.edu/faculty-staff/committees/.

__x_ You MUST comply with the CALS Syllabus Policy, including items 1 through 8 and all standard syllabus statements. This document can be viewed at the committee site(https://cals.ufl.edu/faculty-staff/committees/) by clicking on the Curriculum Committee – Information & Documents heading and scrolling down to Forms, Checklists, and Other documents. The other items included here are all very helpful when making a curriculum submission. Some will be mentioned in other checklist items below.

_na_ Submission of a course modification requires both the current version of the course syllabus and the proposed version.

_na_ Joint course submissions must include 1.) both graduate and undergraduate syllabuses and 2.) a separate document outlining the substantial (more than one) differences in assignments between the two courses. These assignments must account for at least a 15% difference in graded material between the two levels. If this is a new course submission both courses must be submitted for approval simultaneously.

__x_ The course description on the UCC form and in the syllabus must match. Any other information you wish to include needs to be under a different heading such as background or additional information.

_x__ The course learning objectives must be consistent with Bloom's taxonomy. Please see the following link at the CALS Curriculum site. (https://cals.ufl.edu/content/PDF/Faculty_Staff/cals-course-objectives.pdf). Do not use the words demonstrate or understand when listing learning objectives.

_x_ The course schedule should be concise and include the appropriate number of weeks in the semester.

_x_ All graduate course submissions must include a reading list if a textbook is not required. The reading list should include at least some current readings (within the last 5 years). All readings do not need to be current.

_na_ Outside consultations are required if there is a possibility of the proposed course covering material taught in another department or college on campus. There must be a consult form completed by the chair of the department from who you are seeking the consult. Instructors may provide additional consults. The form can be found at: https://approval.ufl.edu/policies/external-consultations/.

na__ Prerequisite courses are required for 3000 and 4000 level courses. This line of the approval form cannot be "none" or left blank. Junior or senior standing is an acceptable option. A phrase such as "a course in basic biology" is not acceptable.

_x_ Decimal points must be included in the grading scale if grade cut-offs are based on percentages. While this is not a university policy it is a CALS standard practice to avoid any confusion when final grades for the course are determined.

_x_ The attendance and make-up policy in a syllabus cannot contradict the university's policy. Do not include any additional wording to this policy. A statement and link regarding this is included in the CALS Syllabus Statements. For the approval process the college suggests a less is more view when it comes to this policy.

_x__ The most recent version of the CALS Syllabus Statements boiler plate must be included in all syllabuses. This document is included in the CALS Syllabus Policy and can be copied and pasted to the syllabus. Do not use the boilerplate statements from an old syllabus as they are likely to be out of date.

Certificates

If proposing a new undergraduate or graduate level certificate that includes any courses outside of the submitters department a statement regarding any possible impact on those courses needs to be included. An email from the instructor is acceptable. Also, any courses required for the certificate must have permanent prefixes and course numbers. The submission must include intended catalog copy. (Contact Dr. Joel Brendemuhl (brendj@ufl.edu) for further instruction)

Ecology and Restoration of Invaded Ecosystems
FOR 6934 (3 credits)
Spring 2022

Course Description
This course begins with an overview of the ecological basis for plant invasions in terrestrial ecosystems, with emphasis on applications for restoration and management of invaded ecosystems. Methods and techniques for prediction, prevention, control, and restoration will be discussed, and plant invasions from Florida and around the U.S. will be used as case studies.

This course will follow on an online discussion format, with recorded lectures and relevant assigned readings from textbooks and primary literature. The course is graduate level and is designed for students with a strong interest and background in ecology and applied plant science and an interest in invasive species ecology and management.

Pre-Requisites
No formal pre-requisites, but coursework in biology, ecology, or other relevant plant science courses is strongly recommended.

Instructor
Michael G. Andreu Ph.D.
Associate Professor – Forest Systems
mandreu@ufl.edu

TAs
Elysia Lewis
M.S. Student
elysialewis@ufl.edu

Deb Stone
Ph.D. Candidate
debitharp@ufl.edu

Learning Outcomes
At the end of this course, each student will:

- Be able to critically assess scientific literature and implications of results for practical management.
- Be able to evaluate invasive species documented on a site and identify potential impacts.
- Develop the desired future conditions incorporating available resources, and infestations that impact the current condition.
- Incorporate knowledge of invasion theory and mechanisms to design and prioritize treatments in an annual and/or multi-year adaptive management plan.
- Propose a monitoring scheme to support an adaptive management approach.

Required Text
1. Invasion Ecology 2nd ed. JL Lockwood, MF Hoopes and MP Marchetti. 2013. Blackwell Publishing, 303 p. 978-1444333657

Class Format
The course will consist of one-week modules focused on specific topics related to invasion ecology, management, and restoration. The format will consist primarily of readings and discussion threads. To accommodate students with full-time employment, modules will follow a **Friday-Monday (11 days)** schedule to allow time for adequate discussion over the weekend period as needed. For each module in the first half of the semester, students will be assigned several readings, including chapter(s) from one of the required texts, relevant peer-reviewed journal articles, or other materials. A short (approximately 20 minute) summary lecture to review core lessons from the general topic will be provided by the instructor. The lecture will be posted each **Friday.** Throughout the semester, some additional guest lectures and

video podcasts will be provided as a supplement.

The second half of the semester will take an interrupted case study format, with several relevant, peer-reviewed journal articles to introduce the general topic, plus a short description of that module's section of the case study and relevant questions with a discussion thread.

A discussion thread will also be posted on **Friday**. Eight discussions will be led by the instructors (focusing on the module topic) and seven discussion will be led by a group of students (focusing on a single journal article). These additional readings will build on topics introduced in the lectures and/or present a case study of relevant invasive plant ecology and management. All students are expected to read these articles and participate in the additional discussion. Comments/responses from the students can be posted until **Sunday (10 days)** evening.

NOTE: *Discussion questions are intended to stimulate conversation and debate and encourage you to explore more deeply into the topics covered in the week's readings. In many cases, there will not be a clear "right" or "wrong" answer. In some cases, the questions will be contextual (e.g., "Describe an example of a species that exhibits invasive traits"), other questions will be more conceptual, and some questions may ask to merely express an opinion. Towards the end of the semester the discussion threads will be used to practice developing adaptive management recommendations for an invaded ecosystem.*

Late policy for assignments and attendance: "Attendance" for this course will be based on participation in the discussion forum. Written assignments and projects are due electronically by noon (Eastern time) on the due date and will lose 10% of the grade for each day they are late (weekends count too). In cases of extended illness or emergencies, arrangements to turn in late exams or other written assignments must be made with the instructor prior to the due date. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

Assignments and Evaluation of Student Learning

Discussion thread participation

Students will be expected to contribute **two** unique comments and/or responses to other students (typically several sentences to about a paragraph in length) which demonstrate thought and/or research into the topic area. A citation relevant to at least one of your comments is required. Note that you are welcome to post and respond more than the minimum.

Rubric:
0 Points: No response
.5 Points: only one comment that demonstrates thought and/or research
.8 Points: 2 comments, no citation or 1 comment with citation
1.0 Points: 2 comments that demonstrate thought and/or research including relevant citation.

Student-led Discussion thread

For the student-led discussions, all students (including discussion leaders) will be scored as above for discussion thread participation.

In addition, the discussion leader(s) will be expected to read the article (and supporting literature, as necessary) and lead a discussion on the most important topics covered in it. This will involve providing a brief 1-2 paragraph summary, posing at least 3 questions for the other students, and *facilitating* a productive online dialogue between students..The discussion leader(s) should initiate the discussion no later than Thursday at noon (Eastern).

Rubric for group leaders:
While it is important that all group members contribute to the 1) development of questions, 2) writing of the article summary, 3) moderation of the discussion, and 4) writing of the end-of-discussion summary; all members do not have to do all four things equally but should be significant contributors to at least 2 of the four areas.

Individual score: List individual contribution to each of the four areas: 15 points.

Group score: Group will collectively be scored on the for the overall week: 12 pts
Summary of papers was insightful, succinct yet complete: Y/N
The discussion prompt questions stimulated thoughtful discussion: Y/N
Moderators encouraged cogent responses: Y/N
Summary of discussion was insightful, succinct yet complete: Y/N

27 total points

Management Plan Project
You will develop and present an actionable management plan for restoring and managing a particular property with non-native species invasions. You are encouraged to choose a property that you are familiar with and currently working on, or you can work with the instructors to find a suitable scenario relative to your locale. Your management plan should provide an overview of the non-native species of concern including mechanisms for dispersal into your site and ecosystem impacts, followed by a feasible annual work plan for control of the current invasion, restoration of ecological characteristics (e.g., species composition, structure, soils/hydrology, or other ecological processes) following control, and monitoring and prevention of new invasions. Prioritization of actions should also be discussed.

Two homework assignments during the second half of the semester will build up to the final paper, allowing for instructor input and increased application of knowledge by the student.

You will have the option of presenting your plan to the class through a variety of formats (including but not limited to a written plan including figures, maps and flowcharts; a narrated PowerPoint discussing the plan; or podcast or video of you in the field discussing management options, etc.). We encourage creativityin presenting your plan as well as the use of multi-media.

As part of your grade, you will also be asked to peer review one plan presented by your fellow students. More detailed instructions on this assignment and directions for uploading your materials will be provided in the Assignments tab.

The grading breakdown will be as follows:

15 points	Participation in weekly discussion sessions **(1 point each *x* 15 discussions)**
27 points	Presentation of one weekly article and moderation of discussion (Group)
10 points	Quizzes (2 points x 5 quizzes)
20 points	Homework assignments leading to management plan (2 x 10 points each)
20 points	Management plan project
8 points	Peer review of student management plan

Total: 100 points

Grading Scale (http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html)
Letter grades will be assigned as follows: A (93-100), A- (90-92.99), B+ (86-89.99), B (83-85.99), B- (80-82.99), C+(76-79.99), C (73-75.99), C-(70-72.99), D+(66-69.99), D (63-65.99), D- (60-62.99), E (<60)
For information on current UF policies for assigning grade points, see
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Schedule of Class Topics and Readings

I. Introduction (Why Invasive Species Are a Problem)

Module 1: Introduction
A. Required Text: Lockwood et al, Chapter 1, An Introduction to Invasion Ecology
B. Article: van Kleunen, Mark, Oliver Bossdorf, and Wayne Dawson. "The ecology and evolution of alien plants." *Annual Review of Ecology, Evolution, and Systematics* 0 (2018).
C. *Article:* Ricciardi, Anthony, and Rachael Ryan. "The exponential growth of invasive species denialism." *Biological Invasions* 20, no. 3 (2018): 549-553.
D. *Article:* Sagoff, Mark. "Invasive species denialism: a reply to Ricciardi and Ryan." *Biological Invasions* (2018): 1-7.

Module 2: Critically Evaluating Invasive Species Literature
A. *Article:* Frazier, Jesse E., Ajay Sharma, Daniel J. Johnson, Michael G. Andreu, and Kimberly K. Bohn. "Group selection silviculture for converting pine plantations to uneven-aged stands." *Forest Ecology and Management* (2020): 118729.

Module 3: Impacts to Individuals, Species and Communities
A. *Required Text:* Lockwood et al, Chapter 9 through page 233, Ecological Impacts of Invasive Species
B. *Article:* Liebhold, Andrew M., Eckehard G. Brockerhoff, Susan Kalisz, Martin A. Nuñez, David A. Wardle, and Michael J. Wingfield. "Biological invasions in forest ecosystems." Biological invasions 19, no. 11 (2017): 3437-3458.
C. Student-led *article*: Tarasi, Dennis D., and Robert K. Peet. "The native-exotic species richness relationship varies with spatial grain of measurement and environmental conditions." Ecology 98, no. 12 (2017): 3086-3095.

Module 4: Impacts to Ecological Processes and Economics
A. *Required Text:* Lockwood et al, finish Chapter 9, Ecological Impacts of Invasive Species
B. *Article*: Pimentel, David, Rodolfo Zuniga, and Doug Morrison. "Update on the environmental and economic costs associated with alien-invasive species in the United States." Ecological economics 52, no. 3 (2005): 273-288.
C. Student-led *article*: Januchowski-Hartley, Stephanie R., Vanessa M. Adams, and Virgilio Hermoso. "The need for spatially explicit quantification of benefits in invasive-species management." Conservation Biology 32, no. 2 (2018)

II. Invasion Theory (How They Become and Cause These Problems)

Module 5: Dispersion and the Invasion Process
A. *Required text* Lockwood et al. Chapters 2, Transport Vectors and Pathways; and Chapter 4, Propagules.
B. *Article:* Harvey, Rebecca G., and Frank J. Mazzotti. "The invasion curve: A tool for understanding invasive species management in south Florida." IFAS Publication Number WEC347. Gainesville, FL: University of Florida. edis. ifas. ufl. edu/uw392(2014).
C. Student-led *article:* Gordon, Doria R., Deah Lieurance, and S. Luke Flory. "Predicted versus actual invasiveness of climbing vines in Florida." Biological Invasions 19, no. 8 (2017): 2375-2384.
D. *Optional text*: Lockwood et al. Chapter 8, Ecological Processes and the Spread of Non-native Species

Module 6: Disturbances and How They Impact Invasions
A. *Required Text:* Lockwood et al, Chapter 5, Disturbance; and Chapter 6, Establishment Success: The Influence of Biotic Interactions

B. *Article*: Xiao, Sa, Ragan M. Callaway, Ryan Graebner, Jose L. Hierro, and Daniel Montesinos. "Modeling the relative importance of ecological factors in exotic invasion: The origin of competitors matters, but disturbance in the non-native range tips the balance." Ecological modelling 335 (2016): 39-47.
C. Student-led *article*: Pearson, Dean E., Yvette K. Ortega, Diego Villarreal, Ylva Lekberg, Marina C. Cock, Özkan Eren, and José L. Hierro. "The fluctuating resource hypothesis explains invasibility, but not exotic advantage following disturbance." Ecology 99, no. 6 (2018): 1296-1305.

III. Management Planning (How to Limit or Remove These Problems)

Module 7: Management Planning- Assessment (What Do You Have?)
A. *Article*: Gordon, Doria R., S. Luke Flory, Deah Lieurance, Philip E. Hulme, Chris Buddenhagen, Barney Caton, Paul D. Champion et al. "Weed risk assessments are an effective component of invasion risk management." *Invasive Plant Science and Management* 9, no. 1 (2016): 81-83.
B. *Article:* Lieurance, D. "Protocols for testing the invasiveness of plants in Florida." In *Proceedings of the 2015 Annual Meeting of the International Plant Propagators' Society 1140*, pp. 279-284. 2015.
C. *Optional text*: Lockwood et al. Chapter 12, Predicting and Preventing Invasion

Module 8: Management Planning- Assessment (Biology and Control)
A. *Required Text*: Chapter 13, Lockwood et al. Ecological Processes and the Spread of Non-native Species

Module 9: Discussion, HOMEWORK ASSIGNMENT
A. Student-led *article*: Pecl, Gretta T., Miguel B. Araújo, Johann D. Bell, Julia Blanchard, Timothy C. Bonebrake, I-Ching Chen, Timothy D. Clark et al. "Biodiversity redistribution under climate change: Impacts on ecosystems and human well-being." *Science* 355, no. 6332 (2017).
B. *Optional article***:** Beaury, Evelyn M., Emily J. Fusco, Michelle R. Jackson, Brittany B. Laginhas, Toni Lyn Morelli, Jenica M. Allen, Valerie J. Pasquarella, and Bethany A. Bradley. "Incorporating climate change into invasive species management: insights from managers." *Biological Invasions* 22, no. 2 (2020): 233-252.

Module 10: Management Planning- Desired Future Conditions (What Do You Want?)
A. A*rticle:* Messier, Christian, Klaus Puettmann, Robin Chazdon, K. P. Andersson, Virginie A. Angers, L. Brotons, E. Filotas, Rebecca Tittler, Lael Parrott, and Simon A. Levin. "From management to stewardship: viewing forests as complex adaptive systems in an uncertain world." *Conservation Letters* 8, no. 5 (2015): 368-377.
B. *Optional text*: Lockwood et al. Chapter 14, Global Climate Change and Invasive Species

Module 11: Peer Review, HOMEWORK ASSIGNMENT
A. Online readings posted on Canvas
B. Student-led *article*: Wallingford, Piper D., Toni Lyn Morelli, Jenica M. Allen, Evelyn M. Beaury, Dana M. Blumenthal, Bethany A. Bradley, Jeffrey S. Dukes et al. "Adjusting the lens of invasion biology to focus on the impacts of climate-driven range shifts." *Nature Climate Change* (2020): 1-8.

Module 12: Management Planning- Building a Treatment Plan (How Do You Get There?)
A. *Article:* Stone, Deborah, and Michael Andreu. "Direct Application of Invasive Species Prioritization: The Spatial Invasive Infestation and Priority Analysis Model." *Ecological Restoration* 35, no. 3 (2017): 255-265.

B. Student-led *article:* Baker, Christopher M. "Target the source: optimal spatiotemporal resource allocation for invasive species control." *Conservation Letters* 10, no. 1 (2017): 41-48.
C. Student-led *article:* Moody, Michael E., and Richard N. Mack. "Controlling the spread of plant invasions: the importance of nascent foci." *Journal of Applied Ecology* (1988): 1009-1021.

Module 13: Management Planning- Finalizing and Implementing Your Management Plan (Adaptive Management)
A. *Article:* Prior, Kirsten M., Damian C. Adams, Kier D. Klepzig, and Jiri Hulcr. "When does invasive species removal lead to ecological recovery? Implications for management success." *Biological invasions* 20, no. 2 (2018): 267-283.

FINAL PROJECT (See CANVAS for due dates)

RESOURCES TO HELP YOU SUCCEED?

Course Website

The course website can be accessed on Canvas using your myUFL key. The course site will contain readings, announcements, helpful links, and important course information, as well an online grade book. All assignments should be submitted electronically through Canvas unless otherwise notes by your instructors.

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.

Academic Civility

Meaningful and constructive dialogue is encouraged in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. Respect for individual differences and alternative viewpoints will be maintained in this class. One's words and use of language should be temperate and within acceptable bounds of civility and decency. Friendly persuasion wins friends and influences people. Aggressively arguing your point often does the opposite and stops dialogue.

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: https://www.dso.ufl.edu/sccr/process/student-Conducthonor-code/

Wellness

UF Counseling and Wellness Center offers individual counseling, wellness counseling, couples counseling, problem solving help, CERC crisis services, and other assistance. For more information, visit: http://www.counseling.ufl.edu/cwc/Default.aspx

Students with Disabilities Act

The Disability Resource Center at 352-392-8565, https://disability.ufl.edu/ 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.

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well- being are

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

- *University Counseling & Wellness Center,* 3190 Radio Road, 352-392-1575, **www.counseling.ufl.edu/cwc/**
- *U Matter We Care*, **www.umatter.ufl.edu/**
- *Career Resource Center,* First Floor JWRU, 392-1601, https://career.ufl.edu/

UF/IFAS Field and Fork Food Pantry
The Pantry (http://pantry.fieldandfork.ufl.edu) is a resource on the University of Florida campus committed to eradicate food insecurity. Food insecurity is not having a reliable access to nutritious foods for yourself on a regular basis. If you, or anyone you know is experiencing food insecurity, the Pantry is a resource to visit. They offer non-perishable food, toiletries and fresh vegetables grown at the Field and Fork Gardens to provide a well-balanced diet. Protecting the privacy of its guests and providing food to those in need within our campus community is their priority. Guests do not need any proof of need to use this resource, all that is needed is a Gator 1 ID to prove you are a current Student, Faculty or Staff at the University of Florida.

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

Feedback
Student assessment of instruction is an important part of efforts to improve teaching and learning. We encourage your constructive criticism, suggestions, ideas, and other feedback for improving the course. Please refer to contact information on the first page. Additionally, at the end of the semester, 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/.

Cover Sheet: Request 17301

Permanent number of new graduate course: Introduction to the Quantitative Analysis of Animal Populations

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Miguel Acevedo Torres maacevedo@ufl.edu
Created	4/19/2022 10:15:45 AM
Updated	8/11/2022 5:00:19 PM
Description of request	I am requesting a permanent number for my graduate class Introduction to the Quantitative Analysis of Animal Populations (iQAAP). The syllabus already underwent external consultation with SFRC and Entomology and Nematology and it is ready for review by the committee. Note that I incorporated suggestions from a previous request. One of the suggestions was to update the covid policy. I used language from UF policy change in March (https://coronavirus.ufl.edu/university-updates/-march-23-campus-brief.html) because the boilerplate has not been updated.

Actions

Step	Status	Group	User	Comment	Updated
Department	Commented	CALS - Wildlife Ecology and Conservation 60470000	Eric Hellgren	Miguel: Please work with Vanessa Hull (WEC representative on the CALS Curriculum Committee) to complete the CALS checklist and to learn which syllabus policies to include at the end of your syllabus. For example, the COVID policies in your syllabus is now out of date (e.g., masks no longer required), and there is a new policy about students recording lectures. Vanessa should be up to date as anyone. Thank you for submitting your course for a permanent number - it's a great course!	4/19/2022
External-Consult ENY Acevado course_2.pdf					4/19/2022
Department	Approved	CALS - Wildlife Ecology and Conservation 60470000	Eric Hellgren		5/2/2022
CALS CC Checklist.pdf					5/2/2022
College	Pending	CALS - College of Agricultural and Life Sciences			5/2/2022
No document changes					
Graduate Curriculum Committee					
No document changes					

Step	Status	Group	User	Comment	Updated
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 17301

Info

Request: Permanent number of new graduate course: Introduction to the Quantitative Analysis of Animal Populations
Description of request: I am requesting a permanent number for my graduate class Introduction to the Quantitative Analysis of Animal Populations (iQAAP). The syllabus already underwent external consultation with SFRC and Entomology and Nematology and it is ready for review by the committee.

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Submitter: Miguel Acevedo Torres maacevedo@ufl.edu
Created: 8/10/2022 4:44:45 PM
Form version: 2

Responses

Recommended Prefix WIS
Course Level 6

Course Number 001
Lab Code None
Category of Instruction Intermediate
Course Title Introduction to the quantitative analysis of animal populations
Transcript Title Quantitative analysis
Degree Type Graduate

Delivery Method(s) On-Campus
Co-Listing No

Effective Term Spring
Effective Year 2023
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Course Type Lecture
Weekly Contact Hours 3
Course Description Quantitative models are useful to explain and predict animal population's patterns and processes. Model's usefulness stems from their ability to synthesize complex processes using a limited number of parameters and assumptions. In this course, students will learn the theory and application of quantitative methods to estimate population level statistics and quantify related uncertainty.
Prerequisites STA6093 or a graduate-level introductory statistics course
Co-requisites N/A
Rationale and Placement in Curriculum The application of quantitative models in the life sciences is increasing exponentially; still, studies show that 75% of professionals in our field are not comfortable with their understanding of quantitative methods. This new class directly address this issue by introducing graduate students to the fundamental quantitative tools used in basic and applied wildlife ecology.
Course Objectives (a) recognize concepts and vocabulary related to models in wildlife ecology and conser-
vation

(b) compare and contrast modeling paradigms in wildlife ecology and conservation
(c) construct models that quantify parameters of interest in wildlife population ecology and management with associated uncertainty
(d) generate biological knowledge from models
Course Textbook(s) and/or Other Assigned Reading There is no text required for this course; however, the following books can be used as a guide:

Agresti, A. (2007). An introduction to categorical data analysis, JohnWiley & Sons. Inc., Publication.
Bolker, B. M. (2008). Ecological models and data in R. Princeton University Press.
Clark, J. S. (2007). Models for ecological data: an introduction (Vol. 11). Princeton, New Jersey, USA: Princeton university press.
Fox, G. A., Negrete-Yankelvich, S, and Sosa, V. J. 2015. Ecological Statistics: contemporary theory and applications. Oxford University Press. UK
Hilborn, R. & M. Mangel (1997). The ecological detective: confronting models with data (Vol. 28). Princeton University Press.
Kéry, M. (2010). Introduction to WinBUGS for ecologists: Bayesian approach to regression, ANOVA, mixed models and related analyses. Academic Press.
Kéry, M., & Schaub, M. (2012). Bayesian population analysis using WinBUGS: a hierarchical perspective. Academic Press.
Matthiopoulos, J. (2011). How to be a quantitative ecologist: the'A to R'of green mathemat- ics and statistics. John Wiley & Sons.
Quinn, G. P., & Keough, M. J. (2002). Experimental design and data analysis for biologists. Cambridge university press.
Williams, B. K., Nichols, J. D., & Conroy, M. J. (2002). Analysis and management of wildlife populations.

Weekly Schedule of Topics Week1: Modeling Intro
Week2: Probability and Stochastic distributions
Week3: Linear models
Week4: Power Analysis
Week5: Maximum Likelihood
Week6: Bayesian Statistics
Week7: Generalized Linear Models (GLM)
Week8: Discussion on p-values and other means of inference
Week9: Abundance estimation using closed population models
Week10: Spring break
Week 11: Survival Estimation using CJS model
Week12: Pollock Robust Design
Week13: Multi-state models
Week 14: Occupancy modeling
Week15: Meta-analysis and working on group projects
Grading Scheme Weekly Quizzes 20%
Weekly Computational Exercises 40%
Paper discussion presentation 10%
Project presentation 10%
Final project 20%
Instructor(s) Miguel A. Acevedo
Attendance & Make-up Yes
Accomodations Yes
UF Grading Policies for assigning Grade Points Yes
Course Evaluation Policy Yes

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

Department	Name and Title
Entomology & Nematology	Heather McAuslane, Professor and Interim Chair
Phone Number	**E-mail**
352-273-3970	hjmca@ufl.edu

Comments

I consulted with Phil Hahn who teaches a quantitative ecology course and he has no concerns about overlap with his course. There are a few weeks of basic statistics that overlap but there are also considerable differences. I see the overlap as a benefit, as no single course can accommodate the demand for more specialized courses beyond STA6093 -- student's can review common quantitative skills in either course but choose to specialize based on their interests. This proposed course provides students a unique opportunity to learn about a variety of modeling approaches used in wildlife, but potentially other fields including entomology.

Department	Name and Title
SFFGS	Terrell "Red" Baker - Director and Professor
Phone Number	**E-mail**
(352) 846-0850	ttredbaker@ufl.edu

Comments

I consulted with faculty members Denis Valle, Geraldine Klarenberg, and Zach Siders, all of whom teach courses with modest overlap with Dr. Acevado's course. After these faculty members consulted with Dr. Acevado, they did not see any conflict with him offering this course.

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

Comments

Introduction to the Quantitative Analysis of Animal Populations (iQAAP)

Instructor: Miguel A. Acevedo

E-mail: maacevedo@ufl.edu
Lab Room: MCCB 3108
I–Office Hours: W 3–4pm
I–Office: Bldg 866, O-0111
I–Tel: (352) 846-0575

Web: **elearning.ufl.edu (CANVAS)**
Lab Hours: F Periods 5–6 (11:45am–1:40pm)
Class Hours: Tues and Thurs–Period 9 (4:05–4:55pm)
Class Room: MCCB 3108

This syllabus is a broad description of course objectives and plan of work; it is subject to change.

1. **Codification**: WIS 6xxx
2. **Credits**: 3 crds
3. **Prerequisites**: STA6093, or a graduate-level introductory statistics course
4. **Course Description**: Quantitative models are useful to explain and predict animal population's patterns and processes. Model's usefulness stems from their ability to synthesize complex processes using a limited number of parameters and assumptions. In this course, students will learn the theory and application of quantitative methods to estimate population level statistics and quantify related uncertainty.
5. **Teaching Philosophy**: As a teacher of quantitative wildlife ecology, my goal is to relieve student's math anxieties by teaching in a welcoming environment where students feel free to learn, ask, and inquire at their own pace. I follow a general active learning framework that includes socratic questioning, group learning exercises, inquiry-based and student-centered learning.
6. **Assumed previous skills**: A common issue with quantitative courses is a mismatch between what the instructor feels the students should know before class and what the students perceive are the assumed skills needed. Here I address this issue by being explicit about the assumed quantitative background. In general, I assume that the students have taken a basic graduate class in statistics like STA6093. I will assume that students that enroll in the class have basic statistical knowledge that includes (summary statistics, t-test, and hypothesis testing). I will also assume that students have basic knowledge of linear models, but we will explore these in more depth in class. I will not assume that students remember all details of calculus, but I will assume that students are able to perform simple

algebraic operations. In terms of computational skills I assume that students had previous exposure to R that includes how to assign variables, how to perform basic statistics and visualize data (e.g. skills from Data Carpentry).

7. **Course Objectives**: At the completion of this course, students will be able to:

   (a) recognize concepts and vocabulary related to models in wildlife ecology and conservation

   (b) compare and contrast modeling paradigms in wildlife ecology and conservation

   (c) construct models that quantify parameters of interest in wildlife population ecology and management with associated uncertainty

   (d) generate biological knowledge from models

8. **Tentative Course Outline**:

   The weekly coverage might change as it depends on the progress of the class. Notation: P is the paper to be discussed, BR are background readings.

Week	Content
Week 1	• **Modeling Intro** • Why model? • Introduction to mathematical notation • Group assignments • Lab: Looping in R • BR: Hillborn and Mangel 1997 (Chapter 2), Levins 1966, Odenbaugh 2006
Week 2	• **Probability and Stochastic Distributions** • P: Linden and Mantyniemi 2011 • LAB: Continuous and discrete distributions • BR: Bolker 2008 (Ch 4), Hobbs and Hooten 2014 (Ch 3), Gelman and Hill 2007 (Ch 2) • *Assignment due*: LAB - Looping in R
Week 3	• **Linear models** • **Multiple linear regression** • LAB: Linear models • BR: Quinn and Keough 2003 (Ch 5 and 6) • *Assignment due*: LAB - Continuous and discrete distributions
Week 4	• **Power Analysis** • P: Peterman 1990 • LAB: Power Analysis • BR: Quinn and Keough 2003 Ch 7; Bolker 2008 Ch 5 • *Assignment due*: LAB - Linear models

Week 5	• **Maximum Likelihood** • **Model Selection** • LAB: `mle2` • BR: Bolker 2008; Hobbs and Hooten 2014 (Ch 4 and 5) • *Assignment due*: LAB - Power analysis
Week 6	• **Bayesian Statistics** • P: Elderd et al. 2006 • LAB: Bayes theorem • BR: Dorazio and Johnson 2003; Hobbs and Hooten 2014 (Ch 4 and 5) • *Assignment due*: LAB - Maximum Likelihood
Week 7	• **Generalized Linear Models (GLMs)** • P: Warton et al. 2016 • LAB: Generalized linear models • BR: Gelman and Hill 2007 (Ch 5 and 6); Agresti 2007 • *Assignment due*: LAB - Bayes theorem
Week 8	• **Discussion on p-values** • P: Hobbs and Hillborn 2006 • LAB: Debate (P-values vs. alternatives) • BR: Williams et al. 2002 (Ch 14), Kéry and Schaub 2012 (Ch 6) • *Assignment due*: LAB - Generalized Linear Models
Week 9	• **Abundance estimation of closed populations using mark-recapture I: Lincoln-Peterson and capture models** • P: No paper, exercise mark-recapture on candy • LAB: LP and Capture models • BR: Williams et al. 2002 (Ch 14), Kéry and Schaub 2012 (Ch 6) • *Assignment due*: LAB - P-values vs. alternatives
Week 10	**Spring Break**
Week 11	• **Survival estimation: CJS** • P: Pizarro-Muñoz et al. 2018 • LAB: Cormack-Jolly-Seber survival model • BR: Williams et al. 2002 (Ch 15 and 16), Kéry and Schaub 2012 (Ch 7, 8 and 10) • *Assignment due*: LAB - Abundance estimation
Week 12	• **Pollock robust design** • P: Chabanne et al. 2017 • LAB: Robust design • BR: Williams et al. 2002 (Ch. 19), Kendall et al. 1997 • *Assignment due*: LAB - Survival estimation

Week 13	• **Multi-state models for movement, age, and/or diseases** • P: Jones et al. 2016 • LAB: Multi-state model • BR: Williams et al. 2002 (Ch 17), Kéry and Schaub 2012 (Ch 9) • *Assignment due*: LAB - Robust design
Week 14	• **Occupancy modeling** • P: Louvrier et al. 2017 • LAB: Single-season and multi-season occupancy modeling • BR: Nichols et al. 2007, MacKenzie et al. 2017, Kéry and Schaub 2012 (Ch 13), Royle & Kéry 2007 • *Assignment due*: LAB - Multi-state models
Week 15	• Meta-analysis • Work on projects • Work on projects • *Assignment due*: LAB - Occupancy modeling
Week 16	• **Group projects presentation (15 mins/each)** • **Final draft of the project is due on** `month day` **before 5 pm.**

Note that we will have a weekly quiz on the paper discussed

9. **Educational Strategies**: We follow an active learning framework that include inquire-based lectures, analysis of the primary literature, computer exercises, group projects and group discussions.

10. **Minimum resources needed by the students**: Computer with `R` and `RStudio` installed [1].

11. **Evaluation strategies**:

Quizzes	20%
Lab exercises	40%
Paper discussion	10%
Project Presentation	10%
Final project	20%

12. **Critical Dates**:

Quizzes	Weekly (due on Wednesdays before 5pm)
Lab exercises	Weekly (due on Thursdays before 5pm)
Paper discussion	One per semester
Project Presentation	Week 16
Final project	Week 16

13. **Grading**:

>= 93.00 %	A	90.00–92.99	A-
87.00–89.99	B+	83.00–86.99	B
80.00–82.99	B-	77.00–79.99	C+
73.00–76.99	C	70.00–72.99	C-
67.00–69.99	D+	63.00–66.99	D
60.00–62.99	D-	< 59.99	E

[1] `R` and `RStudio` are freely available statistical software. https://www.rstudio.com/products/rstudio/

For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/.

14. **Textbook**: There is no text required for this course; however, the following books can be used as a guide:

Agresti, A. (2007). An introduction to categorical data analysis, JohnWiley & Sons. Inc., Publication.

Bolker, B. M. (2008). Ecological models and data in R. Princeton University Press.

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Williams, B. K., Nichols, J. D., & Conroy, M. J. (2002). Analysis and management of wildlife populations.

15. **Bibliography and other resources**:

Chabanne, D. B., Pollock, K. H., Finn, H., & Bejder, L. (2017). Applying the Multistate Capture?recapture Robust Design to characterize metapopulation structure. Methods in Ecology and Evolution.

Christensen, D. L., Herwig, B. R., Schindler, D. E., & Carpenter, S. R. (1996). Impacts of lakeshore residential development on coarse woody debris in north temperate lakes. Eco-

logical Applications, 6(4), 1143-1149.

Daskin, J. H., & Pringle, R. M. (2016). Does primary productivity modulate the indirect effects of large herbivores? A global meta?analysis. Journal of Animal Ecology, 85(4), 857-868.

Dorazio, R. M., & Johnson, F. A. (2003). Bayesian inference and decision theory?a framework for decision making in natural resource management. Ecological Applications, 13(2), 556-563.

Easterling, M. R., Ellner, S. P., & Dixon, P. M. (2000). Size?specific sensitivity: applying a new structured population model. Ecology, 81(3), 694-708.

Elderd, B. D., Dukic, V. M., & Dwyer, G. (2006). Uncertainty in predictions of disease spread and public health responses to bioterrorism and emerging diseases. Proceedings of the National Academy of Sciences, 103(42), 15693-15697.

Gerking, S. D. (1953). Vital statistics of the fish population of Gordy Lake, Indiana. Transactions of the American fisheries Society, 82(1), 48-67.

Guillaumet, A., Woodworth, B. L., Camp, R. J., & Paxton, E. H. (2016). Comparative demographics of a Hawaiian forest bird community. Journal of Avian Biology, 47(2), 185-196.

Hobbs, N. T., & Hilborn, R. (2006). Alternatives to statistical hypothesis testing in ecology: a guide to self teaching. Ecological Applications, 16(1), 5-19.

Holden, M. H., & Ellner, S. P. (2016). Human judgment vs. quantitative models for the management of ecological resources. Ecological Applications, 26(5), 1553-1565.

Jones, A. R., Bull, C. M., Brook, B. W., Wells, K., Pollock, K. H., & Fordham, D. A. (2016). Tick exposure and extreme climate events impact survival and threaten the persistence of a long-lived lizard. Journal of Animal Ecology, 85(2), 598-610.

Karanth, K. U., & Nichols, J. D. (1998). Estimation of tiger densities in India using photographic captures and recaptures. Ecology, 79(8), 2852-2862.

Kendall, W. L., Nichols, J. D., & Hines, J. E. (1997). Estimating temporary emigration using capture-recapture data with Pollock?s robust design. Ecology, 78(2), 563-578.

Koricheva, J., Gurevitch, J., & Mengersen, K. (Eds.). (2013). Handbook of meta-analysis in ecology and evolution. Princeton University Press.

Lentini, P. E., Bird, T. J., Griffiths, S. R., Godinho, L. N., & Wintle, B. A. (2015). A global synthesis of survival estimates for microbats. Biology letters, 11(8), 20150371.

Le Rest, K., Certain, G., Debétencourt, B., & Bretagnolle, V. (2016). Spatio?temporal modelling of auk abundance after the Erika oil spill and implications for conservation. Journal of Applied Ecology, 53(6), 1862-1870.

Levins, R. (1966) The Strategy of Model Building in Population Biology. American Scientist 54: 421-31.

Lindén, A., & Mäntyniemi, S. (2011). Using the negative binomial distribution to model overdispersion in ecological count data. Ecology, 92(7), 1414-1421.

Louvrier, J., Duchamp, C., Lauret, V., Marboutin, E., Cubaynes, S., Choquet, R., ... & Gimenez, O. (2017). Mapping and explaining wolf recolonization in France using dynamic occupancy models and opportunistic data. Ecography.

MacKenzie, D. I., Nichols, J. D., Lachman, G. B., Droege, S., Andrew Royle, J., & Langtimm, C. A. (2002). Estimating site occupancy rates when detection probabilities are less than one. Ecology, 83(8), 2248-2255.

MacKenzie, D. I., Nichols, J. D., Hines, J. E., Knutson, M. G., & Franklin, A. B. (2003). Estimating site occupancy, colonization, and local extinction when a species is detected imperfectly. Ecology, 84(8), 2200-2207.

MacKenzie, D. I., Nichols, J. D., Royle, J. A., Pollock, K. H., Bailey, L., & Hines, J. E. (2017). Occupancy estimation and modeling: inferring patterns and dynamics of species occurrence. Elsevier.

Manel, S., Berthier, P., & Luikart, G. (2002). Detecting wildlife poaching: identifying the origin of individuals with Bayesian assignment tests and multilocus genotypes. Conservation Biology, 16(3), 650-659.

May, R. M. (1978). Host-parasitoid systems in patchy environments: a phenomenological model. The Journal of Animal Ecology, 833-844.

McCullough, D. R., & Hirth, D. H. (1988). Evaluation of the Petersen: Lincoln Estimator for a White-Tailed Deer Population. The Journal of Wildlife Management, 534-544.

Nichols, J. D., Hines, J. E., Mackenzie, D. I., Seamans, M. E., & Gutierrez, R. J. (2007). Occupancy estimation and modeling with multiple states and state uncertainty. Ecology, 88(6), 1395-1400.

Nuzzo, R. (2014). Statistical errors. Nature, 506(13), 150-152.

Odenbaugh, J. (2006). The strategy of "The strategy of model building in population biology". Biology and Philosophy, 21(5), 607-621.

O'Hara, R. B., & Kotze, D. J. (2010). Do not log-transform count data. Methods in Ecology and Evolution, 1 (2), 118–122.

Peterman, R. M. (1990). Statistical power analysis can improve fisheries research and management. Canadian Journal of Fisheries and Aquatic Sciences, 47(1), 2-15.

Pizarro-Muñoz, A. P., Kéry, M., Martins, P. V., & Ferraz, G. (2018). Age effects on survival of Amazon forest birds and the latitudinal gradient in bird survival. The Auk: Ornithological Advances, 135(2), 299-313.

Royle, J. A., & Kéry, M. (2007). A Bayesian state-space formulation of dynamic occupancy models. Ecology, 88(7), 1813-1823.

Vonesh, J. R., & Bolker, B. M. (2005). Compensatory larval responses shift trade-offs associated with predator-induced hatching plasticity. Ecology, 86(6), 1580-1591.

Warton, D. I., Lyons, M., Stoklosa, J., & Ives, A. R. (2016). Three points to consider when choosing a LM or GLM test for count data. Methods in Ecology and Evolution, 7(8), 882-890.

16. **Covid Response Statement**: We will have face-to-face instructional sessions to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.

    - Masks are welcome and we support for those who wish to continue to wear them for their safety or the safety of others.
    - If you are experiencing COVID-19 symptoms (Click here for guidance from the CDC on symptoms of coronavirus: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html), please use the UF Health screening system and follow the instructions on whether you are able to attend class. Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms (https://coronavirus.ufhealth.org/screen-test-protect/covid-19-exposure-and-symptoms-who-do-i-call-if/)
    - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. Find more information in the university attendance policies (https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/).

17. **Class 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: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/.

18. **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. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/

19. **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*."

    t 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.

20. **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.

21. **In-Class Recording**: Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

    A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not

include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

22. **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, https://disability.ufl.edu/

23. **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

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

    (b) 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.

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

    (d) Student Success Initiative, http://studentsuccess.ufl.edu

    (e) Student Complaints: Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/. Online Course: http://www.distance.ufl.edu/student-complaint-process.

24. **Academic Resources**

(a) 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.

(b) Library Support, http://cms.uflib.ufl.edu/ask. Various ways to receive assistance with respect to using the libraries or finding resources.

(c) Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring .http://teachingcenter.ufl.edu/

(d) Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. http://writing.ufl.edu/writing-studio/

CALS Curriculum Committee
Submission Checklist

NOTE: This checklist must be included with all course and certificate submissions.

The checklist below is intended to facilitate course and certificate submissions to the University of Florida Academic Approval Tracking System (https://approval.ufl.edu/). The checklist consists of the most common items that can cause a submission to require changes or be recycled. Contrary to information provided on the UF approval site, the CALS Curriculum Committee requires a syllabus be submitted with each new course or course modification request. Please note that submitters are encouraged to attend the CALS CC meeting at which their item is being reviewed. This allows the submitter to answer any potential questions that may arise that could cause the item to not be approved. Also, be aware that when completing the UCC form the section Description of Request is asking for a brief statement about what you are doing. This is **not** the place for a course description. A statement such as "Proposal of a new undergraduate course" is all that is needed. Please do not submit documents in pdf format. All documents should be submitted in Word to facilitate editing on our end if necessary.

CHECKLIST: PLEASE INITIAL OR MARK N/A FOR EACH STATEMENT TO INDICATE YOUR COMPLIANCE.

__x__ It is required when making a submission that you consult your department's representative to the CALS CC. A list of current members can be found on the committee site located at: https://cals.ufl.edu/faculty-staff/committees/.

__x__ You MUST comply with the CALS Syllabus Policy, including items 1 through 8 and all standard syllabus statements. This document can be viewed at the committee site(https://cals.ufl.edu/faculty-staff/committees/) by clicking on the Curriculum Committee – Information & Documents heading and scrolling down to Forms, Checklists, and Other documents. The other items included here are all very helpful when making a curriculum submission. Some will be mentioned in other checklist items below.

__NA__ Submission of a course modification requires both the current version of the course syllabus and the proposed version.

__NA__ Joint course submissions must include 1.) both graduate and undergraduate syllabuses and 2.) a separate document outlining the substantial (more than one) differences in assignments between the two courses. These assignments must account for at least a 15% difference in graded material between the two levels. If this is a new course submission both courses must be submitted for approval simultaneously.

__x__ The course description on the UCC form and in the syllabus must match. Any other information you wish to include needs to be under a different heading such as background or additional information.

__x__ The course learning objectives must be consistent with Bloom's taxonomy. Please see the following link at the CALS Curriculum site. (https://cals.ufl.edu/content/PDF/Faculty_Staff/cals-course-objectives.pdf). Do not use the words demonstrate or understand when listing learning objectives.

__x__ The course schedule should be concise and include the appropriate number of weeks in the semester.

__x__ All graduate course submissions must include a reading list if a textbook is not required. The reading list should include at least some current readings (within the last 5 years). All readings do not need to be current.

__x__ Outside consultations are required if there is a possibility of the proposed course covering material taught in another department or college on campus. There must be a consult form completed by the chair of the department from who you are seeking the consult. Instructors may provide additional consults. The form can be found at: https://approval.ufl.edu/policies/external-consultations/.

__x__ Prerequisite courses are required for 3000 and 4000 level courses. This line of the approval form cannot be "none" or left blank. Junior or senior standing is an acceptable option. A phrase such as "a course in basic biology" is not acceptable.

__x__ Decimal points must be included in the grading scale if grade cut-offs are based on percentages. While this is not a university policy it is a CALS standard practice to avoid any confusion when final grades for the course are determined.

__x__ The attendance and make-up policy in a syllabus cannot contradict the university's policy. Do not include any additional wording to this policy. A statement and link regarding this is included in the CALS Syllabus Statements. For the approval process the college suggests a less is more view when it comes to this policy.

__x__ The most recent version of the CALS Syllabus Statements boiler plate must be included in all syllabuses. This document is included in the CALS Syllabus Policy and can be copied and pasted to the syllabus. Do not use the boilerplate statements from an old syllabus as they are likely to be out of date.

Certificates

If proposing a new undergraduate or graduate level certificate that includes any courses outside of the submitters department a statement regarding any possible impact on those courses needs to be included. An email from the instructor is acceptable. Also, any courses required for the certificate must have permanent prefixes and course numbers. The submission must include intended catalog copy. (Contact Dr. Joel Brendemuhl (brendj@ufl.edu) for further instruction)

Cover Sheet: Request 17552

Create FAS5203 version of FAS5203C

Info

Process	Course|Modify|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Jennifer Vogel alpha32605@ufl.edu
Created	8/4/2022 3:15:18 PM
Updated	8/4/2022 3:18:11 PM
Description of request	This request is to create a second version of FAS5203C which is currently a 4-credit in-person lab course in Biology of Fishes. This new second version of the course, as FAS5203 will be an online-only course without a lab but with additional focus on scientific literature review and analysis.. Both versions of the course FAS5203 and FAS5203C will be offered Fall semester but are not co-taught together. This request is not intended to replace FAS5203C.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	SFRC - Fisheries, Aquatic Sciences, and Geomatics 60469000	Terrell Baker III		8/4/2022
Biology of Fishes Differentiation Summary.docx CALS CC Checklist_Biology of Fishes.pdf FAS_4202C_5203C_Biology_of_Fishes_Fall_2021_Syllabus.pdf FAS_5203_Biology_of_Fishes_Fall_2021_Syllabus.docx					8/4/2022 8/4/2022 8/4/2022 8/4/2022
College	Pending	CALS - College of Agricultural and Life Sciences			8/4/2022
No document changes					
Graduate Curriculum Committee					
No document changes					
University Curriculum Committee Notified					
No document changes					
Statewide Course Numbering System					
No document changes					
Graduate School Notified					
No document changes					
Office of the Registrar					
No document changes					
College Notified					
No document changes					

Course|Modify for request 17552

Info

Request: Create FAS5203 version of FAS5203C
Description of request: This request is to create a second version of FAS5203C which is currently a 4-credit in-person lab course in Biology of Fishes. This new second version of the course, as FAS5203 will be an online-only course without a lab but with additional focus on scientific literature review and analysis.. Both versions of the course FAS5203 and FAS5203C will be offered Fall semester but are not co-taught together. This request is not intended to replace FAS5203C.
Submitter: Jennifer Vogel alpha32605@ufl.edu
Created: 3/29/2022 11:36:27 AM
Form version: 1

Responses

Current Prefix FAS
Course Level 5
Number XXX
Lab Code C
Course Title Biology of Fishes
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 C
Proposed Lab Code None
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

Course Type Lecture

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Change Course Description? Yes
Current Course Description This 4-hour dual-listed undergraduate/graduate course is a survey of the diversity of fishes, including their anatomy, diversity, taxonomy, biogeography, ecology, and conservation. Evolutionary trends are stressed, along with biogeography and biodiversity hotspots. The last section of the course is focused on fish ecology and conservation.
Proposed Course Description (500 characters max) This 3-hour on-line graduate course is a survey of the diversity of fishes, including their anatomy, taxonomy, ecology, and conservation. Evolutionary trends are stressed, along with biogeography and biodiversity hotspots. The last section of the course is focused on fish ecology and conservation.
Change Prerequisites? No

Change Co-requisites? No

Rationale This request is to create a second 3-credit version of FAS5203C Biology of Fishes online-only without a lab, as FAS5203. This request does not eliminate FAS5203C which will still exist as a 4-credit course with an in-person lab but will add FAS5203 online-only with no lab. This is to accommodate online students in Fishery Sciences and VetMed who are unable to take the lab version of the course but wish to study Biology of Fishes with a greater focus on scientific literature review and analysis.

CALS Curriculum Committee
Submission Checklist

NOTE: This checklist must be included with all course and certificate submissions.

The checklist below is intended to facilitate course and certificate submissions to the University of Florida Academic Approval Tracking System (https://approval.ufl.edu/). The checklist consists of the most common items that can cause a submission to require changes or be recycled. Contrary to information provided on the UF approval site, the CALS Curriculum Committee requires a syllabus be submitted with each new course or course modification request. Please note that submitters are encouraged to attend the CALS CC meeting at which their item is being reviewed. This allows the submitter to answer any potential questions that may arise that could cause the item to not be approved. Also, be aware that when completing the UCC form the section Description of Request is asking for a brief statement about what you are doing. This is **not** the place for a course description. A statement such as "Proposal of a new undergraduate course" is all that is needed. Please do not submit documents in pdf format. All documents should be submitted in Word to facilitate editing on our end if necessary.

CHECKLIST: PLEASE INITIAL OR MARK N/A FOR EACH STATEMENT TO INDICATE YOUR COMPLIANCE.

__x_ It is required when making a submission that you consult your department's representative to the CALS CC. A list of current members can be found on the committee site located at: https://cals.ufl.edu/faculty-staff/committees/.

__x_ You MUST comply with the CALS Syllabus Policy, including items 1 through 8 and all standard syllabus statements. This document can be viewed at the committee site(https://cals.ufl.edu/faculty-staff/committees/) by clicking on the Curriculum Committee – Information & Documents heading and scrolling down to Forms, Checklists, and Other documents. The other items included here are all very helpful when making a curriculum submission. Some will be mentioned in other checklist items below.

_x__ Joint course submissions must include both graduate and undergraduate syllabuses and a separate statement outlining the substantial (more than one) differences in assignments between the two courses. These assignments must account for at least a 15% difference in graded material between the two levels. If this is a new course submission both courses must be submitted for approval simultaneously.

__x_ The course description on the UCC form and in the syllabus must match. Any other information you wish to include needs to be under a different heading such as background or additional information.

_x__ The course learning objectives must be consistent with Bloom's taxonomy. Please see the following link at the CALS Curriculum site. (https://cals.ufl.edu/content/PDF/Faculty_Staff/cals-course-objectives.pdf). Do not use the words demonstrate or understand when listing learning objectives.

_x__ The course schedule should be concise and include the appropriate number of weeks in the semester.

__x_ All graduate course submissions must include a reading list if a textbook is not required. The reading list should include at least some current readings (within the last 5 years). All readings do not need to be current.

_x__ Outside consultations are required if there is a possibility of the proposed course covering material taught in another department or college on campus. There must be a consult form completed by the chair of the department from who you are seeking the consult. Instructors may provide additional consults. The form can be found at: https://registrar.ufl.edu/pdf/uccconsult.pdf.

__na_ Prerequisite courses are required for 3000 and 4000 level courses. This line of the approval form cannot be "none" or left blank. Junior or senior standing is an acceptable option. A phrase such as "a course in basic biology" is not acceptable.

_x__ Decimal points must be included in the grading scale if grade cut-offs are based on percentages. While this is not a university policy it is a CALS standard practice to avoid any confusion when final grades for the course are determined.

___x The attendance and make-up policy in a syllabus cannot contradict the university's policy. Do not include any additional wording to this policy. A statement and link regarding this is included in the CALS Syllabus Statements. For the approval process the college suggests a less is more view when it comes to this policy.

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Certificates

If proposing a new undergraduate or graduate level certificate that includes any courses outside of the submitters department a statement regarding any possible impact on those courses needs to be included. An email from the instructor is acceptable. Also, any courses required for the certificate must have permanent prefixes and course numbers. The submission must include intended catalog copy. (Contact Dr. Joel Brendemuhl (brendj@ufl.edu) for further instruction)

Syllabus: FAS 4202C/5203C, Biology of Fishes
Fall 2021

Instructor: Dr. Will Patterson, Fisheries and Aquatic Sciences, School of Forest Resources and Conservation; Email: will.patterson@ufl.edu; Office Phone: 352-273-3647

Office Hours: Mondays in MCC-B G109 at 8:00-12:00 and 15:00-17:00, or by appointment

Teaching Assistant: Mr. Derek Chamberlin

Credits: 4 hours

Class Meeting Days and Times:

Activity	Day	Time	Location
Lecture	Monday	12:50 - 14:45	LAR 0310
Lecture	Thursday	11:45 - 12:35	NZH 0222
Lab I	Thursday	12:50 – 14:45	MCCB 3108
Lab II	Thursday	15:00 – 16:55	MCCB 3108

Prerequisites: BSC 2011/2011L or consent of instructor

Course Description: This 4-hour dual-listed undergraduate/graduate course is a survey of the diversity of fishes, including their anatomy, diversity, taxonomy, biogeography, ecology, and conservation. Evolutionary trends are stressed, along with biogeography and biodiversity hotspots. The last section of the course is focused on fish ecology and conservation. Weekly lab sessions will reinforce material covered in lecture. Three lecture exams will be given during the semester as well as two lab practicals. Students taking the course for graduate credit will write a review paper on the evolution, taxonomy, morphology, ecology, and conservation of a fish family prevalent in Florida waters.

Course Objectives: Upon completion of this course, you will be able to

- accurately employ biological terminology related to fish biology;
- detail the various organ systems of fishes and their functions;
- reproduce the phylogenetic tree of fishes and describe evolutionary trends;
- detail novel morphological designs and when the first appeared in fishes;
- describe the various aspects of the ecology of fishes, including the diversity in life history strategies, feeding ecologies, and habitats utilized;
- communicate conservation issues facing fishes and the potential policy solutions to conserving biodiversity among them.

Additionally 5203C students will be able to

- explain unique aspects of the phylogeny, biogeography, form and function, ecology and interaction with humans of a fish family common to Florida

Email Communication: All email correspondence to Dr. Patterson must be from your ufl.edu account, have your full name in the body of the email, and contain your course and section number in the subject line. Emails not meeting these requirements may not be recognized by UF email filters, thus may not be answered. Any email you send within the Canvas app will convey

your UF information.

Required Textbook: Helfman G.S. et al. (2003) The Diversity of Fishes: Biology, Evolution, and Ecology, 2nd Edition. Wiley-Blackwell, New York, 720 pp. ISBN-13: 978-1405124942, ISBN-10: 9781405124942

Course Requirements: Students are required to read assigned text readings, attend lectures and take notes, participate in laboratory sessions and keep a laboratory notebook, and take lecture exams and laboratory practicals. Graduate students will also be required to write a review paper on a fish family of ecological or economic importance to Florida.

Lecture, Reading, and Laboratory Schedule:

Week	Date	Lectures	Helfman Chapters	Laboratory Exercise
1	Aug 23	Intro to Biology of Fishes	1	No Lab
2	Aug 30	Intro to the Diversity of Fishes External anatomy, skeleton, musculature	1, 3	No Lab
3	Sep 6	**No Class Monday Sept 6th** Swimming modes and types	5	No Lab
4	Sep 13	Respiration and circulation Thermoregulation, buoyancy, & osmoregulation	8a. 7	Lab 1: Fish external anatomy
5	Sep 20	Sensory systems I and II	6	Lab 2: Myology and osteology
6	Sep 27	Jaw evolution and feeding Reproduction and life history	8b, 9, 10	Lab 3: Swimming and locomotion
7	Oct 4	**Exam I:** Monday, October 4th Systematic procedures, Fish diversity	2	Lab 4: Fish internal anatomy
8	Oct 11	Primitive Fishes	11, 13	**Lab Practical I**
9	Oct 18	Chondrichthyes Teleosts I	12, 14	Lab 5: Reproductive biology and life stages
10	Oct 25	Teleosts II Zoogeography	15, 16	Lab 6: Feeding and trophic ecology
11	Nov 1	Special habitats and adaptations **Exam II:** Thursday, November 4th	18	Lab 7: Fish age and growth
12	Nov 8	Fish as predators and prey **No Class Thurs Nov 11th**	19, 20	No Lab
13	Nov 15	Feeding ecology and trophic position Communities and ecosystems	25	Lab 8: Estimating mortality
14	Nov 22	Population dynamics **No Class Thurs Nov 25th**	10	
15	Nov 29	Fisheries Conservation & Invasive fishes	26	**Lab Practical II**
16	Dec 6	Wrap up and review		**Graduate student paper due Monday Nov 29th**
17	Dec 13	**Exam III:** Thurs, Dec 16th, 12:30-14:30		

Lecture files: Lecture files will be posted on the Canvas site at the beginning of a given week (midnight Saturday). In addition, weekly vocabulary and review questions will also be posted on the course's Canvas site. Students should read the Helfman chapters assigned for a given week, study vocabulary and review questions, download lecture files, and come to class and take notes.

Laboratory files and requirements:
Laboratory files, including background information and laboratory exercise descriptions, will also be posted each week and should be downloaded and brought to class either as printed or digital files. Students must be present and participate in each laboratory exercise. Students also must bring a dissecting kit to lab each week, including scalpel, forceps, sharp and blunt probes, and scissors; larger knives will be provided as needed. Students must keep a laboratory notebook that will be collected and graded for completeness at each practical. Notebook grades will constitute 20% of your practical score.

Grading: Undergraduate course grades will be based on exam (20% each; 60% total) and practical (20% each; 40% total) scores. For graduate students, practical scores will each count 15% and the paper assignment will count 10% toward your course grade. The grading scale is below; see current UF policies for assigning grade points: http://gradcatalog.ufl.edu/index.php.

Grading Scale:

Point Range (%)	Letter Grade	GPA Equivalent
≥93.0	A	4.00
90.0-92.99	A-	3.67
87.0-89.99	B+	3.33
83.0-86.99	B	3.00
80.0-82.99	B-	2.67
77.0-79.99	C+	2.33
73.0-76.99	C	2.00
70.0-72.99	C-	1.67
67.0-69.99	D+	1.33
63.0-66.99	D	1.00
60.0-62.99	D-	0.67
<60.0	F	0.00

Graduate Student Paper Assignment: The graduate student paper assignment will constitute 10% of the course grade, thus lowering the course grade percentages for each practical to 15%. The paper will be due Monday, November 25. Each graduate student will pick a family of significance to Florida and write an 8-10 page (double spaced, 12-pt font, 1" margins) paper on the family's evolution, taxonomy, morphology, ecology, and conservation.

Attendance and Make-Up Work Requirements: Course policies for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: http://gradcatalog.ufl.edu/index.php.

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

of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

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

Services for Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, https://disability.ufl.edu/.

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general wellbeing 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 listed below are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.
--University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/. Available are Counseling Services, Groups and Workshops, Outreach and Consultation, a Self-Help Library, and 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 process for lodging student complaints can be found by following the link https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

Recording of Lectures and Labs: Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written

consent of Dr. Patterson.

Each lecture is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication of recorded lectures without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Policies regarding student in-class recordings are detailed at http://aa.ufl.edu/policies/in-class-recording/ .

Covid Considerations: In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment: https://coronavirus.ufhealth.org/vaccinations/vaccine-availability/. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.

You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators. Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class. Hand sanitizing stations will be located in every classroom.

If you sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email covid@shcc.ufl.edu) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the UF Health Screen, Test & Protect website for more information. Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.

Continue to regularly visit https://coronavirus.UFHealth.org for up-to-date information about COVID-19 and vaccination.

Biology of Fishes Differentiation Summary

There are three versions of the course:

4000 level with lab

5000 level with lab

5000 level online-only no lab

Course Objectives

4000 level with lab

- accurately employ biological terminology related to fish biology;
- detail the various organ systems of fishes and their functions;
- reproduce the phylogenetic tree of fishes and describe evolutionary trends among different groups.
- detail novel morphological designs and when the first appeared in fishes;
- describe the various aspects of the ecology of fishes, including the diversity in life history strategies, feeding ecologies, and habitats utilized;
- communicate conservation issues facing fishes and the potential policy solutions to conserving biodiversity among them.

5000 level with lab

- accurately employ biological terminology related to fish biology;
- detail the various organ systems of fishes and their functions;
- reproduce the phylogenetic tree of fishes and describe evolutionary trends among different groups.
- detail novel morphological designs and when the first appeared in fishes;
- describe the various aspects of the ecology of fishes, including the diversity in life history strategies, feeding ecologies, and habitats utilized;
- communicate conservation issues facing fishes and the potential policy solutions to conserving biodiversity among them.
- explain unique aspects of the phylogeny, biogeography, form and function, ecology and interaction with humans of a fish family common to Florida

5000 level online no lab

- accurately employ biological terminology related to fish biology;
- detail the various organ systems of fishes and their functions;
- reproduce the phylogenetic tree of fishes and describe evolutionary trends among different groups.
- detail novel morphological designs and when the first appeared in fishes;
- describe the various aspects of the ecology of fishes, including the diversity in life history strategies, feeding ecologies, and habitats utilized;

- communicate conservation issues facing fishes and the potential policy solutions to conserving biodiversity among them.
- explain unique aspects of the phylogeny, biogeography, form and function, ecology and interaction with humans of a fish family common to Florida
- Critique primary literature scientific manuscripts conducted via online (zoom) meetings using cutting-edge concepts, analytical approaches, and emerging paradigms

Assignments

4000 level with lab	5000 level with lab	5000 level online no lab
Weekly quizzes 10%	Weekly quizzes 10%	Weekly quizzes 20%
2 Undergrad Lab Practical 20%	1 Grad Lab Practical 10%	Graduate Exams 60%
Lab Notebook 10%	Lab Notebook 10%	Paper assignment 10%
Undergrad Exams 60%	Graduate Exams 60%	Discussion of papers 10%
	Paper assignment 10%	

Syllabus: FAS 5203, Biology of Fishes
Fall 2021

Instructor: Dr. Will Patterson, Fisheries and Aquatic Sciences, School of Forest Resources and Conservation; Email: will.patterson@ufl.edu; Office Phone: 352-273-3647

Teaching Assistant: None

Credits: 3 hours

Class Meeting Days and Times: Weekly online lectures and assignments

Prerequisites: Graduate student in good standing

Course Description: This 3-hour on-line graduate course is a survey of the diversity of fishes, including their anatomy, taxonomy, ecology, and conservation. Evolutionary trends are stressed, along with biogeography and biodiversity hotspots. The last section of the course is focused on fish ecology and conservation. Webinar-based discussions will occur biweekly, with two topical papers being the focus of student-led discussions. Weekly quizzes will be based on course readings and online lectures. Three exams also will be given during the semester, and students will write a review paper on the evolution, taxonomy, morphology, ecology, and conservation of a fish family prevalent in Florida waters.

Course Objectives: Upon completion of this course, you will be able to

- accurately employ biological terminology related to fish biology.
- reproduce the phylogenetic tree of fishes and describe evolutionary trends among different groups.
- detail novel morphological designs and when they first appeared in fishes and higher vertebrate groups.
- detail the various organ systems of fishes and higher vertebrates and their functions;
- describe the various aspects of the ecology of fishes, including the diversity in their life history strategies, feeding ecologies, and habitats utilized;
- communicate conservation issues facing fishes and the potential policy solutions to conserving biodiversity among them.
- explain unique aspects of the phylogeny, biogeography, form and function, ecology and interaction with humans of a fish family common to Florida
- critique primary literature scientific manuscripts conducted via online (zoom) meetings using cutting-edge concepts, analytical approaches, and emerging paradigms

Email Communication: All email correspondence to Dr. Patterson must be from your ufl.edu account, have your full name in the body of the email, and contain your course and section number in the subject line. Emails not meeting these requirements may not be recognized by our email filters, and thus may not be answered. If you email Dr. Patterson through the Canvas app, your UF information will be conveyed.

Required Textbook: Helfman G.S. et al. (2003) The Diversity of Fishes: Biology, Evolution, and Ecology, 2nd Edition. Wiley-Blackwell, New York, 720 pp. ISBN-13: 978-1405124942, ISBN-10: 9781405124942

Course Requirements: Course requires students to read assigned text readings, view recorded

lectures, read assigned papers from the primary scientific literature, participation in online discussions, complete weekly quizzes, write fish family review paper, and complete three online exams. Dates and times for biweekly paper discussions will be set once the semester starts.

Course Reading and Lecture Schedule:

Week	Date	Lectures	Helfman Reading	Paper Discussion
1	Aug 23	Intro to Biology of Fishes Intro to the Diversity of Fishes	Ch. 1: The science of ichthyology	
2	Aug 30	External Anatomy, Skeleton, Musculature Swimming Modes and Types	Ch. 3: Skeleton, skin, & scales Ch. 8a: Locomotion	
3	Sep 6	Respiration and Circulation Thermoregulation and Buoyancy	Ch. 5: O_2, metabolism, & energetics Ch. 7: Homeostasis	
4	Sep 13	Osmoregulation and Sensory Systems I Sensory Systems II	Ch. 7: Homeostasis Ch. 6: Sensory Systems	A. Webb (1984) B. Baker et al. (2013)
5	Sep 20	Sensory Systems III Jaw Evolution and Feeding	Ch. 6: Sensory Systems Ch. 8b: Feeding	
6	Sep 27	Reproduction and Life History I Reproduction and Life History II	Ch. 9: Early life history Ch. 10: Life stages	A. Berkeley et al. (2004) B. Lowerre-Barbieri et al. (2015)
7	Oct 4	**Exam I:** Monday, October 4th Evolution and Systematics	Ch. 2: Systematic procedures	
8	Oct 11	Primitive fishes I Primitive fishes II	Ch. 11: A history of fishes Ch. 13: Primitive fishes	A. Amemiya et al. (2013) B. Bergman et al. (2016)
9	Oct 18	Chondrichthyes	Ch. 12: Chondrichthyes	
10	Oct 25	Teleosts I Teleosts II	Ch. 14: Teleosts at last I Ch. 15: Teleosts at last II	A. Briggs (2005) B. Santini et al. (2013)
11	Nov 1	Zoogeography Special habitats and adaptations	Ch. 16: Zoogeography Ch. 18: Special habitats and adaptations	
12	Nov 8	**Exam II:** Monday, November 8th Fish as predators and prey	Ch. 19: Fish as predators Ch. 20: Fish as prey	
13	Nov 15	Feeding ecology and trophic position Communities and ecosystems	Ch. 25: Communities, ecosystems & the functional role of fishes	A. Tarnecki & Patterson (2015) B. Wernberg et al. (2016)
14	Nov 22	**No Course Material**		
15	Nov 29	Population dynamics Fisheries		A. Worm et al. (2009) B. Dahl and Patterson (2014)
16	Dec 6	Conservation Invasive fishes	Ch. 26: Conservation **Graduate student paper due 12/7**	
17	Dec 13	**Exam III**: Monday, December 13th		

Lectures: Lectures will be posted on the Canvas site. Lecture format will be video files of powerpoint presentations presented by Dr. Patterson. In addition, weekly vocabulary and review questions will be posted on the courses Canvas site. Students should read the Helfman chapters

assigned for a given week, watch lecture videos, and study vocabulary and review questions prior to taking a weekly timed (30 min) quiz, which will be open-note and administered in Canvas. Quiz questions will be pulled from a question bank and randomized, so no two students will take the exact same quiz.

Weekly Quizzes: Quizzes will be available on the Canvas site. You will have access to each quiz for one week. Each quiz will be available from midnight on the Sunday and disappear on Saturday at 11:59 p.m. of a given week. Once you open a quiz, you will have a maximum of 30 minutes to answer 10 questions. The questions will be randomly pulled from a bank of 50 questions for each week. Questions will be locked once answered, so there will be no opportunity to go back to previous questions. There will be no quizzes during exam weeks, thus a total of 12 quizzes will be given. The two lowest grades will be dropped, including zeros.

Paper Discussions: Students will be split into two sections for student-led paper discussions throughout the semester. Participation is mandatory and will constitute 10% of your final grade.

Exams: There will be three exams given during the course; see syllabus for dates. Exams will be available and proctored through an exam-taking app (HonorLock) that will be described in greater detail prior to first exam. Students will be required to have a web cam available to view while taking the exam; cameras integrated into laptops or tablets will suffice. Exam format will be 10 fill in the blank (1 pt each), 6 definitions (4 pts each), 4 short answer questions (8 pts each), and two long-answer questions (17 pts each). We will review the exam format prior to the first exam.

Paper Assignment: Each student will select a fish family of ecological or economic importance to Florida. Topics to be covered include the family's taxonomic diversity, evolutionary history and phylogeny, unique anatomical characters, predominant ecology (e.g., longevity, growth, reproductive mode, feeding ecology, life history strategy, etc.) among species in the group, human impacts, and conservation status. Your paper should be 8-10 pages, double-spaced, and 12-pt Times New Roman font. You may use subheadings between sections but otherwise leave no extra spacing between paragraphs.

Grading: Course grade will be based on weekly quizzes (20%), participation in paper discussions (10%), exam grades (20% each; 60% total), and paper assignment (10%). The grading scale is below. For information on current UF graduate student policies for assigning grade points, see https://catalog.ufl.edu/graduate/regulations/

Grading Scale:

Point Range (%)	Letter Grade	GPA Equivalent
≥93.0	A	4.00
90.0-92.99	A-	3.67
87.0-89.99	B+	3.33
83.0-86.99	B	3.00
80.0-82.99	B-	2.67
77.0-79.99	C+	2.33
73.0-76.99	C	2.00
70.0-72.99	C-	1.67
67.0-69.99	D+	1.33
63.0-66.99	D	1.00
60.0-62.99	D-	0.67
<60.0	F	0.00

Policies and Requirements

This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

COVID-19 Procedures

In response to COVID-19, the following policies and recommendations are in place to maintain your learning environment and to enhance the safety of our in-classroom interactions.

• You are asked to wear approved face coverings at all times during class and within buildings. Following these policies and requirements are all of our responsibility.

• This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.

• Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.

• Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.

• If you are experiencing COVID-19 symptoms (Click here for guidance from the CDC on symptoms of coronavirus), please use the UF Health screening system and follow the instructions on whether you are able to attend class. Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms.

• Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. Find more information in the university attendance policies.

Late Submissions & Make-up Requests

It is the responsibility of the student to access on-line lectures, readings, quizzes, and exams and to maintain satisfactory progress in the course. Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/graduate/regulations/

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

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

Communication, Courtesy and Professionalism

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. **Respect for individual differences and alternative viewpoints will be maintained in this**

class at all times. All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

Class Recordings

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orallyare agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

Opportunities for Input

Your comments are very valuable to the instructor. They will be used by the instructor to make specific improvements to the course (*e.g.*, assignments) and teaching style. The instructor will be providing opportunities throughout the semester for students to provide direct feedback on the course. However, students are encouraged to email the instructor at any time if they have concerns or comments to share with the instructor.

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

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. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/.

Academic Honesty

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

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

Inclusive Learning Environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads,

> *The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.*

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: https://multicultural.ufl.edu.

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.

SUPPORT SERVICES

Accommodations 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, https://disability.ufl.edu/

Student Life, Wellness, and Counseling Help

Students experiencing crises or personal problems that interfere with their general wellbeing 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 Connections Center, First Floor JWRU, 392-1601, https://career.ufl.edu/

Student Success Initiative, http://studentsuccess.ufl.edu.

Do not wait until you reach a crisis to come in and talk with us. You are not alone so do not be afraid to ask for assistance.

Student Complaint Process

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

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

Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/

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

Cover Sheet: Request 17411

WR req for ANS 2005

Info

Process	Course|New/Close/Modify|Ugrad|Gen Ed
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Pascal Oltenacu oltenacu@ufl.edu
Created	6/10/2022 4:07:39 PM
Updated	8/12/2022 12:35:07 PM
Description of request	Request to add 6,000 words writing requirement to the ANS2005 course This course has a substantial writing required and, based on suggestions from many students that took it, I would like to add 6,000 words writing requirement. The course requires writing of three essay papers and five papers summarizing several published papers and relating them to the relevant concepts developed in the course.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Animal Sciences 60090000	Raluca Mateescu		6/19/2022
Papers 1 to 3 - instructions, links, rubric.docx Writting assignments 1 to 5 - instructions, links, rubrics ANS2005 S2022.docx					6/19/2022 6/19/2022
College	Pending	CALS - College of Agricultural and Life Sciences			6/19/2022
No document changes					
General Education Committee					
No document changes					
Office of the Registrar					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|Gen_Ed|New-Close-Modify for request 17411

Info

Request: WR req for ANS 2005
Description of request: Request to add 6,000 words writing requirement to the ANS2005 course
This course has a substantial writing required and, based on suggestions from many students that took it, I would like to add 6,000 words writing requirement.
The course requires writing of three essay papers and five papers summarizing several published papers and relating them to the relevant concepts developed in the course.

Submitter: Pascal Oltenacu oltenacu@ufl.edu
Created: 6/19/2022 9:28:30 AM
Form version: 3

Responses

Course Prefix and Number ans2005
Course Title Role of animals in human history
Delivery Method Online, UF Online Program
Request Type Change GE/WR designation (selecting this option will open additional form fields below)
Effective Term Earliest Available
Effective Year Earliest Available
Credit Hours 3
Prerequisites none
Current GE Classification(s) H - Humanities, N - International
Current Writing Requirement Classification None
Requesting Temporary or Permanent Approval Permanent
Requested GE Classification H - Humanities , N - International
Requested Writing Requirement Classification E6 - 6000 words
Type of writing skill feedback provided Grade, Other
Description of other writing skills feedback The instructor or the TA will evaluate and provide feedback, on all of the student's written assignments with respect to grammar, punctuation, clarity, coherence, and organization.
Accomplishing Objectives ANS 2005 course satisfies humanities (H) and international (N) requirements for UF General Education Program and counts for three (3) hours of GE requirement.
The course also satisfies 6,000 words writing requirement.
The Writing Requirement (WR) ensures students both maintain their fluency in writing and use writing as a tool to facilitate learning.
Course grades have two components. To receive writing requirement credit, a student must receive a grade of C or higher and a satisfactory completion of the writing component of the course.
The instructor or the TA will evaluate and provide feedback, on all of the student's written assignments with respect to grammar, punctuation, clarity, coherence, and organization.
Essay papers: There will be three essay papers, first (750 words; 75 pts) due early, second (1000 words; 100 pts) due mid-semester, and a longer paper (1500 words; 150 pts) toward the end of the semester, for a total of 3,250 words toward WR.
Writing assignments: There will also be 5 assignments based on reading material posted on Canvas (each 1.5 pages, i.e., 750 words/assignment; 30 pts each, lowest one will be dropped), for a total of 3,000 words toward WR. Dates and all other information for essay papers and assignments will be announced on CANVAS.
Question sets: Following each lecture, you will have to review the material covered during the lecture (except for movies or videos shown during lectures) and formulate one question (with correct answer included). Each question will be worth two points and to receive credit the questions must be relevant to the material covered, posted on time on Canvas (before midnight the end of the week), use proper sentence structure, grammar.

Content: Explanation of Assessment The general education objectives will be accomplished in this course as students will gain a thorough understanding of the role of animals in society and culture and how this vary cross-culturally and over time. They will understand the
major role animals have played in the transition from Paleolithic to Neolithic, to Agrarian, to Industrial

and to Post-Industrial society of today and how and why their role and value have changed in the course of human history.
Critical Thinking: Explanation of Assessment Critical Thinking: Students analyze information carefully and logically from multiple perspectives, using discipline-specific methods, and develop reasoned solutions to problems. In this course students will be able to logically assess arguments and the accuracy and sufficiency of available scientific evidence applicable to an issue/claim. This learning outcome will be accomplished in this course through participation to board discussions designed to encourage critical assessments and debate on a variety of topics. Particularly relevant for this learning outcome are the assignments and board and class discussions debating issues raised in class lectures or documentaries ("Camel's Empire", "Farmers, their animals and the environment" and "Keepers of the genes" and "Buffalo Warrior") and several livestock related controversies facing society today, such as the carbon footprint of diet, livestock role in climate change, the GMO technology, use of antibiotics and growth promoters in livestock, the use of animals in research and the welfare of animals raised for food in modern industrial agriculture. The discussion board is student-centered but it is monitored and, when needed, I will seed the board with questions to stimulate critical thinking. Questioning will also be used in class to stimulate interactions.

Communication: Explanation of Assessment Communication: Students communicate knowledge, ideas and reasoning clearly and effectively in written and oral forms appropriate to the discipline. In this course students will be able to communicate ideas, knowledge and information in a coherent and logical manner. Students' ability to extract, summarize and effectively present information content will be evaluated via fifteen assignments (summaries of weekly required readings) and two essay papers that will be assessed for content, logical organization, grammar and development of appropriate arguments. The students will also learn how to communicate and debate on a discussion board using concise and clear statements.

CALS Curriculum Committee
Submission Checklist

NOTE: This checklist must be included with all course and certificate submissions.

The checklist below is intended to facilitate course and certificate submissions to the University of Florida Academic Approval Tracking System (https://approval.ufl.edu/). The checklist consists of the most common items that can cause a submission to require changes or be recycled. Contrary to information provided on the UF approval site, the CALS Curriculum Committee requires a syllabus be submitted with each new course or course modification request. Please note that submitters are encouraged to attend the CALS CC meeting at which their item is being reviewed. This allows the submitter to answer any potential questions that may arise that could cause the item to not be approved. Also, be aware that when completing the UCC form the section Description of Request is asking for a brief statement about what you are doing. This is **not** the place for a course description. A statement such as "Proposal of a new undergraduate course" is all that is needed. Please do not submit documents in pdf format. All documents should be submitted in Word to facilitate editing on our end if necessary.

CHECKLIST: PLEASE INITIAL OR MARK N/A FOR EACH STATEMENT TO INDICATE YOUR COMPLIANCE.

X___ It is required when making a submission that you consult your department's representative to the CALS CC. A list of current members can be found on the committee site located at: https://cals.ufl.edu/faculty-staff/committees/.

X___ You MUST comply with the CALS Syllabus Policy, including items 1 through 8 and all standard syllabus statements. This document can be viewed at the committee site(https://cals.ufl.edu/faculty-staff/committees/) by clicking on the Curriculum Committee – Information & Documents heading and scrolling down to Forms, Checklists, and Other documents. The other items included here are all very helpful when making a curriculum submission. Some will be mentioned in other checklist items below.

X___ Submission of a course modification requires both the current version of the course syllabus and the proposed version.

NA Joint course submissions must include 1.) both graduate and undergraduate syllabuses and 2.) a separate document outlining the substantial (more than one) differences in assignments between the two courses. These assignments must account for at least a 15% difference in graded material between the two levels. If this is a new course submission both courses must be submitted for approval simultaneously.

X___ The course description on the UCC form and in the syllabus must match. Any other information you wish to include needs to be under a different heading such as background or additional information.

X___ The course learning objectives must be consistent with Bloom's taxonomy. Please see the following link at the CALS Curriculum site. (https://cals.ufl.edu/content/PDF/Faculty_Staff/cals-course-objectives.pdf). Do not use the words demonstrate or understand when listing learning objectives.

x The course schedule should be concise and include the appropriate number of weeks in the semester.

NA All graduate course submissions must include a reading list if a textbook is not required. The reading list should include at least some current readings (within the last 5 years). All readings do not need to be current.

NA Outside consultations are required if there is a possibility of the proposed course covering material taught in another department or college on campus. There must be a consult form completed by the chair of the department from who you are seeking the consult. Instructors may provide additional consults. The form can be found at: https://approval.ufl.edu/policies/external-consultations/.

x Prerequisite courses are required for 3000 and 4000 level courses. This line of the approval form cannot be "none" or left blank. Junior or senior standing is an acceptable option. A phrase such as "a course in basic biology" is not acceptable.

x Decimal points must be included in the grading scale if grade cut-offs are based on percentages. While this is not a university policy it is a CALS standard practice to avoid any confusion when final grades for the course are determined.

x The attendance and make-up policy in a syllabus cannot contradict the university's policy. Do not include any additional wording to this policy. A statement and link regarding this is included in the CALS Syllabus Statements. For the approval process the college suggests a less is more view when it comes to this policy.

x The most recent version of the CALS Syllabus Statements boiler plate must be included in all syllabuses. This document is included in the CALS Syllabus Policy and can be copied and pasted to the syllabus. Do not use the boilerplate statements from an old syllabus as they are likely to be out of date.

Certificates

If proposing a new undergraduate or graduate level certificate that includes any courses outside of the submitters department a statement regarding any possible impact on those courses needs to be included. An email from the instructor is acceptable. Also, any courses required for the certificate must have permanent prefixes and course numbers. The submission must include intended catalog copy. (Contact Dr. Joel Brendemuhl (brendj@ufl.edu) for further instruction)

ANS2005 OAH2 off-campus S2022:

https://ufl.instructure.com/courses/447219

Paper 1

Animal Source Foods: Combat Malnutrition or preserve the planet?

Introduction

From the lectures and the first discussion, we learned that the change in diet to include increasing amounts of **meat and marrow (fat) was the fork that diverged humans from our hominid ancestors and played a critical role in the evolutionary success of our species**. Today a controversy is emerging between the importance of animal source foods (ASF) in the human diet and its negative impact on the environment. The article "Animal Source Foods: Sustainability Problem or Malnutrition and Sustainability Solution? Perspective Matters" argues that the recommendation to drastically reduce consumption of ASF to improve human health and combat climate change is based on overestimated environmental impact of livestock production and fail to adequately include the experience of marginalized women and children in low- and middle-income countries whose diets regularly lack the necessary nutrients.

Instructions

Step 1

Read the article "Animal Source Foods: Sustainability Problem or Malnutrition and Sustainability Solution? Perspective Matters" by accessing the article via Course Reserves on the Canvas menu. For more information on accessing Course Reserves, please read the Student Guide to Accessing Course Reserves.

Step 2

Write an argumentative essay discussing the importance of Animal Source Foods (ASF) to combat malnutrition in women and children's cognitive development in low- and middle-income countries. Also, discuss best strategies to sustainably produce the needed ASF for a growing population. Conclude the essay by presenting your own opinion on this issue. In this essay, you should:

1. Describe why the notion that raising livestock and consuming animal-source food (ASF; milk and dairy products, meat, fish, and eggs) is fundamentally incompatible with sustainable development is flawed.
2. Elaborate on why efforts to achieve sustainable development must include a more nuanced understanding of livestock and consider their important implications on the lives of the poor:
    . Under-nutrition has a long-term negative impact on the cognitive development of children
    a. The first 1000 days post-conception is a critical time for proper nutrition for the mother and child
    b. The planet's sustainability must consider nutritionally vulnerable populations, women and children, and the impact that low consumption of ASF has on their lives and futures.
    c. Increasing food security and eliminating hunger globally without livestock would be difficult given its contributions to the livelihood of people living in low- and middle-income countries.
3. Express your opinion with respect to this debate and provide support for your position.

Writing Tips

The following links and documents will help you refine your essay content, grammar, and references:

- How to Write an Argumentative Essay
- Writing for Animal Science
- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- University's Writing Studio

Guidelines and Grading

Follow these guidelines when **writing your paper**:

- Your paper should be at least 750 words. Points will be deducted for papers shorter than 750 words.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.
- Your paper should be written in the third and first person.
- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Follow these guidelines when **formatting your paper**:

- Your paper should be double-spaced, with 12 point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your paper. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.
- Submit your paper as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Please consider the following items related to **the academic integrity of your work**:

- Use your own words when writing the paper. Do not copy parts of the article or other materials on the web.
- Please read over your paper at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your final paper is due by no later than 11:59 pm on January 29.

Rubric

Paper 1: Animal Source Foods Rubric

You've already rated students with this rubric. Any major changes could affect their assessment results.

Paper 1: Animal Source Foods Rubric

Criteria	Ratings				Pts
Key Points	30 to >25.0 pts Excellent Accurately analyzes and explain the material, including critical evaluation of the negative perceptions of the role of livestock, devastating consequences of under-nutrition in women and children, and the role of ASF to address these problems. The strategy to sustainably produced the needed ASF is clearly described. The essay demonstrates excellent understanding of the key concepts presented in these articles.	25 to >20.0 pts Good Accurately analyzes and summarizes the material, including critical evaluation of the negative perceptions of the role of livestock, devastating consequences of under-nutrition in women and children, and the role of ASF to address these problems. Not all major topics are adequately described. The strategy to sustainably produced the needed ASF is not clearly described. The essay demonstrates adequate understanding of the key concepts presented in this article.	20 to >0.0 pts Average Some of the essay is accurate, but several major concepts are not discussed. The essay demonstrates minimal understanding of the major concepts presented in the article.	0 pts No Submission The student did not submit the assignment.	30 pts
Support	30 to >25.0 pts Excellent The essay has an introduction, paragraphs for each major concept and all major concepts are supported with facts and examples. Excellent concluding remarks.	25 to >20.0 pts Good The essay has an introduction, paragraphs for each major concept and all major concepts but not all are supported with facts and examples. The concluding remarks are adequate.	20 to >0.0 pts Average Identifies key points with minimal details, or by providing little to no examples.	0 pts No Submission The student did not submit the assignment.	30 pts
Mechanics Grammar, spelling, syntax, etc.	15 to >12.0 pts Excellent A thoughtful yet concise summary was provided using proper	12 to >9.0 pts Good Well-written with minimal grammar and spelling mistakes that did not	9 to >6.0 pts Average The summary was understood but multiple grammar/spelling mistakes detracted from clear	6 to >0.0 pts Insufficient Communication of ideas was disorganized and/or contained multiple grammar/spelling	0 pts No Submission The student did not submit the assignment.	15 pts

Paper 1: Animal Source Foods Rubric

Criteria	Ratings			Pts
	grammar and spelling and met all requirements in the instruction.	distract from the ideas; and met all but one of the requirements in the instruction.	communication of ideas and met just one of the requirements in the instruction.	errors that hindered understanding, and met just one - or none - of the requirements in the instruction.	

Total Points: 75

Paper 2

Roots of Ancient Inequality

Introduction

In *Guns, Germs, & Steel*, Jared Diamond argues that geographic location and resource access determine the "haves" and "haves-not" of our contemporary world. Considering the argument he makes and the arguments presented in additional reference articles, you will write an argumentative essay on the roots of ancient inequality in the world.

Instructions

Step 1

Watch *Guns, Germs & Steel* by accessing the video via Course Reserves on the Canvas menu. For more information on accessing Course Reserves, please read the Student Guide to Accessing Course Reserves.

Step 2

Write an argumentative essay by thoroughly answering each of the following prompts:

1. Describe in a few paragraphs the approach Jared Diamond took to identify the roots of inequality in the world and what he concluded.
2. Elaborate on how and why the domestication of plants and animals played a critical role in this outcome. You should go beyond the material from the video and use information from all articles provided to elaborate on the role played by domestication and other factors as roots of inequality:
   - "The Implicit Ecological-Evolutionary Theory of Jared Diamond"
   - "The Ancient Roots of the 1%"
   - "Our Egalitarian Eden"
   - "Livestock Drove Ancient Old-World Inequality"
3. Express your opinion concerning the importance of various factors as drivers of inequality globally and provide support for your position.

Writing Tips

The following links and documents will help you refine your essay content, grammar, and references:

- How to Write an Argumentative Essay
- Writing for Animal Science
- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- University's Writing Studio

Guidelines and Grading

Writing Guidelines

- Your paper should be at least 1000 words. Points will be deducted for papers shorter than 1000 words.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.
- Your paper should be written in the third and first person.
- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Formatting Guidelines

- Your paper should be double-spaced, with 12 point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your paper. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.
- Submit your paper as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Academic Integrity

- Use your own words when writing the paper. Do not copy from parts of the article or other materials on the web.
- Please read over your paper at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your final paper is due by no later than 11:59 pm on February 26.

Rubric

Paper 2: Roots of Ancient Inequality Rubric

Paper 2: Roots of Ancient Inequality Rubric

Criteria	Ratings					Pts
Key Points	40 to >35.0 pts Excellent Accurately summarizes Diamond's approach. Elaborate on the role of plant & animal domestication as key factors driving ancient inequality.	35 to >30.0 pts Very Good Accurately analyzes and summarizes all key points but description of the key factors and their relative importance is less clear.	30 to >25.0 pts Good Accurately analyzes and summarizes some but not all. The paper lacks clear communication of the student's assessment of the relative importance of these factors.	25 to >10.0 pts Average Most of the information is accurate, but the summary is incomplete, and the paper lacks clear description of the key factors, their relative importance as well as supporting arguments.	10 to >0 pts Poor Missing several key points and/or clarity and accuracy in the explanation of most or all the requirements of the paper.	40 pts
Support	40 to >35.0 pts Excellent Elaborates on the key factors with several details or by providing examples. An assessment of their relative importance of key factors is clearly supported by arguments.	35 to >30.0 pts Very Good Elaborates on most of the key factors with several details or by providing examples. An assessment of their relative importance of key factors is not supported by arguments.	30 to >25.0 pts Good Elaborates on some of the key factors by providing at least 1 detail or example. An assessment of their relative importance of key factors is missing.	25 to >10.0 pts Average Elaborates on some, but not all, of the key factors by providing at least 1 detail or example.	10 to >0 pts Poor Supporting evidence is minimally provided if at all.	40 pts
Mechanics (Grammar, spelling, syntax, etc)	20 to >17.0 pts Excellent Proper grammar and spelling. Followed the argumentative essay template and meet all formatting requirements.	17 to >15.0 pts Good Minimal grammar and spelling mistakes that caused no distraction. The argumentative essay template not clear. Meet all formatting requirements.	15 to >12.0 pts Average Multiple grammar/spelling mistakes detracted from paper. The argumentative essay template not used. Meet all formatting requirements.	12 to >0 pts Poor Contained multiple grammar/spelling errors that hindered understanding. The argumentative essay template is not used. Does not meet all formatting requirements.		20 pts

Total Points: 100

Paper 3 The Masai Today

Introduction

You have been employed by a non-governmental organization (NGO) to educate American workers who will travel to Africa for additional training before their assignment with various Masai tribes/sub-tribes. The program's purpose is to work with the Masai people and help them navigate through turbulent changing times. Everyone understands that to survive, the Masai must change.

Your job is to ensure the workers have the necessary **background knowledge** on the Masai to understand their traditional way of life with its culture and traditions, their perspectives, and their willingness (or lack thereof) to change. The NGO workers need this **background knowledge** before they go to Africa for more intensive training. You know that the change must be gradual if it is to take place, so you also need to outline a strategy and identify priorities so that NGO workers can be effective in their mission.

Instructions

Watch the film, "The Masai Today: Changing Traditions" (52:13).

Write a 1500 word essay comparing/contrasting the "old" (traditional lifestyle) way of life of the Masai with the "new" evolving way of life (modern lifestyle) as depicted in the film.

As examples, compare and contrast such things as:

- How more modern Masai people deal with the modern world compared to the traditional members of the tribe.
- How the traditional Masai people use animals, agriculture, and other means to support themselves is changing.
- How traditional versus modern Masai view each other.
- What are the agents of change in Maasai society today?
- What are the views of traditional versus modern Masai on religion, traditions, ancestors, marriage, the roles of women, where to store wealth, which animals to use, etc.?

The film is the primary source of information for your assignment, but using additional resources should help you write a better paper.

Extra resources

- Efferson, C., Vogt, S., Elhadi, A., Ahmed, H. E. F., & Fehr, E. (2015). Female genital cutting is not a social coordination norm. *Science*, *349*(6255), 1446–1447. https://doi.org/10.1126/science.aaa7978
- Vest, M. & Schmidt, R. (2010). *Masai on the Move* [Video]. CultureUnplugged. https://www.cultureunplugged.com/documentary/watch-online/play/7843/Masai-on-the-Move
- Vogt, S., Mohmmed Zaid, N., El Fadil Ahmed, H. et al. Changing cultural attitudes towards female genital cutting. Nature 538, 506–509 (2016). https://doi.org/10.1038/nature20100

Writing Tips

The following links and documents will help you refine your essay content, grammar, and references:

- Writing for Animal Science

- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- Compare & Contrast Essay
- University's Writing Studio

Guidelines and Submission

Writing Guidelines

- Your paper should be at least 1500 words. Points will be deducted for papers shorter than 1500 words.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.
- This paper should be written as a comparison/contrast essay.
- All additional information used, other than the video should be referenced.
- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Formatting Guidelines

- Your paper should be double-spaced, with 12 point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your paper. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.
- Submit your paper as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Academic Integrity

- Use your own words when writing the paper. Do not copy from parts of the article or other materials on the web.
- Please read over your paper at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your final paper is due by no later than 11:59 pm on April 9.

Paper 3: The Masai Today Rubric
You've already rated students with this rubric. Any major changes could affect their assessment results.

Paper 3: The Masai Today Rubric

Criteria	Ratings					Pts
Key Points	60 to >50.0 pts Excellent	50 to >40.0 pts Very Good	40 to >30.0 pts Good	30 to >10.0 pts Average	10 to >0 pts Poor	60 pts

Paper 3: The Masai Today Rubric

Criteria	Ratings					Pts
	Clear description of the contrast between "old" traditions and the "new" modern lifestyle. Examples are well chosen and supported by references outside the movie.	Good description of the contrast between "old" traditions and the "new" modern lifestyle. Examples chosen are good and partially supported by references outside the movie.	Fair description of the contrast between "old" traditions and the "new" modern lifestyle. Not sufficient examples chosen and not supported by references outside the movie.	The description of the contrast between "old" traditions and the "new" modern lifestyle is incomplete, and the paper lacks clear description examples and supporting references.	Missing several key points and/or clarity and accuracy in the explanation of most or all the requirements of the paper.	
Support	60 to >50.0 pts Excellent A clear strategy for change with changing priorities supported by arguments is presented. References are properly cited.	50 to >40.0 pts Very Good A strategy for change with changing priorities supported by arguments is presented. References are properly cited.	40 to >30.0 pts Good A strategy for change with changing priorities supported by arguments is inadequate. References are not properly cited.	30 to >10.0 pts Average A strategy for change with changing priorities supported by arguments is missing. Outside references are not used or cited.	10 to >0 pts Poor Supporting evidence is minimally provided if at all.	60 pts
Mechanics (Grammar, spelling, syntax, etc)	30 to >25.0 pts Excellent Proper grammar and spelling. Followed the compare-contrast essay template and meet all formatting requirements.	25 to >20.0 pts Good Minimal grammar and spelling mistakes that caused no distraction. The compare-contrast essay template not clear. Meet all formatting requirements.	20 to >15.0 pts Average Multiple grammar/spelling mistakes detracted from paper. The compare-contrast essay template not used. Meet all formatting requirements.	15 to >0 pts Poor Contained multiple grammar/spelling errors that hindered understanding. The argumentative essay template is not used. Does not meet all formatting requirements.		30 pts

Total Points: 150

ANIMAL SCIENCE 2005, ROLE OF ANIMALS IN HUMAN HISTORY

GE COURSE: 3 "H" CREDIT HOURS OR 3 "N" CREDIT HOURS

COURSE SYLLABUS - SPRING 2022

LECTURES

Online

INSTRUCTOR:

Pascal (Toni) Oltenacu, DVM, PhD

oltenacu@ufl.edu

L.E. 'Red' Larson Building, Room 104E

Office Hours: Tue and Thu, 10:40- 11:30am or by appointment

TEACHING ASSISTANTS: TBD

COURSE WEBSITE

This course has an E-learning/Canvas webpage for readings, assignments, discussions, essay papers, messages, and class announcements. All required reading materials will be posted on CANVAS. Please be sure that you are familiar with using Canvas. See their webpage for information and tutorials if needed.

COURSE DESCRIPTION

The course surveys the importance of animals through human history, from the prehistory to the present. The domestication of dogs, cats, major farm animals and some less familiar, such as camels, reindeer and buffalo and the role they played in different societies and cultures is discussed.

COURSE OBJECTIVES AND LEARNING OUTCOMES

All human societies have been and are dependent on animals in multiple ways, from the food and materials to the labor and companionship they provide, all critical ingredients humans needed to develop the rich succession of civilizations. Tool making, acquiring of language and domestication of animals and plants are three major developments that changed humanity's way of life, facilitating the transitions from prey to predator, from hunter to herder and from herder to breeder, in short, from food procurer to food producer. Animals have played a major role in driving these and other developments by being central actors in human evolution, development of agriculture, spread of zoonotic diseases, and the functioning of ecosystems in which humans are embedded. Likewise, humans have greatly impacted the animals, affecting their evolution, the distribution of their populations, and the quality of their lives. In this course we will discuss the role of animals in connection with these developments and their contributions to human societies across time and space as well as how human-animal relationship have evolved over time in different societies and how these changes have affected both animals and humans.

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

- Describe the factors that led to the adoption of a carnivory diet and its consequences on human evolution.

- Describe how the dog was domesticated and evaluate how this event changed human-animals interaction.
- Explain the process of domestication and the diverse pathways followed by domesticates.
- Describe the domestication of livestock species and how their contributions to human societies changed over time.
- Analyze the food security role animals play in the developing world.
- Analyze different animal ethic views and controversial livestock systems and practices.
- Describe the connection between animals and human diseases and evaluate their role in biological research.

GENERAL EDUCATION INFORMATION

ANS 2005 course satisfies humanities (H) and international (N) requirements for UF General Education Program and counts for three (3) hours of GE requirement.

In this **humanity** course we illustrate how animals and our interactions with them have historically shaped our world. Recognizing the role of animals in human societies should have a positive contribution to social and behavioral sciences by providing new ideas and offering alternative explanations to societal changes.

The **general education** objectives will be accomplished as students will gain a thorough understanding of the role of animals in society and culture and how this vary cross-culturally and over time. They will understand the major role animals have played in the transition from Paleolithic to Neolithic, to Agrarian, to Industrial and to Post-Industrial society of today and how and why their role and value have changed in the course of human history.

In this course we discuss the material and symbolic importance of animals to human societies, past and present. Human-animal relationship is a relevant humanity topic and this course focuses on how human societies have been affected by animals and vice versa, with both aspects of this interaction being equally important. The basic concepts of ownership, property, and capitalism are intricately connected with domestication that resulted in a creation of an entirely new category of animals as commodities to be purchased, owned, traded, and sold. Not surprising that the word ‘capital’ originated from ‘capita’ that means ‘head of cattle’.

Understanding the cultural and economic role animals played across time and space provides the basic knowledge the students need to critically evaluate some of agricultural and food controversies in today society and develop an understanding of how attitude toward animals in developing and developed countries may be different and why, for example, people in Western countries donate money to establish wildlife preserves across the world while the pastoralists of India oppose and demonstrate against them.

Would be impossible to discuss the role of animals in human history without addressing the growing debate on the ethical use of animals. We will explore how attitudes toward animals have been shaped by cultures across time and space. A brief history of animal ethics and a description of the two major points of view (1) animal welfare and (2) animal rights, central to this debate will be addressed while discussing use of animals in research and raising livestock for food in intensive modern agriculture.

The general education courses with International (N) designation *"provide instruction in the values, attitudes, and norms that constitute the contemporary cultures of countries outside the United States."* These general education objectives will be accomplished by providing students with a better understanding of the **diversity of roles and values of animals as well as the relationship between humans and other species** in different contemporary societies and cultures. This course presents the importance of livestock in developing countries and the multitude of goods and services they provide, such as *Producing Food; Generating Income; Providing Manure; Producing Power; Serving as Financial Instruments* (the subsistence farmers in developing countries seldom, if ever, have access to standard financial markets, and livestock offer an alternative for storing their savings or accumulated capital as a "living savings account"); *Enhancing Social Status* (traditional cultural norms in many societies place considerable value on livestock as an indicator of social importance within the community, either based on the size of a family's livestock holdings, or in their sharing of livestock with others and livestock is the common "currency" used to strengthen social bonds, including the use of livestock as dowry or bride price). We analyze in considerable depth several contemporary societies (New Guinea people, Masai people, the Dinka tribe, Mongolia's reindeer herders and pastoralist societies of India where 70% of rural population grow livestock). In all these 'traditional' communities, livestock not only provides livelihood but it's the source of their identity.

The course also satisfies 6,000 words writing requirement. The Writing Requirement (WR) ensures students both maintain their fluency in writing and use writing as a tool to facilitate learning.

Course grades have two components. To receive writing requirement credit, a student must receive a grade of C or higher and a satisfactory completion of the writing component of the course.

The instructor or the TA will evaluate and provide feedback, on all of the student's written assignments with respect to grammar, punctuation, clarity, coherence, and organization.

Essay papers: There will be three essay papers, first (≥ 750 words; 75 pts) due early, second (≥ 1000 words; 100 pts) due mid-semester, and a longer paper (≥ 1500 words; 150 pts) toward the end of the semester, for a total of ≥ 3,250 words toward WR.

Writing assignments: There will also be 5 assignments based on reading material posted on Canvas (each ≥ 1.5 pages, i.e., ≥ 750 words/assignment; 30 pts each, lowest one will be dropped), for a total of ≥ 3,000 words toward WR. Dates and all other information for essay papers and assignments will be announced on CANVAS.

Question sets: Following each lecture, you will have to review the material covered during the lecture (except for movies or videos shown during lectures) and formulate one question (with correct answer included). Each question will be worth two points and to receive credit the questions must be relevant to the material covered, posted on time on Canvas (before midnight the end of the week), use proper sentence structure, grammar.

Discussion assignments: Several Discussion assignments will be posted during this class and will consist of short readings, which will be posted on Canvas and will be relevant to material presented in class. After reading these postings, you will be required to prepare and post a comment/question or present your view on the content (3-6 sentences). You will also be

required to respond to other students' posts at least 1-2 times using thoughtful statements or questions.

To get the full points: Post your original comment (3-6 sentences) in the next two days after the assignment to allow time for commentary; Respond to others' posts at least 1-2 times using thoughtful statements or questions; Be timely, use proper sentence structure, grammar, etc.; If someone responds to your post, follow up if necessary.

Grading of the essay papers and writing assignments: your instructor determines the grade for your papers, writing and discussion assignments and question sets. The papers will be graded using a matrix. There will be **deductions** based on meeting deadlines (**2 points/day**) unless the delay is justified and cleared with the course instructor. For papers as well as the writing assignments it will be a closing date beyond which papers or assignments will not be accepted.

Policy on Missed Examinations

: For an exam absence to be excused, you must make arrangements with the instructor **prior** to missing an exam. Requests must be in writing on standard paper. In case of an emergency, you may send an e-mail and turn in your written request **within 1 week**. **All** make-up exams should be made up **within ONE week** of the scheduled exam. Grades not made up within **ONE** week will be assigned a zero. If this is a problem for you, please see me first week of classes while you can still drop the class if we cannot work the problem out. Excused absences are consistent with university policies in the undergraduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation.

Grading Policy

Type	#	Points Possible	% of Grade
Lecture Quizzes	42	5	22
Class Discussions	4	20	8
Writing Assignments	6	30 (lowest dropped)	15
Papers	3	75/100/150	34
Exams	2	100	21

Letter grades will be assigned based upon the following scale:

A = 90-100%, B = 80-89.99%, C = 70-79.99%, D = 60-69.99%, F = < 60%.

It is possible that a sliding scale will be imposed on the class, but the scale would always be used to lower the number of points needed to achieve a grade rather than increase it. More information on grades and grading policies is here: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Course Schedule

Week 1 Module 1	Jan 5	Lect. 1A Dating methods I (20:00 min); Lect. 1B Dating methods II (19:53 min)
	Jan 8	Lect. 2A Human evolution (20:59 min.), **Start Assignment 1** Lect. 2B Paleolithic revolution I (26:09 min), **Start Paper 1** Lect.3A paleolithic revolution II (20:04 min), Lect. 3B Tools, brain, hunting (20:41 min)
Week 2 Module 2	Jan 10	Lect. 4A Power of two, clever hands; **start Discussion 1** Lect. 4B Getting necked
		Lect. 5A Throwing arm, big brain (15:24 min) Lect. 5B Evolution to be a hunter (31:31 min)
	Jan 15	Lect. 6A Sleep, exercise (16:47 min) Lect. 6B Animal communication (31:06 min);
Week 3 Module 3	Jan 18	Lect. 7A Prehistoric art, language & animals (19:41 min) Lect. 7B Animate monitoring Hypothesis (19:23 min);
		Lect. 8A Egalitarian Eden, life as a food procurer (23:19 min) Lect. 8B The first Temple, Gobekli Tepe (27:04 min);
	Jan 22	Lect. 9A Neolithic Revolution (20:25 min); Lect. 9B Man the Domesticator (25:46 min); **Assignment 1 due Jan 22**
Week 4 Module 4	Jan 24	Lect. 10A PIE, Domestication process (26:10 min); **Start Assignment 2** Lect. 10B Domestication Pathways (20:21 min)
		Lect. 11A Silver Fox, Domestication syndrome (21:48 min); Lect. 11B Dog origins, evolution, domestication (32:23 min);
	Jan 29	Lect. 12A Benefits of dog domestication (37:18 min); **Discussion 1 closed Jan 29** Lect. 12B Inconvenient truth (25:36 min); **Paper 1 due Jan 29**
Week 5 Module 5	Jan 31	Lect. 13 Animal connection and human evolution (47:03 min); **start Paper 2; start Discussion 2**
		Lect. 14A Sheep domestication (19:33 min); Lect. 14B Sheep services – milk (24:10 min);
	Feb 5	Lect. 15A Sheep services – wool (14:37 min); Lect. 15B Wool as a commodity (24:44 min);
Week 6 Module 6	Feb 7	Lect. 16A Goat Domestication (21:40 min); Lect. 16B Pig Domestication (17:54 min);
		Lect. 17A Pork consumption & conservation (9:23 min); Lect. 17B Food taboos, history of food processing (not on the page);
	Feb 12	Lect. 18A Domestication of cattle; Lect. 18B Cattle services – milk; **Assignment 2 due Feb 12**
Week 7 Module 7	Feb 14	Lect. 19A Cattle in the New World – California; **start Assignment 3** Lect. 19B Cattle in the New World – Florida, Texas
		Lect. 20A American Bison Lect. 20B The end of American Bison;
	Feb 19	Lect. 21A Water buffalo Lect. 21B Secondary Product Revolution (SPR); **Discussion 2 due Feb 19**
	Feb 18	**Exam 1**
Week 8 Module	Feb 21	Lect. 22A Horse domestication; start Assignment 4 Lect. 22B Horse behavior, horses in the New World

8		Lect. 23A Horses in ancient wars; Lect. 23B Horses in entertainment, racing;
	Feb 26	Lect. 24A Mustangs, Animals in War; Lect. 24B Brief review of American History; **Paper 2 due Feb 26**
Week 9 Module 9	Feb 28	Lect. 25A America was built with horses I; **start Discussion 3; start paper 3** Lect. 25B America was built with horses II
		Lect. 26A Horses in Agriculture; Lect. 26B Horses in Civil War;
	Mar 4	Lect. 27A Horses in the city I Lect. 27B Horses in the city II; **Assignment 3 due Mar 4**
Week 10 Module 10	Mar 14	Lect. 28A Reindeer I; Lect. 28B Reindeer II;
	Mar 19	Lect. 29A Domestication insects – Honeybee Lect. 29B Honeybee society, services, diseases; **Assignment 4 due Mar 19**
Week 11 Module 11	Mar 21	Lect. 30A Domestic cats; **start Assignment 5** Lect. 30B Silkworm, silk road
		Lect. 31 Ships of the desert
	Mar 26	Lect. 32A Camel's history, adaptations; **Discussion 3 due Mar 26** Lect. 32B Camel's services
Week 12 Module 12	Mar 28	Lect. 33A Chickens domestication and behavior; **start Discussion 4** Lect. 33B Chickens' services
		Lect. 34A Turkey and other birds Lect. 34B Donkey, domestication, services
	Apr 2	Lect. 35 Farmers, their animals and the environment; **Assignment 5 due Apr 2**
Week 13 Module 13	Apr 4	Lect. 36A Animals and human diseases, intro, measles; **start Assignment 6** Lect. 36B Animals and human diseases, pertussis, smallpox, tuberculosis
		Lect. 37A Humans-animals interface and diseases, Neolithic to Middle Ages Lect. 37B Humans-animals interface and diseases, from plague to influenza
	Apr 9	Lect. 38 Keepers of the genes; **Paper 3 due Apr 9**
Week 14 Module 14	Apr 11	Lect. 39A Animals as pets Lect. 39B Dog fasci nation & anthropomorphism
		Lect. 40A What have we done to our best friend? Lect. 40B Pedigree breeding, health concerns for dogs and cats
	Apr 16	Lect. 41A Animal ethics dilemma Lect. 41B Animal welfare science; **Discussion 4 due Apr 16**
Week 15 Module 15	Apr 18	Lect. 42A Controversial animal production systems and practices
		Lect. 43A Animals in research – history Lect. 43B Animals in research – evolution; **Assignment 6 due Apr 20**
	Apr 23	Apr 21 & Apr 22 – reading days
Apr 24	Apr 30	Apr 26 **Exam 2**

Critical Dates

First paper: Animal source foods – combat malnutrition or preserve the planet? (75 pts):

Jan 9: Assignment given

Jan 29: Final paper due

Second paper: Roots of Ancient inequality (*Guns, Germs and Steel)* (100 pts):

Jan 31: Assignment given

Feb 26: Final paper due

Third paper: *Massai today* (150 points):

Feb 28: Assignment given

April 9: Final paper due

Exam 1: February 18

Exam 2: April 26

Writing Studio

The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at http://writing.ufl.edu/writing-studio/ or in 302 Tigert Hall for one-on-one consultations and workshops.

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. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/.

Academic Honesty

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

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your

individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

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, https://disability.ufl.edu/

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 Connections Center,* First Floor JWRU, 392-1601, https://career.ufl.edu/.
- Student Success Initiative, http://studentsuccess.ufl.edu.

Student Complaints:

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

Assignment 1The Naked Truth

Instructions

Please read the *Scientific American* article "The Naked Truth" and write a paper summarizing the article's key concepts with the following in mind:

- Elaborate on major points in the article.
- Discuss advantages and disadvantages of fur versus naked and factors that drove that adaptation.
- Critically evaluate various lines of evidence used to pinpoint the time when this adaptation occurred.
- Remark on other evolutionary developments made possible by the evolution of hairlessness.

Writing Tips

The following links and documents will help you refine your essay content, grammar, and references:

- How to Write an Argumentative Essay
- Writing for Animal Science
- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- University's Writing Studio

Guidelines and Submission

Writing Guidelines

- Your paper should be at least 1½ pages (≥ 750 words). Points will be deducted for shorter essays.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.
- Your paper should be written in the third and first-person.
- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Formatting Guidelines

- Your paper should be single-spaced, with 12 point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your essay. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.

- Submit your paper as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Academic Integrity

- Use your own words when writing the essay. Do not copy from parts of the article or other materials on the web.
- Please read over your paper at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your completed assignment is due by no later than 11:59 pm on January 22.

Assignment 1: The Naked Truth Rubric
You've already rated students with this rubric. Any major changes could affect their assessment results.

Assignment 1: The Naked Truth Rubric

Criteria	Ratings				Pts
Key Points	12 to >10.0 pts Excellent Accurately summarizes the material elaborating on major points: why our ancestors lost their fur, advantages and disadvantages of fur vs. naked, factors that drove this adaptation, critically evaluate various lines of evidence used to pinpoint the time when this adaptation occurred, and what were other evolutionary developments made possible by the evolution of hairlessness. The summary demonstrates excellent knowledge of article's key concepts.	10 to >7.0 pts Good Accurately summarizes the material elaborating on some but not all major points: why our ancestors lost their fur, advantages and disadvantages of fur vs. naked, factors that drove this adaptation, critically evaluate various lines of evidence used to pinpoint the time when this adaptation occurred, and what were other evolutionary developments made possible by the evolution of hairlessness. The summary demonstrate adequate knowledge of the article's key concepts.	7 to >0.0 pts Average Some of the summary is accurate but not all major points were elaborated. The summary demonstrate minimal knowledge of the article's key concepts.	0 pts No Submission Student did not submit the assignment.	12 pts
Support	12 to >10.0 pts Excellent Elaborates on key points with several details, and/or by providing examples.	10 to >7.0 pts Good The summary is well structured with an introduction, paragraphs for major points but details or examples are missing. A concluding remark describing what in your opinion were the major learning outcomes from this assignment needs improvement.	7 to >0.0 pts Average Identifies key points with minimal details, or by providing little to no examples.	0 pts No Submission Student did not submit the assignment.	12 pts
Mechanics	6 to >4.0 pts	4 to >3.0 pts	3 to >2.0 pts	2 to >0.0 pts	0 pts	6 pts

Assignment 1: The Naked Truth Rubric

Criteria	Ratings				Pts
Grammar, spelling, syntax, etc.	Excellent A thoughtful yet concise summary was provided using proper grammar and spelling; and met all requirements in the instruction.	Good Well-written with minimal grammar and spelling mistakes that did not distract from the ideas; and met most of the requirements in the instruction.	Average Summary has multiple grammar/spelling mistakes that detracted from clear communication of ideas; and did not met all the requirements in the instruction.	Insufficient Communication of ideas was disorganized and/or contained multiple grammar/spelling errors that hindered understanding; and met just one - or none - of the requirements in the instruction.	No Submission Student did not submit the assignment.	

Total Points: 30

Assignment 2Evolution From Wolf to Dog

Instructions

Please read the *Scientific American* article "How Wolf Became Dog" and write a summary paper including any comments you might have related to the topic discussed in the article and how it relates to the materials presented in class and the *PBS* video "Dogs That Changed the World: The Rise of the Dog" that is the topic of Discussion 2.

Writing Tips

The following links and documents will help you refine your paper content, grammar, and references:

- How to Write an Argumentative Essay
- Writing for Animal Science
- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- University's Writing Studio

Guidelines and Submission

Writing Guidelines

- Your paper should be at least 1½ pages (≥ 750 words). Points will be deducted for shorter essays.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.
- Your paper should be written in the third and first person.

- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Formatting Guidelines

- Your paper should be single-spaced, with 12 point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your essay. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.
- Submit your paper as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Academic Integrity

- Use your own words when writing the essay. Do not copy from parts of the article or other materials on the web.
- Please read over your essay at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your completed assignment is due by no later than 11:59 pm on February 12.

Assignment 2 Evolution from wolf to dog Rubric

Assignment 2 Evolution from wolf to dog Rubric

Criteria	Ratings				Pts
Key Points	12 to >10.0 pts Excellent Accurately analyzes and summarizes the major concepts presented in the paper, such but not limited to as how the independent-minded, egalitarian wolf changed into the obedient, waiting-for-orders dog and what role ancient humans played in achieving this feat, the origin, the timing, and the factors that contributed to its domestication, a description of anatomical, physiological, and behavioral changes associated with dog's domestication as well as the roller coaster human-	10 to >7.0 pts Good Analyzes and summarizes several but not all major concepts. The discussion of some major concepts is good, but it lacks details and/or examples to support the concepts. The summary demonstrates good understanding of the major concepts.	7 to >0.0 pts Average Analyzes and summarizes several but not all major concepts. The discussion of some major concepts is adequate, but it lacks details and/or examples to support the concepts. Several major concepts are not discussed. The summary demonstrates average understanding of the major concepts.	0 pts No Submission Student did not submit the assignment.	12 pts

Assignment 2 Evolution from wolf to dog Rubric

Criteria	Ratings				Pts
	dogs relationship. The different hypothesis of dog domestication presented in this article and in the video "The rise of the dog" are well described. The summary demonstrates excellent understanding of the major concepts.				
Support	12 to >10.0 pts Excellent The summary is well structured with paragraphs for major concepts as well as concluding remarks outlining major learning outcomes. The major concepts are supported with details and/or examples.	10 to >7.0 pts Good The summary is reasonably structured with paragraphs for major concepts as well as concluding remarks outlining major learning outcomes. Not all major concepts are discussed and supported with details and/or examples.	7 to >0.0 pts Average The summary has poor structure, paragraphs for major concepts and concluding remarks not well defined. Not all major concepts are discussed and supported with details and/or examples.	0 pts No Submission Student did not submit the assignment.	12 pts
Mechanics Grammar, spelling, syntax, etc.	6 to >4.0 pts Excellent The summary is well written, excellent grammar, no spelling errors, and meets all format requirements.	4 to >3.0 pts Good Well-written with minimal grammar and spelling mistakes that did not distract from the ideas; and met all but one of the requirements in the instruction.	3 to >0.0 pts Average Summary was understood but multiple grammar/spelling mistakes detracted from clear communication of ideas; and met just one of the requirements in the instruction.	0 pts No Submission Student did not submit the assignment.	6 pts

Total Points: 30

ASSIGNMENT 3Horse: Breed for Speed

Instructions

Please read the following articles and write a summary paper including any comments you might have related to the topic discussed in the articles and how it relates to the materials presented in class.

- Gibbons, A. (2014, December 19). *The Thoroughly Bred Horse*. Science, Vol. 346, Issue 6216.
- Gibbons, A. (2014, June 13). *Racing for Disaster? Breeding Thoroughbreds for Speed May Harm Their Health*. Science, Vol. 344, Issue 6189.

Writing Tips

The following links and documents will help you refine your paper content, grammar, and references:

- Writing for Animal Science
- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- University's Writing Studio

Guidelines and Grading

Writing Guidelines

- Your paper should be at least 1½ pages (≥ 750 words). Points will be deducted for shorter essays.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.
- Your paper should be written in the third and first person.
- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Formatting Guidelines

- Your paper should be single-spaced, in 12-point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your paper. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.
- Submit your paper as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Academic Integrity

- Use your own words when writing the paper. Do not copy from parts of the article or other materials on the web.
- Please read over your paper at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your final paper is due by no later than 11:59 pm on March 5.

Assignment 3: Horse: Breed for Speed Rubric
You've already rated students with this rubric. Any major changes could affect their assessment results.

Assignment 3: Horse: Breed for Speed Rubric

Criteria	Ratings				Pts
Key Points	12 to >10.0 pts Excellent Accurately analyzes and summarizes the material. Major concepts including changes of the horse genome caused by domestication and subsequent artificial (human) selection, genetic consequences of pedigree breeding and population bottlenecks, and inbreeding as a source of health problems are clearly described. The genomic tools and the breeding strategy to reverse the harmful trend are also described. The summary is well structured, with paragraphs for major concepts and well thought out concluding remarks outlining the major learning outcomes. The summary demonstrates excellent understanding of the major concepts.	10 to >7.0 pts Good A good summary of the material. Most but not all major concepts are covered. The summary is reasonably structured, but not all major concepts are properly delineated, and the concluding remarks are not sufficiently clear. The summary is reasonably well structured and demonstrates good understanding of the major concepts.	7 to >0.0 pts Average Some of the summary is accurate but several concepts are missing and the summary is not well structured. The summary demonstrates average or little knowledge of the major concepts.	0 pts No Submission Student did not submit the assignment.	12 pts
Support	12 to >10.0 pts Excellent The major concepts are well described and supported with details and/or examples.	10 to >7.0 pts Good Some but not all major concepts are described and supported by details and/or examples.	7 to >0.0 pts Average The major concepts not well described and supported with minimal details, or by providing little to no examples.	0 pts No Submission Student did not submit the assignment.	12 pts
Mechanics Grammar, spelling, syntax, etc.	6 to >4.0 pts Excellent A well written summary using proper grammar and spelling; and met all requirements in the instruction.	4 to >3.0 pts Good Well-written with minimal grammar and spelling mistakes that did not distract from the ideas; and met all but one of the requirements in the instruction.	3 to >0.0 pts Average Summary was understood but multiple grammar/spelling mistakes detracted from clear communication of ideas; and met just one of the requirements in the instruction.	0 pts No Submission Student did not submit the assignment.	6 pts

Total Points: 30

Assignment 4The Mite and the Bee Disease

Instructions

Please read the following articles and write a summary paper including any comments you might have related to the topic discussed in the articles and how it relates to the materials presented in class.

- Villalobos, E.M. (2016, February 5). *The Mite That Jumped, the Bee That Traveled, the Disease That Followed*. Science, Vol. 351, Issue 6273.
- Rosner, H. (2013, September 1). *Return of the Natives: How Wild Bees Will Save Our Agricultural System*. Scientific American, Issue 309.

Writing Tips

The following links and documents will help you refine your essay content, grammar, and references:

- How to Write an Argumentative Essay
- Writing for Animal Science
- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- University's Writing Studio

Guidelines and Submission

Writing Guidelines

- Your paper should be at least 1½ pages (≥ 750 words). Points will be deducted for shorter essays.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.
- Your paper should be written in the third and first-person.
- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Formatting Guidelines

- Your paper should be single-spaced, with 12 point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your essay. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.
- Submit your essay as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Academic Integrity

- Use your own words when writing the essay. Do not copy from parts of the article or other materials on the web.
- Please read over your paper at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your final essay is due by no later than 11:59 pm on March 19.

Assignment 4: The Mite and the Bee Disease Rubric

Assignment 4: The Mite and the Bee Disease Rubric

Criteria	Ratings				Pts
Key Points	12 to >10.0 pts Excellent Accurately analyzes and summarizes the material. Major concepts including the complex etiology of colony collapse disorder and human factors that contributed to the spread of the disease and the risks of our reliance on a single pollinator are well described. The summary is well structured, with paragraphs for major concepts and well thought out concluding remarks outlining the major learning outcomes. The summary demonstrates excellent understanding of the major concepts.	10 to >7.0 pts Good A good summary of the material. Most but not all major concepts are covered. The summary is reasonably structured, but not all major concepts are properly delineated, and the concluding remarks are not sufficiently clear. The summary demonstrates good understanding of the major concepts.	7 to >0.0 pts Average Some of the summary is accurate but it lacks structure. The summary demonstrates average or little knowledge of the major concepts.	0 pts No Submission Student did not submit the assignment.	12 pts
Support	12 to >10.0 pts Excellent The major concepts are well described and supported with details and/or examples.	10 to >7.0 pts Good Same but not all major concepts are supported by details and/or examples.	7 to >0.0 pts Average Identifies key points with minimal details, or by providing little to no examples.	0 pts No Submission Student did not submit the assignment.	12 pts
Mechanics Grammar, spelling, syntax, etc.	6 to >4.0 pts Excellent A well written summary using proper grammar, no spelling errors, and met all format requirements.	4 to >3.0 pts Good Well-written with minimal grammar and spelling mistakes that did not distract from the ideas; and met all but	3 to >0.0 pts Average Summary was understood but multiple grammar/spelling mistakes detracted from clear communication of ideas; and met just one of the	0 pts No Submission Student did not submit the assignment.	6 pts

Assignment 4: The Mite and the Bee Disease Rubric

Criteria	Ratings		Pts
	one of the requirements in the instruction.	requirements in the instruction.	

Total Points: 30

Assignment 5How Chicken Conquered the American Dinner Plate

Introduction

The modern chicken, *Gallus gallus domesticus*, has come a long way from the jungles of Southeast Asia where it originated 8 to 10 Kya. Over the course of the past century, science, agriculture, and consumer preferences have managed to transform a bird that was once widely considered overly difficult to cook, expensive to buy, and even "unhealthy" into the most popular and cheapest animal protein in the world. The topic you need to address in your assignment is how did the chicken manage to conquer the American dinner plate.

Instructions

Write a summary, including any comments you have related to the topic discussed in the following article:

- How Chicken Conquered the American Dinner Plate

Writing Tips

The following links and documents will help you refine your paper content, grammar, and references:

- How to Write an Argumentative Essay
- Writing for Animal Science
- How to Correct Nine Common Writing Mistakes
- How to Use Punctuation Correctly
- MLA Documentation Style Guide
- University's Writing Studio

Guidelines and Submission

Writing Guidelines

- Your paper should be at least 1½ pages (≥ 750 words). Points will be deducted for shorter essays.
- Your paper should have an introductory paragraph, several body paragraphs, and a conclusion paragraph.

- Your paper should be written in the third and first-person.
- Your paper will be graded on the proper use of grammar, capitalization, punctuation, quality of writing, etc. See the grading rubric below for more details.

Formatting Guidelines

- Your paper should be single-spaced, with 12 point Times New Roman font, and 1-inch margins all around.
- Pages must be numbered in the top right-hand corner.
- Do not use any templates when writing your essay. Format it manually.
- Use the Modern Language Association (MLA) Documentation Style for citing references.
- Submit your paper as a Word file (.doc, .docx). Documents submitted in other programs will not be accepted.

Academic Integrity

- Use your own words when writing the essay. Do not copy from parts of the article or other materials on the web.
- Please read over your paper at least once before submitting it.
- All your online submissions will be checked through Turnitin.
- All cases of plagiarism will result in a failing grade for the course and a report to Student Conduct.

Your final essay is due by no later than 11:59 pm on April 2.

Assignment 5: How the Chicken Conquered the American Dinner Plate Rubric

Criteria	Ratings				Pts
Key Points	12 to >10.0 pts Excellent Accurately identify the major positive and negative forces that shaped the trajectory of chicken to most popular and cheapest protein and accurately describe their role. Major factors such as chickens' role in the life of slaves during Colonial Era, chicken as a symbol of wealth, the invention of artificial incubator, development of modern broiler industry, and the role of Government, are critically evaluate. The summary demonstrates excellent knowledge of article's key concepts.	10 to >7.0 pts Good Accurately identify and describe same but not all of the major positive and negative forces that shaped the trajectory of chicken to most popular and cheapest protein and accurately describe their role. The summary demonstrates adequate knowledge of the article's key concepts.	7 to >0.0 pts Average Some of the summary is accurate but not all major points were sufficiently elaborated. The summary demonstrates minimal knowledge of the article's key concepts.	0 pts No Submission Student did not submit the assignment.	12 pts

Assignment 5: How the Chicken Conquered the American Dinner Plate Rubric

Criteria	Ratings				Pts
Support	12 to >10.0 pts Excellent The summary is well structured with an introduction, paragraphs on key points, and with several details, and/or by providing supporting examples. A concluding remark describing what in your opinion were the major learning outcomes from this assignment are excellent.	10 to >7.0 pts Good The summary is well structured with an introduction, paragraphs for major points but details or examples are missing. A concluding remark describing what in your opinion were the major learning outcomes from this assignment needs improvement.	7 to >0.0 pts Average Identifies key points with minimal details, or by providing little to no examples.	0 pts No Submission Student did not submit the assignment.	12 pts
Mechanics Grammar, spelling, syntax, etc.	6 to >4.0 pts Excellent A thoughtful yet concise summary was provided using proper grammar and spelling; and met all requirements in the instruction.	4 to >3.0 pts Good Well-written with minimal grammar and spelling mistakes that did not distract from the ideas; and met most of the requirements in the instruction.	3 to >0.0 pts Average Summary has multiple grammar/spelling mistakes that detracted from clear communication of ideas; and did not meet all the requirements in the instruction.	0 pts No Submission Student did not submit the assignment.	6 pts

Total Points: 30

Cover Sheet: Request 17381

New Graduate Certificate in Fertilizer Science and Technology

Info

Process	Certificate|New|Grad|Revised
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Michael Sisk mjsisk@ufl.edu
Created	5/17/2022 9:54:50 AM
Updated	8/14/2022 11:08:08 AM
Description of request	The Department of Soil, Water, and Ecosystem Sciences in the College of Agricultural and Life Sciences is proposing a new graduate certificate in Fertilizer Science and Technology.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Soil and Water Science 60210000	Matthew Whiles		5/17/2022
AGR_6422C_Env_Crop_Nutrition_Agronomy_Approval_To_Use_In_Grad_Cert_Program_4_14_22.pdf HOS_6412C_Nutrition_Of_Horticultural_Crops_Horticultural_Sciences_Approval_To_Use_In_Grad_Cert_Program_4_					5/17/2022
College	Pending	CALS - College of Agricultural and Life Sciences			5/17/2022
No document changes					
OIPR					
No document changes					
Graduate Council					
No document changes					
Graduate School Notified					
No document changes					
University Curriculum Committee Notified					
No document changes					
Office of the Registrar					
No document changes					
OIPR Notified					
No document changes					
Academic Assessment Committee Notified					
No document changes					
Student Academic Support System					
No document changes					
College Notified					
No document changes					

Certificate|New for request 17381

Info

Request: New Graduate Certificate in Fertilizer Science and Technology
Description of request: The Department of Soil, Water, and Ecosystem Sciences in the College of Agricultural and Life Sciences is proposing a new graduate certificate in Fertilizer Science and Technology.
Submitter: Michael Sisk mjsisk@ufl.edu
Created: 8/14/2022 11:06:56 AM
Form version: 2

Responses

Certificate Name Fertilizer Science and Technology
Transcript Title Fertilizer Science and Technology
Credits 12
Level Graduate
CIP Code 60210000
Degree Program Soil and Water Sciences
Effective Term Spring
Effective Year 2023
Certificate Description Students of all agricultural production majors or occupations will gain knowledge in production agriculture, fertilizer sales, industry regulation, & research. The courses will provide information on a wide range of crop fertilizer use, interpretation of recommendations, fertilizer product development, & application methods from national, internationally known researchers, and industry experts.
Requirements for Admission Applicants must have earned a Bachelor's degree. Students wishing to enroll in one of these graduate certificate programs should have a bachelor's degree from an accredited college or university with a major in soil and water science or an equivalent degree in an allied field such as geology, natural resources, biology, ecology, hydrology, microbiology, environmental science, horticultural science, environmental engineering, agricultural engineering or agronomy. If your bachelor's degree is not in soil and water science or you don't have an equivalent degree in an allied field, you will generally have to complete pre-requisite courses at a local institution before applying for admission to the graduate certificate program. It is not necessary to be admitted to the Graduate School to earn a certificate, but students who later enroll in a graduate program may petition to transfer up to 15 UF graduate-level credit hours (grade B or better) to their graduate degree program.
Requirements for Completion The courses for the certificate are already approved and part of the UF curriculum:

A total of four courses, 3 core courses (9 credits), 1 elective course (3 credits) are required, see below for further:

Core (Required):

SWS 5115 – Environmental Nutrient Management - 3 Credits – offered every fall on-campus and spring even years online

SWS 6136 – Soil Nutrient Diagnostics for Ag Production - 3 Credits – offered every summer online

SWS 6117 - Fertilizer Technology, Production and Use – 3 Credits (New Course, organized by Morgan/Li/Mylavarapu) – offered spring odd years online

Elective (Choose One):

SWS 5234 Environmental Soil, Water, and Land Use - 3 Credits – offered every fall on-campus and online

SWS 6134 Soil Quality -3 Credits – offered fall even years online

AGR 6422C Environmental Crop Nutrition - 3 Credits - offered every Fall online

HOS 6412C Nutrition of Horticultural Crops - 3 Credits – offered every Spring online

To qualify for a certificate, students must have an overall GPA of 3.0 or better for the entire program. A grade of C in one course only will be accepted, providing the overall 3.0 average is maintained. No grade below C will be accepted.

Rationale and Place in Curriculum Students of agricultural production systems typically become well versed in crop nutrient requirements, but often do not appreciate or have experience as to how to develop fertilizer programs. Those students receiving degrees in horticulture or agronomy may have limited knowledge on fertilizer nutrient interactions with soil and how they affect availability of those nutrients. The lack of knowledge will be improved by learning fundamentals of soil science, interpretation of fertilizer recommendations, the science of developing fertilizers, and successful application of fertilizer. Emphasis is on how the physical, chemical, and biological components of soils interact with fertilizer nutrients to influence recommendations interpretation of soil test results, and selection of fertilizers are combined to develop a successful fertilizer program for efficient nutrient use to limit environmental impact of agriculture.
Student Learning Outcomes Students earning the certificate will be able to:

1. Determine the environmental impact of decisions made in application of specific fertilizer materials and application methods.

2. Apply laboratory analysis of plant tissue and soil samples to interpret fertilizer recommendations based on these analyses to develop effective fertilizer management plans.

3. Discuss different types of fertilizers produced and specific precautions in the use of these crop nutrient sources.

4. Identify production and environmental advantages and disadvantages of selected fertilizer sources to improve plant nutrient availability and crop plant uptake efficiency.

5. Develop and apply knowledge on fertilizer rate calculations and economics of improved nutrient use efficiency.

Sisk,Michael J

From: Sisk,Michael J
Sent: Thursday, April 14, 2022 3:45 PM
To: Morgan,Kelly T; Kenworthy, Kevin E; Gunter, Christopher
Cc: Butler,Deborah A; Whiles,Matthew R
Subject: RE: Fertilizer Science and Technology Graduate Certificate

Good evening, also, anticipating some on-campus graduate students to enroll, those students won't generate income into self-funded account, b/c they have to go in on-book sections of courses b/c most of them are on assistantships and assistantships don't cover registration self-funded/off-book courses. Mike S.

From: Sisk,Michael J
Sent: Thursday, April 14, 2022 3:41 PM
To: Morgan,Kelly T <conserv@ufl.edu>; Kenworthy, Kevin E <kenworth@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>
Cc: Butler,Deborah A <dab@ufl.edu>; Whiles,Matthew R <mwhiles@ufl.edu>
Subject: RE: Fertilizer Science and Technology Graduate Certificate

Re: AGR 6422C – Environmental Crop Nutrition

Good afternoon, great, thanks for confirming use of AGR 6422C as part of this graduate certificate program, we do anticipate having EEP and State Agency Employees enrolled in this graduate certificate program and those students don't generate any income, other than distance learning fee if applied. However, we are also will be working on a self-funded proposal, for those students (not EEP or State Agency Employees) who enroll in graduate certificate program, once we get everything approved (courses, graduate certificate, and self-funded proposal) etc..we can work with Lorraine White to set-up self-funded class number/section number of AGR 6422C – Environmental Crop Nutrition and these students will generate income into the self-funded graduate certificate account. Thus, I wanted to go ahead and share our payment to faculty for self-funded enrollment in their respective course, see below. Have a good night. Mike S.

****

Base Count Courses: Payment will be made at $200.00 per credit hour multiplied by per enrolled student, with a maximum payment of $6,000 per faculty member.
In the event of multiple instructors for one off-book course, the amount is divided based on the percentage assigned to each faculty who taught the course.

Head Count Courses: Payment will be made at $50.00 per credit hour multiplied by per enrolled student. There is no maximum payment for head count courses.

Thanks, Debbie

Deborah A. Butler| Administrative Specialist II | **Soil and Water Sciences Department** | University of Florida / IFAS
2181 McCarty A |P.O. Box 110290, Gainesville, FL 32611 | 352-294-3667 | Fax: 352-392-3399 | dab@ufl.edu

From: Morgan,Kelly T <conserv@ufl.edu>
Sent: Thursday, April 14, 2022 3:18 PM
To: Kenworthy, Kevin E <kenworth@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>; Sisk,Michael J <mjsisk@ufl.edu>
Subject: Re: Advise on new certificate program

Great, thank you!

Kelly

Sent via the Samsung Galaxy A32 5G, an AT&T 5G smartphone
Get Outlook for Android

From: Kenworthy, Kevin E <kenworth@ufl.edu>
Sent: Thursday, April 14, 2022 3:05:42 PM
To: Morgan,Kelly T <conserv@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>
Subject: RE: Advise on new certificate program

Hi Kelly,
Looks good to me. Thank you for including an AGR course.

Kevin

Kevin Kenworthy, Ph.D.
Professor and Interim Chair
University of Florida
Agronomy Department
PO Box 110965
2005 SW 23rd St
Gainesville, FL 32611

Cell: 352-262-8719
Fax: 352-392-6110
Email: kenworth@ufl.edu

From: Morgan,Kelly T <conserv@ufl.edu>
Sent: Thursday, April 14, 2022 9:48 AM
To: Kenworthy, Kevin E <kenworth@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>
Subject: Advise on new certificate program

Kevin and Chris,

I am in the process of developing a certificate program on Fertilizer Science and Technology. Dr. Angle and I are putting this together and rushing it through approvals. Attached is an outline of courses we would like to incorporate into the certificate program. Please look it over and let me know if you agree to the use of these courses.

Kelly T. Morgan, Ph.D.
Professor
University of Florida
Soil and Water Sciences
(863) 289-1910 cell

Certificate|New|Grad|Revised

Form Name: **Certificate New**

Certificate Name Required

Fertilizer Science and Technology

Transcript Title Required

Fertilizer Science and Technology

Credits Required

12

Level Required

Graduate

CIP Code Required

60210000

Degree Program Required

Soil and Water Sciences

Effective Term Required

Spring

Effective Year Required

2023

Certificate Description Required

Students of all agricultural production majors or occupations will gain knowledge in production agriculture, fertilizer sales, industry regulation, & research. The courses will provide information on a wide range of crop fertilizer use, interpretation of recommendations, fertilizer product development, & application methods from national, internationally known researchers, and industry experts.

Requirements for Admission Required

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

Requirements for Completion Required

The courses for the certificate are already approved and part of the UF curriculum:

A total of four courses, 3 core courses (9 credits), 1 elective course (3 credits) are required, see below for further:

Core (Required):

SWS 5115 – Environmental Nutrient Management - 3 Credits – offered every fall on-campus and spring even years online

SWS 6136 – Soil Nutrient Diagnostics for Ag Production - 3 Credits – offered every summer online

SWS 6117 - Fertilizer Technology, Production and Use – 3 Credits (New Course, organized by Morgan/Li/Mylavarapu) – offered spring odd years online

Deleted: 6XXX

Elective (Choose One):

SWS 5234 Environmental Soil, Water, and Land Use - 3 Credits – offered every fall on-campus and online

SWS 6134 Soil Quality -3 Credits – offered fall even years online

AGR 6422C Environmental Crop Nutrition - 3 Credits - offered every Fall online

HOS 6412C Nutrition of Horticultural Crops - 3 Credits – offered every Spring online

To qualify for a certificate, students must have an overall GPA of 3.0 or better for the entire program. A grade of C in one course only will be accepted, providing the overall 3.0 average is maintained. No grade below C will be accepted.

Rationale and Place in Curriculum Required

Students of agricultural production systems typically become well versed in crop nutrient requirements, but often do not appreciate or have experience as to how to develop fertilizer programs. Those students receiving degrees in horticulture or agronomy may have limited knowledge on fertilizer nutrient interactions with soil and how they affect availability of those nutrients. The lack of knowledge will be improved by learning fundamentals of soil science, interpretation of fertilizer recommendations, the science of developing fertilizers, and successful application of fertilizer. Emphasis is on how the physical, chemical, and biological components of soils interact with fertilizer nutrients to influence recommendations interpretation of soil test results, and selection of fertilizers are combined to develop a successful fertilizer program for efficient nutrient use to limit environmental impact of agriculture.

Student Learning Outcomes (SLOs):

Students earning the certificate will be able to:

1. Determine the environmental impact of decisions made in application of specific fertilizer materials and application methods.

2. Apply laboratory analysis of plant tissue and soil samples to interpret fertilizer recommendations based on these analyses to develop effective fertilizer management plans.

3. Discuss different types of fertilizers produced and specific precautions in the use of these crop nutrient sources.

4. Identify production and environmental advantages and disadvantages of selected fertilizer sources to improve plant nutrient availability and crop plant uptake efficiency.

5. Develop and apply knowledge on fertilizer rate calculations and economics of improved nutrient use efficiency.

Assessments:

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

Sisk,Michael J

From: Sisk,Michael J
Sent: Thursday, April 14, 2022 4:08 PM
To: Morgan,Kelly T; Gunter, Christopher
Cc: Butler,Deborah A; Whiles,Matthew R
Subject: Re: Fertilizer Science and Technology Graduate Certificate
Attachments: Fertilizer Science and Technology Graduate Certificate Template 4-14-22.docx

Re: HOS 6412 – Nutrition of Horticultural Crops

Good afternoon, great, thanks for confirming use of HOS 6412 as part of this graduate certificate program, we do anticipate having some on-campus graduate students enrolled in this graduate certificate program, those students won't generate income into self-funded account, other than distance learning fee if applied, b/c they have to go in on-book sections of courses b/c most of them are on assistantships and assistantships don't cover registration self-funded/off-book. We also anticipate EEP and State Agency Employees being enrolled in this graduate certificate program and those students don't generate any income, other than distance learning fee if applied. However, we are also will be working on a self-funded proposal, for those students (not EEP or State Agency Employees) who enroll in graduate certificate program, once we get everything approved (courses, graduate certificate, and self-funded proposal) etc..we can work with Curtis Smyder to set-up self-funded class number/section number of HOS 6412 – Nutrition of Horticultural Crops and these students will generate income into the self-funded graduate certificate account. Thus, I wanted to go ahead and share our payment to faculty for self-funded enrollment in their respective course, see below. Have a good night. Mike S.

****

Base Count Courses: Payment will be made at $200.00 per credit hour multiplied by per enrolled student, with a maximum payment of $6,000 per faculty member.
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Thanks, Debbie

Deborah A. Butler| Administrative Specialist II | **Soil and Water Sciences Department** | University of Florida / IFAS
2181 McCarty A |P.O. Box 110290, Gainesville, FL 32611 | 352-294-3667 | Fax: 352-392-3399 | dab@ufl.edu

From: Morgan,Kelly T <conserv@ufl.edu>
Sent: Thursday, April 14, 2022 3:58 PM
To: Gunter, Christopher <cc.gunter@ufl.edu>; Kenworthy, Kevin E <kenworth@ufl.edu>; Sisk,Michael J <mjsisk@ufl.edu>
Subject: Re: Advise on new certificate program

Great, thank you, Chris.

Sent via the Samsung Galaxy A32 5G, an AT&T 5G smartphone
Get Outlook for Android

From: Gunter, Christopher <cc.gunter@ufl.edu>
Sent: Thursday, April 14, 2022 3:56:32 PM
To: Morgan,Kelly T <conserv@ufl.edu>; Kenworthy, Kevin E <kenworth@ufl.edu>; Sisk,Michael J <mjsisk@ufl.edu>
Subject: Re: Advise on new certificate program

Looks like I answered in another email thread, but this looks very good to me.

Thank you Kelly,
Chris

--

Chris Gunter

Professor and Chair

UF/IFAS Horticultural Sciences Department

cc.gunter@ufl.edu

O: 352-273-4766

F: 352-392-6479

UF IFAS UNIVERSITY of FLORIDA

AGRONOMY DEPARTMENT

From: Morgan,Kelly T <conserv@ufl.edu>
Sent: Thursday, April 14, 2022 9:48 AM
To: Kenworthy, Kevin E <kenworth@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>
Subject: Advise on new certificate program

Kevin and Chris,

I am in the process of developing a certificate program on Fertilizer Science and Technology. Dr. Angle and I are putting this together and rushing it through approvals. Attached is an outline of courses we would like to incorporate into the certificate program. Please look it over and let me know if you agree to the use of these courses.

Kelly T. Morgan, Ph.D.
Professor
University of Florida
Soil and Water Sciences
(863) 289-1910 cell

Sisk,Michael J

From: Gunter, Christopher
Sent: Friday, August 12, 2022 8:52 PM
To: Sisk,Michael J; Morgan,Kelly T
Cc: Butler,Deborah A; Whiles,Matthew R
Subject: Re: Fertilizer Science and Technology Graduate Certificate

Michael,

I have reached out Gerardo and it looks like the course should have no trouble accepting additional students as proposed.

Chris

--

Chris Gunter
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F: 352-392-6479

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Chris

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AGRONOMY
DEPARTMENT

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Kelly T. Morgan, Ph.D.
Professor
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(863) 289-1910 cell

Sisk,Michael J

From: Hammond, William M
Sent: Saturday, August 13, 2022 10:23 PM
To: Sisk,Michael J; Kakani,Vijaya Gopal
Cc: Morgan,Kelly T; Inglett,Patrick W; White, Lorraine M.
Subject: Re: Question - Fertilizer Science and Technology Graduate Certificate - AGR 6422C – Environmental Crop Nutrition

Hi Mike and Gopal,

I think there is room for another section in my AGR6422C course, as outlined in the e-mail below for self-funded students. Lorraine is cc'd to help coordinate that.

Thanks,

Bill

From: Sisk,Michael J <mjsisk@ufl.edu>
Sent: Saturday, August 13, 2022 7:25:13 AM
To: Kakani,Vijaya Gopal <vgkakani@ufl.edu>
Cc: Hammond, William M <williamhammond@ufl.edu>; Morgan,Kelly T <conserv@ufl.edu>; Inglett,Patrick W <pinglett@ufl.edu>
Subject: Question - Fertilizer Science and Technology Graduate Certificate - AGR 6422C – Environmental Crop Nutrition

> Dr. Gopal Kakani, good morning, a question was asked by the CALS Curriculum Committee during their preliminary review of the proposal for the Fertilizer Science and Technology Graduate Certificate Program. They asked us to check with your academic unit to ensure that you all will have capacity to accept additional students into AGR 6422C – Environmental Crop Nutrition. I believe Dr. William Hammond is the instructor of this course, so I also looped into this e-mail. Thanks in advance for your time. Mike S.
>
> ---
>
> **From:** Sisk,Michael J
> **Sent:** Thursday, April 14, 2022 3:41 PM
> **To:** Morgan,Kelly T <conserv@ufl.edu>; Kenworthy, Kevin E <kenworth@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>
> **Cc:** Butler,Deborah A <dab@ufl.edu>; Whiles,Matthew R <mwhiles@ufl.edu>
> **Subject:** RE: Fertilizer Science and Technology Graduate Certificate
>
> Re: AGR 6422C – Environmental Crop Nutrition
>
> Good afternoon, great, thanks for confirming use of AGR 6422C as part of this graduate certificate program, we do anticipate having EEP and State Agency Employees enrolled in this graduate certificate program and those students don't generate any income, other than distance learning fee if applied. However, we are also will be working on a self-funded proposal, for those students (not EEP or State Agency Employees) who enroll in graduate

certificate program, once we get everything approved (courses, graduate certificate, and self-funded proposal) etc..we can work with Lorraine White to set-up self-funded class number/section number of AGR 6422C – Environmental Crop Nutrition and these students will generate income into the self-funded graduate certificate account. Thus, I wanted to go ahead and share our payment to faculty for self-funded enrollment in their respective course, see below. Have a good night. Mike S.

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From: Morgan,Kelly T <conserv@ufl.edu>
Sent: Thursday, April 14, 2022 3:18 PM
To: Kenworthy, Kevin E <kenworth@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>; Sisk,Michael J <mjsisk@ufl.edu>
Subject: Re: Advise on new certificate program

Great, thank you!

Kelly

Sent via the Samsung Galaxy A32 5G, an AT&T 5G smartphone
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From: Kenworthy, Kevin E <kenworth@ufl.edu>
Sent: Thursday, April 14, 2022 3:05:42 PM
To: Morgan,Kelly T <conserv@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>
Subject: RE: Advise on new certificate program

Hi Kelly,
Looks good to me. Thank you for including an AGR course.

Kevin

Kevin Kenworthy, Ph.D.
Professor and Interim Chair
University of Florida
Agronomy Department
PO Box 110965
2005 SW 23rd St
Gainesville, FL 32611

Cell: 352-262-8719
Fax: 352-392-6110
Email: kenworth@ufl.edu

AGRONOMY DEPARTMENT

From: Morgan,Kelly T <conserv@ufl.edu>
Sent: Thursday, April 14, 2022 9:48 AM
To: Kenworthy, Kevin E <kenworth@ufl.edu>; Gunter, Christopher <cc.gunter@ufl.edu>
Subject: Advise on new certificate program

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