CALS Curriculum Committee Meeting
September 23, 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 August 19, 2022 meeting

Dr. Brendemuhl: Update from UCC

Graduate New Course Proposals

1. MCB 6XXX – Post Translational Modifications of Proteins in Microbiology (req. #17085)

2. PCB 6XXX – Human Genomics (req. #17077)

Graduate Course Change Proposal

3. ENY 5212 – Insects and Wildlife (req. #17613)

Curriculum

4. Proposed Ph.D. Concentration in Microbial and Cellular Data Science (req. #17587)

CALS Curriculum Committee Meeting
August 19, 2022
Submitted by James Fant

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

Visitors: Miguel Acevedo, Toni Oltenacu, Jennifer Vogel

Call to Order: The College of Agricultural and Life Sciences Curriculum Committee met in McCarty Hall D Rm. 1044/1045 on August 19, 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. Sharp to approve the minutes from the April 22, 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 05/10/22 UCC meeting. A. New courses – WIS 4XXX – Large Mammal Ecology and Management and WIS 4945L – Field Wildlife Techniques. B. Three Graduate courses were also approved – FAS 6306C, FYC 6105 and FYC 6936. C. Changes to Graduate courses – AEC 5541, FAS 6337C and HOS 6991. D. Closure of the Graduate Certificate in FYC – Personal Family Financial Planning. Other items noted were a special UCC meeting on 7/26/22 to address the new BOG requirement concerning "Limited Access Programs" which will now be called "Specialized Admissions Programs". Fortunately, CALS will no longer have any of these programs. At this meeting there were changes to the Equine and Food animal specializations to correct an error. Discussions continue related to HB 7 and SB 7744 legislature bills.

Graduate New Course Proposals

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

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

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

A motion was made by Dr. Sharp to recycle this item back to the department for an additional document and resubmission. The motion was approved. An outside consult from Agronomy must be included with the submission.

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

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 a change required. The motion was approved. Add a "C" lab code to the proposed course number to indicate a combination lecture/lab course.

Graduate Course Change Proposal

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

Please be sure to make all requested changes to both the UCC form and syllabus if necessary. A motion was made by Dr. Coenen to approve this item with changes required. The motion was approved. Make sure the course description on the UCC form matches the one in the syllabus. Remove the Covid statement from the syllabus. There was concern over the objectives not matching between the two courses. The lecture/lab course has one less objective than the proposed lecture course. This seems like it should be the other way around. The grading section for the lecture/lab course mentions graduate student practical scores counting 15%. This is not mentioned in the syllabus for FAS5203.

Undergraduate Course Change Proposal

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

Please be sure to make all requested changes to both the UCC form and syllabus if necessary. A motion was made by Dr. Scheffler to approve this item with a change required. The motion was approved. Remove the old version referring to Question Sets. Add new syllabus and make sure all information on the UCC form matches the syllabus.

Certificate

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

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

The meeting was adjourned at **2:07** p.m.

Cover Sheet: Request 17085

PTMs in Microbiology

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Mariola Edelmann medelmann@ufl.edu
Created	2/14/2022 10:52:58 AM
Updated	8/16/2022 3:30:09 PM
Description of request	Please consider this request for a permanent course number.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Microbiology and Cell Science 60100000	Eric Triplett		8/16/2022
PTM_syllabus_2020.docx					2/14/2022
College	Pending	CALS - College of Agricultural and Life Sciences			8/16/2022
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 17085

Info

Request: PTMs in Microbiology
Description of request: Please consider this request for a permanent course number.
Submitter: Mariola Edelmann medelmann@ufl.edu
Created: 2/14/2022 10:40:57 AM
Form version: 1

Responses

Recommended Prefix MCB
Course Level 6

Course Number XXX
Lab Code None
Category of Instruction Advanced
Course Title Post Translational Modifications of Proteins in Microbiology
Transcript Title PTMs in microbiology
Degree Type Graduate

Delivery Method(s) Online
Co-Listing No

Effective Term Summer
Effective Year 2022
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 2

S/U Only? No
Contact Type Regularly Scheduled
Course Type Lecture
Weekly Contact Hours 2
Course Description Students will learn about post-translational modifications (PTMs) in microbiology. Topics will include: i) the different types, functions, and mechanisms of PTM, ii) the methods used to identify PTMs, and iii) the impact PTMs have on cell biology, human health, and biotechnology.
Prerequisites CHM 2211 (C) & (MCB 3020 or 3023) (C) & (MCB 3020L or 3023L) (C).
Co-requisites none
Rationale and Placement in Curriculum There is no other course that provides students with information on Post-translational modifications in microbiology and engages them in creative writing, such as proposal writing, review article writing and using online resources to mine data on protein modifications.
Course Objectives • To become knowledgeable on the molecular and cellular biology of post-translational modifications (PTMs)
• To gain the concepts and skills needed to understand and critically evaluate research articles that address PTMs
• To creatively apply knowledge of PTMs to current problems (e.g. controlling pathogenesis, sequestering carbon dioxide, engineering microbial biocatalysts in the production of renewable fuels and chemicals)
• To improve teamwork skills
• To utilize knowledge and skills in reviewing peer's projects
• To learn how to write a research proposal
Course Textbook(s) and/or Other Assigned Reading No textbook is required.
Weekly Schedule of Topics Weekly Course Schedule
Week 1 (5/11 – 5/15)
• Introduction to course and syllabus

- Example of ideal group project – presented by faculty instructor
- Chat meeting with an instructor to answer any questions (week of 05/11, see announcements)
- Quiz 1: what do I know about proteins? (5 points for participation, not graded, 05/15)

Week 2 (5/18 – 5/22)
- Quiz 2: syllabus content and example of ideal group project (10 points, 05/22)
- Overview of the different types of post-translational modifications found in bacteria and archaea – study the content of the module for Quiz 3 in week 3
- Assignment of students to group projects (based on student ability assessed by Quiz 1)
- Students work on group projects

Week 3 (5/25 – 5/29)
- Quiz 3: Overview of the different types of post-translational modifications found in bacteria and archaea (100 points, deadline – 05/29)
- Students work on group projects
- Group project – division of work and 1-page draft of the proposed document indicating division of work (25 points, deadline – 05/29)

Week 4 (6/01- 6/05)
- Students work on group projects
- Group project – at least five references per student (individual submissions please) related to group project (20 points, deadline – 06/05)

Week 5 (6/08- 6/12)
- Students work on group projects

Week 6 (6/15- 6/19)
- Group project – students work on written report, written report due at end of week (deadline - 06/19)
- Identify subject for individual project due in week 9 (no submission needed, emails encouraged)

Week 7 (6/22- 7/03)
- Summer break – no classes

Week 8 (7/06- 7/10)
- Advice on writing individual project
- Students work on individual project

Week 9 (7/13 - 7/17)
- Individual project – research proposal due at end of week (deadline - 07/17)

Week 10 (7/20- 7/24)
- scientific feedback from instructors
- selection of projects for online publication
- assignment of papers for peer-evaluation

Week 11-12 (7/27- 8/07)
- grading
- scientific peer evaluation of projects (deadline - 07/24)
- students work on modification of written report/proposals based on recommendations

Week 13 (8/10- 8/14)
- student modification of written report/proposals based on instructor recommendations (resubmit by 8/14, 25 extra credit points)

Grading Scheme Final grades will be based on the following performance standard:
95 -100 % = A
90 - 94.9 % = A-
87 - 89.9 % = B+
84 - 86.9 % = B

80 - 83.9 % = B-
77 - 79.9 % = C+
74 - 76.9 % = C
70 - 73.9 % = C-
60 - 69.9 % = D
Less than 60.0 % = E

Instructor(s) Mariola J Edelmann
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.

_MJE___ 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/.

_MJE___ 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.

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

MJE ____ 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.

_MJE___ 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.

_MJE___ 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.

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

MJE____ 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.

_MJE___ 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/.

_MJE___ 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.

_MJE___ 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.

_MJE___ 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.

_MJE___ 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)

Post-translational Modifications in Microbiology

MCB 6937

Summer C 2020

Rationale for course

The overall goal of this class is to enhance student learning in the field of microbiology and to network students with professionals within the scientific community. To this end, the course will take an innovative approach to student learning through interactive group projects and proposal writing. The students will prepare projects that will undergo a scientific review by their class peers and faculty instructors. Projects that pass the scientific review process will be made publicly available through Canvas with the

ultimate-goal to provide a searchable web portal of post-translational modifications in microbiology. While proteomics and other systems biology approaches have facilitated the identification of a wide-variety of novel post-translational modifications, high-throughput data related to these modifications are not well synthesized and readily available to the scientific community (particularly data related to bacteria and archaea). This course will therefore serve as a resource to the scientific community. Students in the group will benefit from being listed as co-authors on the projects (with student permission). In addition to synthesizing published research findings, the group projects will require students to think 'outside the box'. One unique aspect of this course is the opportunity students have to learn the basics on writing their own research proposals. Students will identify gaps of knowledge requiring further investigation, elaborate their own research hypotheses and design experimental approaches to rigorously examine them. The research proposals will be 'scored' based on their significance, innovation, impact and scientific approach and rigor. We expect the student to take advantage of post-translational modifications to improve human health and the food, agricultural, and natural resources. Overall, this course is designed to provide an opportunity for students to not only learn about how post-translational modifications work but also start learning on writing proposals as a method to better understand a specific scientific field, and ultimately fund their own ideas and projects in the future. In this way, students will learn how they can better achieve their professional goals and, subsequently, serve our community.

Instructor

Mariola Edelmann, Ph.D.

Contact information: medelmann@ufl.edu, Department of Microbiology and Cell Science, office location Microbiology and Cell Science Bldg 981 Museum Rd., **Rm 1048**, office hours by appointment.

Preferred method for communication with the instructor regarding the course is Canvas message or e-mail (medelmann@ufl.edu)

Please resolve technical issues by contacting the UF helpdesk (e.g. http://helpdesk.ufl.edu; (352) 392-HELP (4357); *helpdesk*@ufl.edu · HUB 132).

Delivery Method/Meeting time

ALL ASSIGNMENTS, QUESTION /ANSWER SESSIONS AND OTHER MATERIALS WILL BE AVAILABLE ONLINE ASYNCHRONOUSLY. Class discussion/review sessions will be held in Canvas through 'conferences' for off-campus students to ask questions and interact with their instructor.

Credits - 2

Course Description

MCB 6937. Post-translational Modifications in Microbiology. Prereq: CHM 2211 (C) & (MCB 3020 or 3023) (C) & (MCB 3020L or 3023L) (C). Students will learn about post-translational modifications (PTMs) in microbiology. Topics will include: i) the different types, functions, and mechanisms of PTM, ii) the methods used to identify PTMs, and iii) the impact PTMs have on cell biology, human health, and biotechnology.

Course Objectives/Goals/Learning Outcomes

- To ~~become knowledgeable on~~discuss the molecular and cellular biology of post-translational modifications (PTMs)
- To ~~gain the concepts and skills needed to understand and~~ critically evaluate and interpret research articles that address PTMs
- To assess the role of~~creatively apply knowledge of~~ PTMs ~~to~~ in real-like applications such as ~~current problems (*e.g.*~~ controlling pathogenesis, ~~sequestering carbon dioxide,~~ engineering microbial biocatalysts in the production of renewable fuels and chemicals, or agricultural applications~~)~~
- To ~~improve~~ use teamwork skills in completing a successful group project
- To practice acquired~~utilize knowledge and~~ skills in reviewing and scoring peer's projects
- To ~~learn how to write~~design a central hypothesis related to the PTM, and compose a research proposal

Course Material and Assignments

All required course materials will be available through the Canvas e-Learning site (http://elearning.ufl.edu/). Instructions for and submission of assignments will also be through Canvas.

Assignments/Quizzes	Deadline	Points
Quiz 1	5/15	5 pts
Quiz 2	5/22	10 pts
Quiz 3	5/29	100 pts
Group project – division of work and 1-page draft of proposed project	6/05	25 pts
Group project - preliminary list of references (5 references per student)	6/06	20 pts
Group project - final written report	6/19	100 pts
Individual project – research proposal	7/17	100 pts
Scientific peer evaluation	7/24	100 pts

	Total:	460 pts
Extra credit (optional – resubmission of projects)	8/14	25 pts

Written Group Project (100 points for final report):

Students will be assigned to groups by the instructors and tasked with gathering and synthesizing information for a specific type of post-translational modification from the list below (see *List of post-translational modifications for group projects*). ~~The students~~ Students should focus on the post-translational modifications that occur on **proteins** (and not DNA or lipids) in **ARCHAEA** or **BACTERIA**. Alternatively, if assigned ubiquitin modifications in Eukaryota, the focus of the project should be on the post-translational modifications that occur on proteins that are catalyzed by enzymes from bacterial pathogens.

List of possible post-translational modifications for group projects

1. Phosphorylation
    a. Arginine
    b. Serine/Threonine and Tyrosine
    c. Histidine and Aspartic Acid
2. ADP-ribosylation
3. Methylation
4. Glycosylation
5. Acetylation (Nα- and Nε-acetylation)
6. Lipidation
7. S-Nitrosylation and S-Sulfhydration
8. S-Glutathionylation
9. Methionine oxidation – as a reversible process
10. Uridylylation
11. Adenylylation
12. Unique modifications of translation elongation factors (including attachment of ethanolamine phosphoglycerol, diphthamide and hypusine)
13. Ubiquitin-like modifications (sampylation, pupylation)
14. Ubiquitin modification in Eukaryota catalyzed by bacterial (pathogen) enzymes
15. Targeted proteolysis (select a regulatory protease – *e.g.*, Clp, Lon, Proteasome)
16. Specific polypeptide cleavage (*e.g.*, removal of signal peptides)

~~1. Phosphorylation~~
~~a. Arginine~~
~~b. Serine/Threonine and Tyrosine~~
~~c. Histidine and Aspartic Acid~~
~~2. ADP-ribosylation~~

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3. Methylation
4. Glycosylation
5. Acetylation (Nα- and Nε-acetylation)
6. Lipidation
7. S-Nitrosylation and S-Sulfhydration
8. S-Glutathionylation
9. Methionine oxidation – as a reversible process
10. Uridylylation
11. Adenylylation
12. Unique modifications of translation elongation factors (including attachment of ethanolamine phosphoglycerol, diphthamide and hypusine)
13. Ubiquitin-like modifications (sampylation, pupylation)
14. Ubiquitin modification in Eukaryota catalyzed by bacterial (pathogen) enzymes
15. Targeted proteolysis (select a regulatory protease – *e.g.*, Clp, Lon, Proteasome)
16. Specific polypeptide cleavage (*e.g.*, removal of signal peptides)

The students will gather, synthesize, and present information on the post-translational modification in format as outlined below.

Templates (in Excel and MS wordWord) and a PowerPoint lecture are posted in the Modules section of Canvas that provide instructions to guide students on how to properly organize and complete the written portion of the group project. The overall aim of the written project is to assist the student in learning how to properly gather, synthesize, and write a well-rounded summary that provides the reader with a complete understanding of a specific type of post-translational modification in microbiology. The written project includes proposal (XI), to which all students should contribute.

The templates (posted in Canvas and based on the ***"Required aspects of the post-translational modification paper"*** listed below) are designed to aid the student in developing a proper outline that will help guide the writing of a paper that is of high scientific quality. The summary paper should include 15 to 20 pages of material. A title page and appropriate figures/tables are required. Three Supplementary Tables (1-3) are required (see list below) and should include the modified protein name, modified protein Accession accession Numbernumber, modified residue (including amino acid position if known), enzymes which catalyze this modification and appropriate reference(s) (according to the Excel template posted in the Modules section of Canvas). References are required and should be included on additional pages (no page limit). Font requirements are the following: 1-inch margins, font size must be 11 points (smaller text is acceptable in figures, graphs, diagrams, and charts). The paper must be uploaded through Canvas e-learningLearning. This paper will be scanned by TurnItIn for plagiarism. Please see the final page of the syllabus for details on the **UF policy regarding plagiarism**. Contact us if you have doubts as to what constitutes plagiarism. Each student will be **graded individually** (not as a single group grade) for the contributions they have made to the group project. **Each student must contribute to at least one of the**

Supplemental Tables listed below. Students are required to list their name on the portions of the written project (including the ~~supplemental~~ Supplemental Tables) ~~for~~ to which they have contributed.

Required aspects of the post-translational modification paper:

Title

Student Name, Department of Microbiology and Cell Science, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, Florida, USA.

I. Definition.

II. Detailed chemistry.

III. Overview of the attachment and removal of the post-translational modification from target proteins.

IV. Details on protein factors of the post-translational modification including enzyme(s) catalyzing the addition and removal of the post-translational modification (summarized below and in Supplementary Table 1).

V. General distribution/function of protein modification among the three domains of life (for details on the distribution of protein homologs associated with the post-translational modification pathway see Supplementary Table 2).

VI. Detailed list of known protein targets (and affected residues). A detailed list of known protein targets is compiled from references x, y and x and summarized in Supplementary Table 3.

VII. Biological function of post-translational modification.

VIII. Methods used to detect and map the site(s) of post-translational modification.

IX. Insight into how this post-translational modification may benefit human health and and/or the food, agricultural, and natural resources.

References

Tables. (be sure to state if table is original or include citation and a statement that the table is from a publication)

Figures. (be sure to state if figure is original or include citation and a statement that the figure is from a publication)

Supplementary Table 1. Protein factors of the assigned post-translational modification (PTM) pathway. Note that the protein factors are defined as the enzymes that add and remove the post-translational modifications and the modification if it is a protein modifier such as ubiquitin, SAMP, Pup, etc.

Supplementary Table 2. Phylogenetic distribution of the protein factors of the assigned protein modification system.

Supplementary Table 3. Known protein targets (and affected amino acid residues) of the assigned post-translational modification pathway.

Be sure to include page numbers at the bottom of each page of your project paper

Outline of research proposal (100 points):

Each student will write a research proposal based on the chosen modification (most likely the one which was a subject of his/her group project) and use the published papers as the basis for a novel grant/research proposal. Each proposal will be **2-3 pages in length** (plus additional pages for references) and consist of the following **sections**:

A. Introduction
A brief review of the relevant literature should be presented (can be synthesis of the written group project but individual input is required).

B. Background and Significance
In this section, the relevant preliminary data from the chosen papers will be described. The major outstanding questions that arise from this work and that will form the basis for the proposed studies should then be stated. The rationale for further studies should be described (i.e. what is the importance of answering the stated questions, including the clinical significance? What new understanding will be gained? How will this impact science and/or medicine?).

C. Central ~~hypothesis~~Hypothesis
A succinct hypothesis should be formulated and stated which is based on the evidence presented in the Background and Significance section. For example:

Based on the evidence host-mediated Asparagine (Asn) hydroxylation of Legionella pneumophila effectors by host asparagine hydroxylase, FIH, is required for their functions in biogenesis of the Legionella-containing vacuole (LCV) and intracellular proliferation of Legionella pneumophila.

D. Specific Aims

You should propose **2-3 specific aims** which each represent a series of experiments which will test aspects of your central hypothesis. For example, possible specific aims arising from the hypothesis stated above:

Aim 1. *Asn hydroxylation of AnkH effector and its role in the intracellular infection*
Aim 2. *Asn hydroxylation of AnkB effector and its role in the intracellular infection*
Aim 3. *Asn hydroxylation of other Legionella pneumophila effectors and its role in biogenesis of the Legionella-containing vacuole*

E. Research Design and Methods
Here you will describe the actual experiments that you will perform in each aim. You will be describing ~~in a logical way~~ experiments you plan to address in each aim in a logical way. You may need to add alternative approaches (experiments) in case the first set of proposed experiments fail. This section should be broken into three separate sections, one for each aim, that answer the questions "~~. What~~ what will define the success or failure of ~~your~~ the proposal" and "what metrics need to be considered to determine the significance of ~~your~~ the observations."

Scientific Peer Evaluation of written project (100 points):
Each student will provide an independent scientific review (500-700 words) of one of the assigned projects that were written by their peers. The reviews should include: i) a written summary about each modification, ii) a critical evaluation of the strengths/weaknesses of the written project with appropriate scientific rationale (focus on each of the scientific criteria listed below – do not simply comment on the presentation style), and iii) scores (1 highest – 9 lowest) for each of the following criteria:

- Significance
- Impact
- Innovation
- Approach and scientific rigor

Examples of literature to get you started

Overview
- (Cain et al., 2013)
- (Eichler and Maupin-Furlow, 2013)
- (Bastos et al., 2016)

Phosphorylation
- (Esser et al., 2016)
- (Trentini et al., 2016)

Ubiquitin-like modifications (sampylation, pupylation)
- (Maupin-Furlow, 2014)

Acetylation (Nα- and Nε-acetylation)
- Lysine (Ouidir et al., 2016)
- N-terminal modifications (Giglione et al., 2015)

Methylation
- Lysine (Lanouette et al., 2014)

Lipidation
- (Nakayama et al., 2012)

Glycosylation
- (Schaffer and Messner, 2016)

Methionine oxidation – as a reversible process
- (Drazic and Winter, 2014)

S-Nitrosylation and S-Sulfhydration
- (Lu et al., 2013)

S-Glutathionylation
- (Grek et al., 2013)

Uridylylation
- (Merrick, 2014)

Adenylylation
- (Itzen et al., 2011)

Unique modifications of translation elongation factors
- (Greganova et al., 2011)

Targets of regulated protein turnover by Clp, Lon, proteasome, etc.
- (Gur, 2013)

Specific polypeptide cleavage
- (Berry et al., 2016)

Weekly Course Schedule

Week 1 (5/11 – 5/15)
- Introduction to course and syllabus
- Example of ideal group project – presented by faculty instructor
- Chat meeting with an instructor to answer any questions (week of 05/11, see announcements)
- **Quiz 1**: what do I know about proteins? (5 points for participation, not graded, 05/15)

Week 2 (5/18 – 5/22)
- **Quiz 2**: syllabus content and example of ideal group project (10 points, 05/22)
- Overview of the different types of post-translational modifications found in bacteria and archaea – study the content of the module for Quiz 3 in week 3
- Assignment of students to group projects (based on student ability assessed by Quiz 1)

- Students work on group projects

Week 3 (5/25 – 5/29)
- **Quiz 3**: Overview of the different types of post-translational modifications found in bacteria and archaea (100 points, deadline – 05/29)
- Students work on group projects
- Group project – division of work and 1-page draft of the proposed document indicating division of work (25 points, deadline – 05/29)

Week 4 (6/01- 6/05)
- Students work on group projects
- Group project – at least five references per student (individual submissions please) related to group project (20 points, deadline – 06/05)

Week 5 (6/08- 6/12)
- Students work on group projects

Week 6 (6/15- 6/19)
- Group project – students work on written report, written report due at end of week (deadline - 06/19)
- Identify subject for individual project due in week 9 (no submission needed, emails encouraged)

Week 7 (6/22- 7/03)
- Summer break – no classes

Week 8 (7/06- 7/10)
- Advice on writing individual project
- Students work on individual project

Week 9 (7/13 - 7/17)
- Individual project – research proposal due at end of week (deadline - 07/17)

Week 10 (7/20- 7/24)
- scientific feedback from instructors
- selection of projects for online publication
- assignment of papers for peer-evaluation

Week 11-12 (7/27- 8/07)
- grading
- scientific peer evaluation of projects (deadline - 07/24)
- students work on modification of written report/proposals based on recommendations

Week 13 (8/10- 8/14)

- student modification of written report/proposals based on instructor recommendations (resubmit by **8/14, 25 extra credit points**)

[Exam Dates/Calendar/Critical dates and deadlines]

Deadlines
Quiz 1 05/15
Quiz 2 05/22
Quiz 3 05/29
Group project - division of work and 1-page draft of the proposed project 05/29
Group project – preliminary list of references 06/05
Group project - written report 06/19
Individual project – research proposal 07/17
Scientific peer evaluation - 07/24
Resubmission - 08/14 (optional)

Evaluation of Learning/Grades

MCB 6937 learning will be evaluated based on the following criteria:

5 points	Quiz 1
10 points	Quiz 2
100 points	Quiz 3
25 points	Group project - division of work and 1-page draft (in bullet points) of the proposed project
20 points	Group project – preliminary list of references
100 points	Group project - written report
100 points	Individual project – research proposal
100 points	Scientific peer evaluation

460 points total
+ 25 points optional (extra credit)

Materials and Supplies Fees

There are no additional fees for this course.

Grading Policy

Final grades will be based on the following performance standard:

95 -100 %	=	A
90 - 94.9 %	=	A-
87 - 89.9 %	=	B+

84 - 86.9 % = B
80 - 83.9 % = B-
77 - 79.9 % = C+
74 - 76.9 % = C
70 - 73.9 % = C-
60 - 69.9 % = D
Less than 60.0 % = E

More information on grades and grading policies is here:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

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Class Attendance and Make-Up Policy

Our class sessions are recorded for 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 orally are 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.

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/. ~~Class attendance and make-up policies are according to the university policies in the undergraduate catalog~~
~~(https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx).~~

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Students Requiring Accommodations

~~Students~~ 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~~with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester~~.

Campus Helping Resources

~~Student~~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:
- Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/.
- Online Course: https://distance.ufl.edu/state-authorization-status/#student-complaint

~~s 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:~~

~~Health and Wellness~~

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

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- ~~U Matter We Care, www.umatter.ufl.edu/~
- ~~*Career Resource Center*, First Floor JWRU, 352-392-1601, www.crc.ufl.edu/~

~~Emergencies~~

~~For emergencies call: University Police Department, 352-392-1111 (or 9-1-1 for emergencies). http://www.police.ufl.edu/~

~~Academic Resources~~

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

Course Evaluation

~~Students are~~ 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/ .~~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/~

Class demeanor

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

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should be held at minimum, if at all.

Netiquette guide for online courses

It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.
http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf

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University Honesty Policy

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

Software Use

~~All~~ 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.

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

Microsoft Office 365 Software is free for UF students

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

Other free software is available at:

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

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

University of Florida Complaints Policy and Student Complaint Process

Most problems, questions and concerns about the course will be resolved by professionally communicating with the instructor or the TAs.

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

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

- Residential Course: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.
- Online Course: http://www.distance.ufl.edu/student-complaint-process.

University of Florida U Matter

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

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~~staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 911.~~

Plagiarism

Please note that plagiarism is against the UF honor code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/)

"(a) **Plagiarism**. A student shall not represent as the student's own work all or any portion of the work of another. Plagiarism includes but is not limited to:

1. Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution."

You must use your own words to communicate oral and written materials presented in the oral reports, scientific evaluations, and summaries of this course.

Online modules are available to assist you with making ethical decisions regarding plagiarism and other codes of conduct at https://www.dso.ufl.edu/sccr/seminars-modules/ .

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Cover Sheet: Request 17077

Human Genomics PCB 6XXX

Info

Process	Course|New|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Jennifer Drew jdrew@ufl.edu
Created	2/13/2022 11:27:17 AM
Updated	9/20/2022 2:08:41 PM
Description of request	Requesting approval of a new course called Human Genomics to be taught in the Microbiology and Cell Science graduate curriculum and to be taught alongside of PCB4666, Human Genomics, which is an approved course at the undergraduate level.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Microbiology and Cell Science 60100000	Eric Triplett		8/16/2022
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			8/16/2022
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 17077

Info

Request: Human Genomics PCB 6XXX
Description of request: Requesting approval of a new course called Human Genomics to be taught in the Microbiology and Cell Science graduate curriculum and to be taught alongside of PCB4666, Human Genomics, which is an approved course at the undergraduate level.
Submitter: Jennifer Drew jdrew@ufl.edu
Created: 9/20/2022 1:41:34 PM
Form version: 2

Responses

Recommended Prefix PCB
Course Level 6

Course Number 666
Lab Code None
Category of Instruction Intermediate
Course Title Human Genomics
Transcript Title Human Genomics
Degree Type Graduate

Delivery Method(s) Online
Co-Listing Yes
Co-Listing Explanation Proposed course PCB 6666 will be co-listed with PCB 4666. PCB 4666 has been an approved course since 2021.
The two courses differ in the rigor of their assignments and expectations of the graduate students. Graduate students are asked to critically evaluate peer-reviewed papers from the primary literature.
Effective Term Fall
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 Increasingly, researchers and health care providers are mining the genome to uncover the basis of disease susceptibility and treatment. Genome-based strategies are used for the detection, treatment, and prevention of many diseases. This course will discuss the field of genomics, how genome sequence data is obtained and analyzed, and most importantly, what can be learned from an individual's genome.
Prerequisites MS or PhD student in life sciences
Co-requisites N/A
Rationale and Placement in Curriculum We are in the era of precision medicine, which began with the sequencing of the human genome and is based on the personalized analysis of individual genomes. It is important for life science students to understand the structure and function of the human genome and how that information is studied, interpreted and applied. Human genomics, and its advances, is a field that encompasses medicine, biomedical research, agriculture, environment, and increasingly, ethical/social/societal/legal issues.
This graduate course is for Microbiology and Cell Science MS or PhD students. The course is taught at a 6000 level because it requires prerequisite knowledge of eukaryotic molecular biology and classical genetics. Its appropriate and valuable preparation for students considering medical, research, biotech, education, public health, communication, and social science fields of study and careers. The course will serve as an elective for Microbiology and Cell Science MS and PhD

programs. Course will be offered once a year in the fall semester and is currently being taught as a special topic course in the fall semester and is in its 4rd iteration. The course averages 80 - 150 students per year.

Course Objectives At the conclusion of this course, the student will be able to:
1. Describe how the genome determines traits, including susceptibility to disease.
2. Assess the role of the genome in the development, detection, prevention and treatment of disease.
3. Conduct and evaluate human genomics research approaches and outcomes.
4. Illustrate and discuss how advances in biotechnology and genomics are personalizing all aspects of medicine including prevention, diagnostics, and treatment.
5. Lead broader discussions of the ethics and complexities of this era of biotechnology and precision medicine.

Course Textbook(s) and/or Other Assigned Reading Genetics From Genes to Genomes by Hartwell, Goldberg, Fischer, Hood. 7th Edition. Published by McGraw Hill, 2021.

Weekly Schedule of Topics

1 Structure and Function of Genome – What is a genome? What is the broad purpose of a genome?
2 Diversity – What is the source of genetic diversity? How similar and how different are we?
3 Chromosomes and Inheritance (classical Mendelian Genetics) – How are traits inherited from generation to generation? What are the laws of inheritance?
4 Biotechnology – How can we study genetic information? What can we do with genetic technology?
5 Genome Sequencing and Bioinformatics – How do we sequence and analyze a genome?
6 Genetic Disease: Mendelian and rare disorders – How are they inherited? What is their cause? How are they studies and tracked?
7 Genetic Disease: Complex disorders – How are they inherited? What is their cause? How are they studies and tracked?
8 Genetic Disease: Epigenomics – How is gene expression controlled and what is the effect on human health and disease?
9 Genetic Disease: Cancer - What is the role of the genome in cancer development, progression, detection and treatment?
10 Molecular Diagnostics and Detection I – How can genomic information and biotechnology be used to detect and diagnose disease?
11 Molecular Diagnostics and Detection II resources – How can genomic information and biotechnology be used to detect and diagnose disease?
12 Gene-based treatments – How can the genome be modified for treatment of human disease?
13 DTC genetics, Pharmacogenomics and precision medicine – How can the genome affect response to drugs?
14 Public Health Genomics, Microbiome – What is the role of the microbiome in health and disease? (– may need to modify or cut if there are hurricanes)

Grading Scheme Three proctored, non-cumulative in-term exams. Each exam is worth 10% of grade. Weekly quizzes can be taken up to two times each and only highest score per quiz will be recorded for a grade. Quiz average will count for 10%.
Five assignments worth 25% of the final grade. The assignments are activities in which students analyze real genomic data from an ongoing study to identify associations between genetic variants and dietary traits, conduct literature reviews, summarize findings, analyze published studies and lead undergraduates in small groups.
A group project poster presentation will be worth 5% of final grade.
Three written analyses of peer-reviewed research papers from the primary literature. Each is worth 10% of final grade.

Instructor(s) Jennifer Drew
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.

✓ 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/.

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

✓ 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.

✓ 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.

✓ 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.

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

✓ 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.

✓ 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/.

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.

✓ 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.

✓ 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.

✓ 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)

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Download PDF here

External consult information for PCB 6XXX Human Genomics

The Anthropology dept has a course called ANG 6532 Molecular Genetics of Disease. We feel that the two courses are distinct in many ways including their size, intended audience, frequency, mode of delivery. We see no overlap for the following reasons:
PCB6XXX Human Genomics is taught 100% asynchronous online and ANG6532 is only offered face to face

- PCB6XXX Human Genomics has a prerequisite of being a graduate student in a life sciences program and ANG 6532 is open to any major/student
- PCB6XXX Human Genomics is approved as an elective for Microbiology and Cell Science students, but ANG6532 is not an elective and would be not meet department criteria for graduate elective
- PCB6XXX currently has 77 online MCB MS students enrolled with an annual range of 80 – 100 online MS students and no enrollment cap at this time. ANG 6532 is capped at 20 students
- PCB6XXX is offered every year and ANG6532 is offered every 2 years.

Because there is no overlap or conflict between the courses, there is no external consult form.

Please see the attached external consult documents from 2019 when the undergraduate version of the course PCB 4666 was approved.

UF IFAS
UNIVERSITY of FLORIDA
Institute of Food and Agricultural Sciences
Department of Microbiology and Cell Science

1355 Museum Drive
PO Box 110700
Gainesville, FL 32611-0700
352-392-5430
ewt@ufl.edu

October 28, 2019

To all members of the University Curriculum Committee:

We have carefully examined the distinguishing characteristics between the Molecular Genetics of Disease course (ANT 4531) offered by Professor Connie Mulligan and the proposed Human Genomics course (PCB 4XXX) to be taught by Dr. Jennifer Drew. The two courses are complimentary, not competing.

Our proposed course, Human Genomics, will be an elective for our major. In its third year as an experimental course, enrollment has grown from 60 to 106 students. In addition, 87% of the students are Microbiology and Cell Science majors. It is clearly a course that serves primarily our own majors.

As background, it requires a year of introductory biology and additional course such in genetics, molecular biology or biochemistry. In contrast, ANT 4531 has no prerequisites listed and is open to all students. These differences are also reflected in course content. ANT 4531 is taught by a series of excellent guest lecturers who provide very nice overviews of important topics that relate genetics and human disease. PCB 4XXX teaches students the content and the tools of the trade with a variety of bioinformatics exercises that have access to IRB approved human genetic data with associated metadata acquired from UF student saliva. Students in PCB 4XXX get hands-on big data analysis exercises that are NOT offered in ANT 4531. Thus, the content overlap is very small. The two courses are also offered from different perspectives and to different audiences.

In addition, ANT 4531 is offered irregularly (every 2-3 years) and hasn't been offered since 2017. PCB 4XXX will be offered every fall semester. ANT 4531 is also only offered in-person while PCB 4XXX is accessible to all life science majors whether they be on-campus or online.

I ask that our Human Genomics course be given official status. Both of these courses would serve as excellent cornerstones for a new minor in human genetics that would be very popular and offered by multiple departments.

Sincerely,

Eric W. Triplett
Professor and Chair

UF UNIVERSITY of FLORIDA

UCC: External Consultations

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

Department	Name and Title
Phone Number	E-mail
Comments	

Department	Name and Title
Phone Number	E-mail
Comments	

Department	Name and Title
Phone Number	E-mail
Comments	

PCB 6XXX: Human Genomics
All sections
3 Credits
100% Web-based
Asynchronous

Instructors

Dr. Jennifer Drew (Lead)
Senior Lecturer, Microbiology & Cell Science Department
Email: Through Canvas (or jdrew@ufl.edu if you cannot access e-Learning yet)

Dr. Angelica Ahrens (Co-instructor)
Email: a.ahrens@ufl.edu

Basic Course Structure

This is a combined undergraduate/graduate course. Graduate Students - For the research project related assignments, graduate students will receive a version of the assignment that is aligned with expectations of graduate level work emphasizing critical thinking and scientific design.

Communications

The day/time for weekly open office hours on Zoom will be posted in the first week of class. Individual appointments are available by request.

All email communication regarding this course will be done through the Conversations tool (Inbox) of Canvas. This mail system is private and secure. I will respond to your questions and emails as promptly as I can. By maintaining all email communication through Canvas instead of other email domains, it reduces the chance that discussions will get lost among our outside accounts.

Announcements will be made regularly through the Announcement feature. It is your responsibility to check your Canvas mail and Announcements **frequently** to stay updated on the course. Please check the course site a minimum of two times per week to be certain that you are not missing any important communications.

Pre-requisites

M.S. or Ph.D. student in Life Sciences program

Course Description

This course will discuss how human genome sequence data is obtained, analyzed, and interpreted with an emphasis on what can be learned from an individual's genome. Genome- based strategies are used for the detection, treatment, and prevention of many diseases.

Course Background

Increasingly, researchers and health care providers are mining the genome to uncover the basis of disease susceptibility and treatment. Genome-based strategies are used for the detection, treatment, and prevention of many diseases. This course will discuss the field of genomics, how

genome sequence data is obtained and analyzed, and most importantly, what can be learned from an individual's genome. Students will work with anonymous human genome data and conduct a small analysis of associations between genetic variants and the diet. The course will address cutting-edge research in epigenetics, pharmacogenomics, molecular diagnostics, and the microbiome. The course will also include timely topics such as GMO's, stem cells, genetic testing and genome editing. This course will reinforce fundamental concepts in molecular biology and genetics.

We are in the era of precision medicine, which began with the sequencing of the human genome and is based on the analysis of individual genomes. It is important for life science majors to understand the basic structure and function of the human genome and how that information is studied, interpreted, and applied.

Course Goals

At the conclusion of this course, the student will be able to:
1. Describe how the genome determines traits, including susceptibility to disease.
2. Critically evaluate the role of the genome in the development, detection, prevention and treatment of disease.
3. Conduct and evaluate human genomics research approaches and outcomes.
4. Illustrate and discuss how advances in biotechnology and genomics are personalizing all aspects of medicine including prevention, diagnostics, and treatment.
5. Evaluate published human genome studies, propose experiments and design studies.
6. Lead broader discussions of the ethics and complexities of this era of biotechnology and precision medicine.

List of Weekly Modules and Topics

Mod	**Topic**	**Readings Resources**	**Key Specific Learning Objectives (does not include all SLOs per module)**
Welcome Module including Syllabus Quiz and Honorlock Quiz			
1	Structure and Function of Genome *What is a genome? What is the broad purpose of a genome?* *Molecular Biology Bootcamp (for an optional review)*	Ch 1, 6.1-6.4, 8.1-8.4	Molecular Biology Bootcamp SLOs: Outline and compare the processes of replication, transcription and translation including the identification of the major players and their roles in the process.
2	Diversity and evolution – *What is the source of genetic diversity? How similar and how different are we?*	Ch 7	Identify different sources of diversity Classify and predict the effect of mutations on protein structure, function and phenotype.

3	Tracking Inheritance in the genomic era *How are traits inherited from generation to generation? How can inheritance be tracked and predicted?*	Ch 2 – 4 Online Mendelian Inheritance in Man (OMIM)	Draw a 3generation pedigree Predict conditional probabilities of inheritance Use OMIM.org to research molecular mechanism of disease.
4	Advanced Genetic Technology *What are the tools, applications, and limitations of genetic technology? (PCR, microarrays, recombinant DNA technology, DNA profiling, genome editing, stem cells)*	Ch 9.1, 9.2, 11.2, 11.3, 14.3, 18	Determine appropriate applications of tools and techniques to varied case scenarios Identify the key characteristic of a GMO and summarize the GMO controversy with Golden Rice as an example.
Exam 1 (Modules 1 - 4)			
5	Genome Sequencing – Then and Now *How do we sequence and analyze a genome? How has genome sequencing advanced to high throughput, multi-parallel analysis?*	Ch 9.3, 10	Compare DNA sequencing technologies with respect to read length, throughput, quality. Determine the best sequencing technology for design of the experiment.
6	Bioinformatics *How do we interpret and analyze genome data? What are the common tools?*	Multiple tools at the National Center for Biotechnology Information ncbi.nlm.nih.gov	Determine the best sequence alignments of DNA with matrix. Use bioinformatics tools including CAP3, BLAST, ORF Finder to analyze and assemble and annotate DNA sequence results.
7	Genomic approaches for Mendelian and rare disorders *How are they inherited? What is their cause? How are they studied and tracked? Exome sequencing, WGS*	Ch. 2 and 3; Sections 4.2, 4.7, 15.1, 15.5	Use case examples to determine genetic mechanism of disease Interpret linkage results.
8	Genomic approaches for Complex disorders *How are they inherited? What is their cause? How are they studies and tracked? GWAS and statistical genomics*	Ch 22	Calculate heritability using a method based on relatedness and concordance Interpret GWAS results Determine which strategy to

			use when mapping single gene or common diseases
EXAM II (Modules 5 – 8)			
9	Genotype and Phenotype Analysis *Participate in ongoing course-based research project to determine associations between genetic variants (SNPs) and dietary habits (phenotype)*		Use chi squared tests to find significant associations between SNPs and phenotype, calculate odds ratio and use GWAS catalog, dpSNP and ClinVar to annotate associations *Activity is split between 2 assignments. Part 1 due at the end of this week.
10	Epigenomics *How is gene expression controlled and what is the effect on human health and disease? Epigenome mapping*	Ch. 17	Interpret results of BPA testing using the Agouti Mouse Model of Epigenome Sensing
11	Cancer Genomics *What is the role of the genome in cancer development, progression, detection and treatment?*	Ch. 20 Revisiting the hallmarks of cancer (Fouad and Aanei, 2017)	Recognize the hallmarks of the cancer development process including any highlighted genes and their roles Use and interpret data from the American Cancer Society Facts and Figures 2019 *Genotype/phenotype assignment Part 2 is due at the end of this week.
12	Molecular Diagnostics and Detection *How can genomic information and biotechnology be used to detect and diagnose disease?*	Ch 4 and Ch 11 ncbi.nlm.nih.gov/gtr/	Evaluate and compare genetic testing strategies Determine the appropriate genetic test or screen based on clinical information and distinguish the differences between them Use Genetic Testing Registry to identify genetic tests
13	Gene and Genome-based treatments *How can the genome be modified for treatment of disease?*	Ch. 18 Rossidis, et al., 2018	Recognize the technical challenges and ethical

		FDA statement on first gene therapy approved for genetic disease FDA statement on first RNAi therapy	concerns of gene therapy Outline overall scheme of gene therapy including delivery mechanisms Determine best viral vector to use in given gene therapy scenarios
14	Pharmacogenomics and Precision Medicine *How can personal genomic data affect drug choice, dosage and outcomes? What are ELSI issues stemming from DTC?*	Ashley, 2016 Towards Precision Medicine, Nature Reviews Genetics Amare et al, 2017 Pharmacogenomics in the treatment of mood disorder: Strategies and opportunities for personalized psychiatry. EPMA Journal. Pharmacogenetics Knowledge base	Use pharmacogenomic resources (online), results and case information to evaluate scenarios (see pharmacogenomic review for major depressive disorder (MDD) and SSRI treatments as an example) Identify and evaluate ELSI issues stemming from personal genomics and DTC providers including forensic use of ancestry DNA data and its privacy implications Distinguish clinical vs. research lab testing Use pharmgkb.org to drug selection and dosing based on genotypic info
15	Reflections and Synthesis		Projects Due (papers or presentations) to share with class Facilitate Discussion on project
Exam III (Modules 10 – 14)			

Textbook

The textbook is Genetics From Genes to Genomes by Hartwell, Goldberg, Fischer, Hood. 7th Edition. Published by McGraw Hill, 2021.

Other online resources will be posted and examples of readings are listed in table above.

Minimum technology requirements

Please refer to the Student Computing Requirement policy from UF: https://it.ufl.edu/policies/student-computing-requirements/. Access to and on-going use of a computer is required for all students. Competency in the basic use of a computer is require. Course work will require use of a computer with a webcam for proctoring and a broadband connection to the internet.

Honorlock

Honorlock is an online proctoring service that allows students to take exams on-demand 24/7. There are no scheduling requirements or fees.

You will need a laptop or desktop computer with a webcam, a microphone, and a photo ID. The webcam and microphone can be either integrated or external USB devices.

Honorlock requires that you use the Google Chrome (Links to an external site.) browser; furthermore, the Honorlock extension (Links to an external site.) must be added to Chrome. For further information, FAQs, and technical support, please visit Honorlock. (Links to an external site.)

Email and Announcements

All email communication regarding this course will be done through the Conversations tool (Inbox) of Canvas. This mail system is private and secure. It is your responsibility to check your Canvas mail and Announcements **frequently** to stay updated on the course. Please check the course site a minimum of two times per week to be certain that you are not missing any important communications. As the instructors, we will respond to your questions and emails as promptly as we can. By maintaining all email communication through Canvas instead of other email domains, it reduces the chance that discussions will get lost among our outside accounts.

Course modular structure

Login to Canvas, select this course, and then go to the "Start Here" Module. This module will highlight all the important policies, features, and flow of the course. I've included an intro video of myself too so you can get to know me.

New modules are posted each week of the semester. For each module, there will be several items to complete. Click on the link for each item. The first item will always list the **learning objectives.** Keep these in mind as you learn the material. After reading the learning objectives, please go through the material in the order presented. The next item in the list will usually be the reading assignment, followed by the lectures, and links to any online tutorials or modules. After you go through the material in the order presented, you are always free to return and visit any of

the content. The welcome video will give an example of the types of course content and how it will be presented. The pdf of the lecture slides of each module will also be posted for your convenience. This convenience is for students who wish to print out the slides and follow along with the lecture, study the notes later, etc. The lectures slides will only be available in pdf format.

Each module includes a quiz. The quizzes are due on the last day of the module week by 11:59 PM. The material will be available to you throughout the semester, but once a quiz due date passes, this means that you can no longer access the quiz. If you only attempt a quiz once before due date, that quiz grade is the only one that will count. (See below for more info on quizzes).

Grading Policy

Point Adjustment Requests

Once an assessment is graded and returned, you have 10 calendar days to contest your grade in an email. Any requests for points must include a clear justification of your response and why it is as complete or better than the correct one.

Please note that questions and comments about any quiz/exam question are welcome at any time during the semester for the purposes of understanding and education.

Course Grade Breakdown:

Exams (3 total each worth 10%)	30%
Course presentation	5%
Quizzes	10%
Research analysis assignments	30%
Assignments – 5 ; each worth 5%	25%
Total	100%

Grading Scale Percentage

A	93.0 - 100
A-	89.0 – 92.99
B+	86.0 – 88.99
B	82.0 – 85.99
B -	79.0 – 81.99
C+	76.0 – 78.99
C	72.0 – 75.99
C-	69.0 – 71.99
D+	66.0 – 68.99
D	62.0 – 65.99
D -	59.0 – 61.99
E	58.99 and below

*Grade rounding will be done as outlined above. (for example, a final grade of 81.95 is a B-)

** It is recommended that you use your own calculations during the semester to get an estimate of your grade.

Please see the UF grading policies at this site: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

UF grading policies

Please see the UF grading policies at this site: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

ASSESSMENTS

Exams

Three proctored, non-cumulative exams will be administered throughout the semester. Each exam is worth 10% of your grade. All exams will be proctored and taken with HonorLock. Specific details regarding the exams will be given closer to the exam dates. If an exam is taken without approved proctoring arrangements and without adhering to proctoring criteria (eyes only on the screen, closed book/notes, no talking or other devices, etc) credit will not be given and the score will be a zero. If it is detected that a student's e-Learning account was signed into by more than one instance during an exam (i.e., two individuals signed into the same student account during an assessment), credit will not be given and the score will be zero.

An optional, final exam will be given during finals week. The exam will be cumulative and can be used to replace a lower in term exam.

Exam windows will be open for 4 days. Because of the expanded windows, there is no possible conflict with exams from other courses. The windows will open at 8 AM EST and close at 11:59 PM EST. If you live in a different time zone please take this into account. Canvas will cut your exam off at 11:59 PM Eastern Standard Time.

Exam dates will be announced in the first couple weeks of class.

Quizzes

Brief quizzes will be assigned for each module. Quizzes can be taken up to **two times each** and only your highest score per quiz will be recorded for a grade. Your quiz average will count for **10%** of your final grade. Quizzes cannot be taken late so missed quizzes will count as a zero and can count towards a quiz drop. However, to enhance flexibility and give a little breathing room, the 5 lowest quiz grades will be dropped. The quiz window closes once the due date passes so students will not have access to quizzes if they have not been attempted at least once.

One of the quizzes is a syllabus quiz to make sure the policies and format of the course are understood. Another quiz is an Honorlock practice quiz to ensure students understand the process to take an assessment with Honorlock. The Honorlock quiz is required and may not be dropped.

Research Analysis Assignments

Students will read, analyze, and discuss papers from the primary literature. There will be 3 assignments and worth 10% each.

Assignments

There will be 5 assignments worth 25% of the final grade. Instructions will be given in class. The assignments are activities in which students analyze real genomic data from an ongoing study to

identify associations between genetic variants and dietary traits. The students will then use online tools and resources, including those from NCBI and the primary literature to synthesize a biological hypothesis to support their associations and to contribute to the field of genomics. Students work together in groups and individually on these assignments. Some assignments include using the discussion board to share ideas.

Course Project Presentation

A group project presentation will be worth 5% of your final grade. More details will be provided in class. Students will collaborate on a presentation that summarizes their research work for the semester.

Attendance policy

Requirements for class attendance and make-up exams and assignments in this course are consistent with university policies that can be found at: catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

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.dsoufl.ed/SCCR/honorcodes/honorcode.php.

Additional comments regarding academic integrity:

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

- Have another person complete a quiz in this course
- Copy another student's quiz in this course
- Collaborate with anyone while taking a quiz in this course
- Discuss the questions and answers of a quiz with other students while the quiz window is still open

- Manipulate and/or distribute any materials provided in this course for any purpose (including course lecture slides).

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.

Campus Helping Resources
Students experiencing crisis 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:

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

  • Online Course: https://distance.ufl.edu/state-authorization-status/#student-complaint

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/

Statement on Distance Education Courses
Should you have any complaints with your experience in this course, please visit

http://www.distance.ufl.edu/student-complaints.

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/.

PCB4XXX: Human Genomics
3 Credits
Online

Instructor

Dr. Jennifer Drew
Department: Microbiology & Cell Science
Email: jdrew@ufl.edu
Office hours: Tuesdays 9am – 11 am or by appointment. Office hours will be with Zoom

Office Hours and Communication

Since this is a web-based course and Dr. Drew is located off-campus, office hours will be online by appointment. Dr. Drew is also available to answer questions by email.

Pre-requisites

Two semesters of college biology or equivalent (BSC 2010 and BSC 2011) OR PCB 3134 OR PCB 4522 OR BCH 4024 OR BCH 3025 or equivalents

Course Description

This course will discuss how human genome sequence data is obtained, analyzed, and interpreted with an emphasis on what can be learned from an individual's genome. Genome- based strategies are used for the detection, treatment, and prevention of many diseases.

Course Background

Increasingly, researchers and health care providers are mining the genome to uncover the basis of disease susceptibility and treatment. Genome-based strategies are used for the detection, treatment, and prevention of many diseases. This course will discuss the field of genomics, how genome sequence data is obtained and analyzed, and most importantly, what can be learned from an individual's genome. Students will work with anonymous human genome data and conduct a small analysis of associations between genetic variants and the diet. The course will address cutting-edge research in epigenetics, pharmacogenomics, molecular diagnostics, and the microbiome. The course will also include timely topics such as GMO's, stem cells, genetic testing and genome editing. This course will reinforce fundamental concepts in molecular biology and genetics.

We are in the era of precision medicine, which began with the sequencing of the human genome and is based on the analysis of individual genomes. It is important for life science majors to understand the basic structure and function of the human genome and how that information is studied, interpreted, and applied.

The reading assignments, course lecture materials and online activities will be posted each week. There will be a quiz each week over the module's material. All exams will be proctored and taken with HonorLock. Specific information about exam proctoring procedures will be posted closer to exam time.

This is a Classroom Undergraduate Research Experience (CURE) course, which means that students will become part of the research team to analyze associations of human genome variants. The findings generated by the students will contribute to the body of knowledge about the human genome. The research tools and methods are online, web-based or open source and are used by human genome researchers and those used by direct to consumer genetic providers like ancestry.com and 23andme. Thus, in addition to contributing to the body of knowledge of human genomics, students will take away skills that they can use to analyze their own genetic data should they ever acquire it.

The data that will be analyzed in this course is derived from an ongoing study called "Associations between the oral microbiome, diet, depression, and human genotype among University of Florida undergraduate and graduate students." It is approved under IRB 201801744. Students in this course will be given the opportunity to volunteer as a research subject this study, which is completely optional. More information will be provided in class.

Course Goals

At the conclusion of this course, the student will be able to:
1. Describe how the genome determines traits, including susceptibility to disease.
2. Assess the role of the genome in the development, detection, prevention and treatment of disease.
3. Conduct and evaluate human genomics research approaches and outcomes.
4. Illustrate and discuss how advances in biotechnology and genomics are personalizing all aspects of
medicine including prevention, diagnostics, and treatment.
5. Lead broader discussions of the ethics and complexities of this era of biotechnology and precision medicine.

List of Weekly Modules and Topics

Mod	Topic	Readings Resources	Key Specific Learning Objectives (does not include all SLOs per module)
Welcome Module including Syllabus Quiz and Honorlock Quiz			
1	Structure and Function of Genome *What is a genome? What is the broad purpose of a genome?* *Molecular Biology Bootcamp (for an optional review)*	Ch 1, 6.1-6.4, 8.1-8.4	Molecular Biology Bootcamp SLOs: Outline and compare the processes of replication, transcription and translation including the identification of the major players and their roles in the process.
2	Diversity and evolution – *What is the source of genetic diversity?* *How similar and how different are we?*	Ch 7	Identify different sources of diversity Classify and predict the effect of mutations on protein structure, function and phenotype.
3	Tracking Inheritance in the genomic era *How are traits inherited from generation to generation? How can inheritance be tracked and predicted?*	Ch 2 – 4 Online Mendelian Inheritance in Man (OMIM)	Draw a 3generation pedigree Predict conditional probabilities of inheritance Use OMIM.org to research molecular mechanism of disease.

4	Advanced Genetic Technology *What are the tools, applications, and limitations of genetic technology? (PCR, microarrays, recombinant DNA technology, DNA profiling, genome editing, stem cells)*	Ch 9.1, 9.2, 11.2, 11.3, 14.3, 18	Determine appropriate applications of tools and techniques to varied case scenarios Identify the key characteristic of a GMO and summarize the GMO controversy with Golden Rice as an example.
Exam 1 (Modules 1 - 4)			
5	Genome Sequencing – Then and Now *How do we sequence and analyze a genome? How has genome sequencing advanced to high throughput, multi-parallel analysis?*	Ch 9.3, 10	Compare DNA sequencing technologies with respect to read length, throughput, quality. Determine the best sequencing technology for design of the experiment.
6	Bioinformatics *How do we interpret and analyze genome data? What are the common tools?*	Multiple tools at the National Center for Biotechnology Information ncbi.nlm.nih.gov	Determine the best sequence alignments of DNA with matrix. Use bioinformatics tools including CAP3, BLAST, ORF Finder to analyze and assemble and annotate DNA sequence results.
7	Genomic approaches for Mendelian and rare disorders *How are they inherited? What is their cause? How are they studied and tracked? Exome sequencing, WGS*	Ch. 2 and 3; Sections 4.2, 4.7, 15.1, 15.5	Use case examples to determine genetic mechanism of disease Interpret linkage results.
8	Genomic approaches for Complex disorders *How are they inherited? What is their cause? How are they studies and tracked? GWAS and statistical genomics*	Ch 22	Calculate heritability using a method based on relatedness and concordance Interpret GWAS results Determine which strategy to use when mapping single gene or common diseases
EXAM II (Modules 5 – 8)			
9	Genotype and Phenotype Analysis *Participate in ongoing course-based research project to determine associations between genetic variants (SNPs) and dietary habits (phenotype)*		Use chi squared tests to find significant associations between SNPs and phenotype, calculate odds ratio and use GWAS catalog, dpSNP and ClinVar to annotate associations *Activity is split between 2 assignments. Part 1 due at the end of this week.
10	Epigenomics *How is gene expression controlled and what is the effect on human health and*	Ch. 17	Interpret results of BPA testing using the Agouti Mouse Model of Epigenome Sensing

	disease? Epigenome mapping		
11	Cancer Genomics *What is the role of the genome in cancer development, progression, detection and treatment?*	Ch. 20 Revisiting the hallmarks of cancer (Fouad and Aanei, 2017)	Recognize the hallmarks of the cancer development process including any highlighted genes and their roles Use and interpret data from the American Cancer Society Facts and Figures 2019 *Genotype/phenotype assignment Part 2 is due at the end of this week.
12	Molecular Diagnostics and Detection *How can genomic information and biotechnology be used to detect and diagnose disease?*	Ch 4 and Ch 11 ncbi.nlm.nih.gov/gtr/	Evaluate and compare genetic testing strategies Determine the appropriate genetic test or screen based on clinical information and distinguish the differences between them Use Genetic Testing Registry to identify genetic tests
13	Gene and Genome-based treatments *How can the genome be modified for treatment of disease?*	Ch. 18 Rossidis, et al., 2018 FDA statement on first gene therapy approved for genetic disease FDA statement on first RNAi therapy	Recognize the technical challenges and ethical concerns of gene therapy Outline overall scheme of gene therapy including delivery mechanisms Determine best viral vector to use in given gene therapy scenarios
14	Pharmacogenomics and Precision Medicine *How can personal genomic data affect drug choice, dosage and outcomes? What are ELSI issues stemming from DTC?*	Ashley, 2016 Towards Precision Medicine, Nature Reviews Genetics Amare et al, 2017 Pharmacogenomics in the treatment of mood disorder: Strategies and opportunities for personalized psychiatry. EPMA Journal. Pharmacogenetics Knowledge base	Use pharmacogenomic resources (online), results and case information to evaluate scenarios (see pharmacogenomic review for major depressive disorder (MDD) and SSRI treatments as an example) Identify and evaluate ELSI issues stemming from personal genomics and DTC providers including forensic use of ancestry DNA data and its privacy implications Distinguish clinical vs. research lab testing Use pharmgkb.org to drug selection and dosing based on genotypic info

15	Reflections and Synthesis		Projects Due (papers or presentations) to share with class Facilitate Discussion on project
Exam III (Modules 10 – 14)			

Textbook

The textbook is recommended. Genetics From Genes to Genomes by Hartwell, Goldberg, Fischer, Hood. 6th Edition. Published by McGraw Hill, 2018.
The book is available in digital form or in hardback, to rent or buy.
Other online resources will be posted.

Basic course structure and flow – *how it works*

Welcome to the course. Login to Canvas, select this course, and then go to the "Start Here" Module. This module will highlight all the important policies, features, and flow of the course. I've included an intro video of myself too so you can get to know me.
New modules are posted each week of the semester. For each module, there will be several items to complete. Click on the link for each item. The first item will always list the **learning objectives** for the week. Keep the learning objectives in mind as you learn the material. After reading the learning objectives, please go through the material in the order presented. The next item in the list will usually be the reading assignment, followed by the lectures, and links to any online tutorials or modules. After you go through the material in the order presented, you are always free to return and visit any of the content. The welcome video will give an example of the types of course content and how it will be presented. The pdf of the lecture slides of each module will also be posted for your convenience. This convenience is for students who wish to print out the slides and follow along with the lecture, study the notes later, etc. The lectures slides will only be available in pdf format.

Each module includes a quiz. The quizzes are due on the last day of the module week by 11:59 PM. The material will be available to you throughout the semester, but once a quiz due date passes, this means that you can no longer access the quiz. This means that both of your quiz attempts must be completed by midnight. If you only attempt a quiz once before due date, that quiz grade is the only one that will count. (See below for more info on quizzes).

Tips for Success

After teaching online for 10 years, I've accumulated some tried and true tips for success in an online course. These are real tips from my past students:

- Schedule "class times" for yourself. It is important to do the coursework on time each week.
- Read ALL of the material contained on this site. There is a lot of helpful information that can save you time and help you meet the objectives of the course.
- Do not wait to ask questions! Waiting to ask a question might cause you to miss a due date.
- Don't wait for the last minute. Even a little bit a deadline anxiety can affect your performance. Give yourself some breathing room.

- Always have a backup plan: do you have the power cord ready in case your battery goes down in the middle of an exam? What if your internet is out on the day of any exam?
- Use the learning objectives to study! (of students who regularly use the learning objectives, 100% said they were extremely helpful and valuable).

Grading

Students grades will be determined through three proctored exams, low stakes quizzes, two assignments, discussion and participation, and a final project.

Exams

Three proctored, non-cumulative exams will be administered throughout the semester. Each exam is worth 18% of your grade. All exams will be proctored. Exam dates will be announced during the first week of class, but you can see where they fall in the semester in the list to topics above. If an exam is taken without approved proctoring arrangements and without adhering to proctoring criteria (eyes only on the screen, closed book/notes, no talking or other devices, etc) credit will not be given and the score will be a zero. If it is detected that a student's LMS account was signed into by more than one instance during an exam (i.e., two individuals signed into the same student account during an assessment), credit will not be given and the score will be zero.

There are no make-ups for exams without prior notification and proper documentation for an excused event or activity.

Quizzes

Brief quizzes will be given each week that cover each module. Quizzes can be taken up to **two times each** and only your highest score of each week's quiz will be recorded for a grade. Your quiz average will count for **15%** of your final grade. The 3 lowest quiz grades will be dropped. A missed quiz for any reason will be a zero and can count towards a quiz drop.

There are 15 total quizzes. One of the quizzes is a syllabus quiz to make sure the policies and format of the course are understood. Another quiz is an Honorlock practice quiz to ensure students understand the process to take an assessment with Honorlock.

Point Adjustment Requests

Following the close of each quiz window and for exams 1 and 2, you have 10 calendar days to contest your quiz/exam grade in an email. Any requests for points must include a clear justification of your response and why it is as complete or better than the correct one.

Please note that questions and comments about any quiz/exam question are welcome at any time during the semester for the purposes of understanding and education.

Research Activity Assignments

There will be two assignments (each worth 8% of final grade). Instructions will be given in class. The assignments are activities in which students analyze real genomic data from an ongoing study to identify associations between genetic variants and dietary traits. The students will then

use online tools and resources, including those from NCBI and the primary literature to synthesize a biological hypothesis to support their associations and to contribute to the field of genomics.

Participation
Students will receive points for participation in Discussion Boards on Canvas. Participation is worth 2% of their final grade.

Final Project
A final paper/presentation will be worth 18% of your final grade. More details will be provided in class. Students will have the option to write a paper or prepare a brief video presentation on a recent genomic discovery or development of their choice. This assignment will allow students to explore a specific disease, treatment, or technology of interest more deeply. Students will use tools and resources such as PubMed, GenBank, GENE and other sites that they used in the course.

Course Grade Breakdown:

Exams (3 total each worth 18%)	54%
Final presentation	13%
Quizzes	15%
Assignments	16%
Discussion	2%
Total	100%

Grading Scale

	Percentage
A	93.0 - 100
A-	89.0 – 92.99
B+	86.0 – 88.99
B	82.0 – 85.99
B -	79.0 – 81.99
C+	76.0 – 78.99
C	72.0 – 75.99
C-	69.0 – 71.99
D+	66.0 – 68.99
D	62.0 – 65.99
D -	59.0 – 61.99
E	58.99 and below

UF grading policies

Please see the UF grading policies at this site: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Attendance policy

Requirements for class attendance and make-up exams and assignments in this course are consistent with university policies that can be found at: catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/ Makeup exams will be provided for students who miss an exam due to extreme, documented circumstances that are consistent with the excused absences described in the university policy.

Students with Disabilities

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester. Please submit any accommodations by Sept 15 of the fall semester.

Course Evaluation

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 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 ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at gatorevals.aa.ufl.edu/public-results/ .

E-learning system - Canvas

The course will be managed entirely through the e-Learning in Canvas. The LSS homepage contains tips and tutorials for students as well as computer requirements. It is your responsibility to become familiar with e-Learning in Canvas and to ensure that you have the appropriate browsers, settings, internet speed, etc. For any technical questions regarding Canvas, please visit the LSS site (https://wiki.helpdesk.ufl.edu/FAQs/E-Learning) and/or the UF Help desk (http://helpdesk.ufl.edu/). They can address technical issues such as not being able to view course materials, not being able to access the quizzes, not being able to send mail, etc. **All technical issues/questions/comments should go to the Help Desk (352-392-HELP).**

Student Computing Requirements

Please refer to the Student Computing Requirement policy from UF: https://it.ufl.edu/policies/student-computing-requirements/

Access to and on-going use of a computer is required for all students. Competency in the basic use of a computer is require. Course work will require use of a computer with a webcam for proctoring and a broadband connection to the internet.

Communications

All email communication regarding this course will be done through the Conversations tool (Inbox) of Canvas. This mail system is private and secure. I will respond to your questions and emails as promptly as I can. By maintaining all email communication through Canvas instead of other email domains, it reduces the chance that discussions will get lost among our outside accounts.

Announcements will be made regularly through the Announcement feature. It is your responsibility to check your Canvas mail and Announcements **frequently** to stay updated on the course. Please check the course site a minimum of two times per week to be certain that you are not missing any important communications.

Academic Honesty

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 or TAs in this class.

Please see the Student Honor Code and Student Conduct Code here:
https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/

Additional comments regarding course decorum:
Students are encouraged to discuss material with each other from the course, help each other understand concepts, study together, and even discuss assessment questions with each other once the quiz window is closed. However, the following violate the student honor code:

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

Campus Resources

1. 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, ufhealth.org/emergency-room-trauma-center.

2. 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. Career assistance and counseling services *career.ufl.edu/.*

Library Support: 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 or to make an appointment 352- 392-6420. General study skills and tutoring. teachingcenter.ufl.edu/

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

Student Complaints On-Campus: sccr.dso.ufl.edu/policies/student-honor- code- student-conduct-code/

On-Line Students Complaints: distance.ufl.edu/student-complaint-process/ /

Cover Sheet: Request 17613

ENY5212 pre-requisite change

Info

Process	Course|Modify|Grad
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Estelle Martin estellemartin@ufl.edu
Created	8/30/2022 5:59:46 PM
Updated	9/19/2022 2:25:59 PM
Description of request	Most of our graduate courses now do not require prerequisite. Student do not need to take a lab to be successful in this course

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Entomology and Nematology 60140000	Heather Mcauslane		8/30/2022
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			8/30/2022
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 17613

Info

Request: ENY5212 pre-requisite change
Description of request: Most of our graduate courses now do not require prerequisite. Student do not need to take a lab to be successful in this course
Submitter: Estelle Martin estellemartin@ufl.edu
Created: 9/8/2022 4:36:52 PM
Form version: 3

Responses

Current Prefix ENY
Course Level 5
Number 212
Lab Code None
Course Title Insects and Wildlife
Effective Term Earliest Available
Effective Year Earliest Available
Requested Action Other (selecting this option opens additional form fields below)
Change Course Prefix? No

Change Course Level? No

Change Course Number? No

Change Lab Code? No

Change Course Title? No

Change Transcript Title? No

Change Credit Hours? No

Change Variable Credit? No

Change S/U Only? No

Change Contact Type? No

Course Type Lecture

Change Rotating Topic Designation? No

Change Repeatable Credit? No

Multiple Offerings in a Single Semester No
Change Course Description? No

Change Prerequisites? Yes
Current Prerequisites ENY3005L or BSC2005L (or higher)

Change Co-requisites? No

Rationale Most of our graduate courses do not require prerequisite. Students do not need to take a lab to be successful in this course

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.

EM 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/.

EM 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.

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

EM 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.

____ 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.

____ 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.

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

EM 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/.

EM 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.

EM 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.

EM 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.

EM 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)

INSECTS AND WILDLIFE

ENY4210 Undergraduate | Fall Semester | 3 Credit Hours | Asynchronous online course

INSTRUCTOR

Dr. Estelle Martin

Office: 306, Steinmetz Hall

1881 Natural Area Drive Box 110620

Gainesville, FL 32611

Phone: 352-294-6935

E-Mail: estellemartin@ufl.edu

TA

Kat Halsey

E-Mail: khalsey@ufl.edu

OFFICE HOURS

Tuesdays from 5-6 PM or by appointment. Students are encouraged to contact Kat Halsey at khalsey@ufl.edu or me at estellemartin@ufl.edu to arrange a time to meet with subject line: FALL 2022 - ENY4210 meeting request. All meetings will occur via Zoom. Please allow for a 48h response time.

Course Website

https://ufl.instructure.com/courses/462094

Course Description

Insects and other arthropods and their relationships with wild vertebrate animals.

Prerequisite Knowledge and Skills

As a prerequisite, you must have completed BSC 2005 or BSC 2010

Purpose of Course

This course has several purposes:

(1) to introduce students who are mostly interested in vertebrate animals (wildlife) to the importance of smaller, often overlooked, but ecologically important invertebrates, mostly insects
(2) to introduce students to vertebrate animals that interact with arthropods (mostly insects)
(3) to learn how insects are managed, and how vertebrate animals can be positively or negatively affected by the various practices

Course Goals and/or Objectives

By the end of this course, students will develop an understanding of the ecological relationships of arthropods and pesticides with natural resources, particularly the roles of arthropods as food, nuisance pests, vectors of animal disease, and in natural resource and wildlife conservation. Students will be able to identify the groups of insects (and other arthropods) that are most important as food, nuisance pests, and vectors of animal disease. They will learn methods of arthropod diet assessment and know how different methodologies affect the outcomes of research. They will learn how arthropod populations can be manipulated to favor wildlife and how these principles and practices can be use in wildlife management practices.

Instructional Methods

The class will be conducted entirely online uses Canvas. You are responsible for the course content in Canvas. You should view the lectures and read the text in the order shown in the class outline. You should also view the video clips, which serve to illustrate the items discussed.

Course Technology

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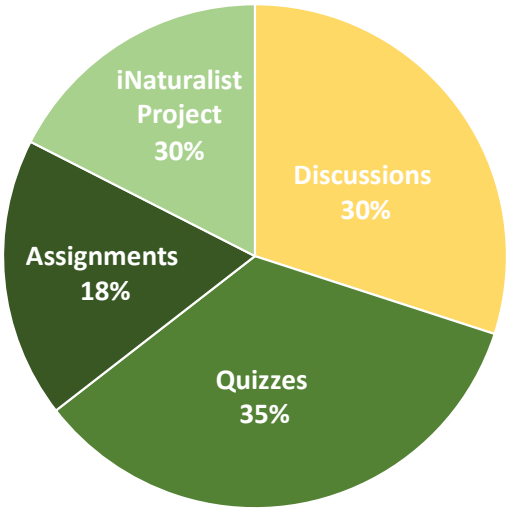

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4 (Sept 19-Sept 25)	Wildlife diets	Module 4 Quiz (30 pts) Module 4 Discussion board (20 pts) Module 4 Assignment (20 pts)	Sept 26
5 (Sept 26-Oct 2)	Insects important as food for wildlife	Module 5 Quiz (30 pts) Module 5 Discussion board (20 pts) Insect Identification Quiz (30 pts) No assignment	Oct 3
6 (Oct 3-Oct 9)	Insects and ecosystems	Module 6 Quiz (10 pts) Module 6 Discussion board (20 pts) Module 6 Assignment (20 pts)	Oct 10
7 (Oct 10-Oct 16)	Transmission of disease agents to wildlife by arthropods	Module 7 Quiz (10 pts) Module 7 Discussion board (20 pts) Mid-course evaluation (**5 pts Extra Credit**) No assignment	Oct 17
8 (Oct 17-Oct 23)	Infectious disease agents transmitted to wildlife by arthropods	Module 8 Quiz (10 pts) Module 8 Discussion board (20 pts) Module 8 Assignment (20 pts)	Oct 24
9 (Oct 24-Oct 30)	Parasitic disease agents transmitted to wildlife by arthropods	Module 9 Quiz (20 pts) Module 9 Discussion board (20 pts) Module 9 Assignment (20 pts)	Nov 1
10 (Oct 31-Nov 6)	Arthropods as parasites of wildlife	Module 10 Quiz (30 pts) Module 10 Discussion board (20 pts) Module 10 Assignment (20 pts)	Nov 7
11 (Nov 7-Nov 13)	Pesticides and their effects on wildlife	Module 11 Quiz (30 pts) Module 11 Discussion board (20 pts) Module 11 Assignment (20pts)	Nov 14
12 (Nov 14-Nov 20)	Alternatives to insecticides	Module 12 Quiz (10 pts) Module 12 Discussion board (20 pts) No assignment	Nov 21
13 (Nov 21-Nov 27)	No class	No assignments but feel free to work ahead!!!	
14 (Nov 28-Dec 4)	Insect-wildlife relationships	Module 14 Quiz (10 pts) Module 14 Discussion board (20 pts) Module 14 Assignment (20 pts) End-course evaluation (**5 pts Extra Credit**)	Dec 5
15 (Dec 5-Dec 11)	Insect and wildlife conservation	Module 15 Quiz (10 pts) Module 15 Discussion board (20 pts) No assignment Assess your knowledge quiz (14 pts)	Dec 12
Throughout the semester	Semester Project	iNaturalist Insects and Wildlife F2022 (175 pts) iNaturalist Insects and Wildlife University of Florida (**10 pts Extra Credit**)	

INSECTS AND WILDLIFE

ENY5212 Graduate | Fall Semester | 3 Credit Hours | Asynchronous online course

INSTRUCTOR

Dr. Estelle Martin

Office: 306, Steinmetz Hall

1881 Natural Area Drive Box 110620

Gainesville, FL 32611

Phone: 352-294-6935

E-Mail: estellemartin@ufl.edu

TA

Kat Halsey

E-Mail: khalsey@ufl.edu

OFFICE HOURS

Tuesdays from 5-6 PM or by appointment. Students are encouraged to contact Kat Halsey at khalsey@ufl.edu or me at estellemartin@ufl.edu to arrange a time to meet with subject line: FALL 2022 - ENY 5212 meeting request. All meetings will occur via Zoom. Please allow for a 48h response time.

Course Website

https://ufl.instructure.com/courses/462094

Course Description

Insects and other arthropods and their relationships with wild vertebrate animals.

Prerequisite Knowledge and Skills

There is no prerequisite

Purpose of Course

This course has several purposes:

(1) to introduce students who are mostly interested in vertebrate animals (wildlife) to the importance of smaller, often overlooked, but ecologically important invertebrates, mostly insects
(2) to introduce students to vertebrate animals that interact with arthropods (mostly insects)
(3) to learn how insects are managed, and how vertebrate animals can be positively or negatively affected by the various practices

Course Goals and/or Objectives

By the end of this course, students will develop an understanding of the ecological relationships of arthropods and pesticides with natural resources, particularly the roles of arthropods as food, nuisance pests, vectors of animal disease, and in natural resource and wildlife conservation. Students will be able to identify the groups of insects (and other arthropods) that are most important as food, nuisance pests, and vectors of animal disease. They will learn methods of arthropod diet assessment and know how different methodologies affect the outcomes of research. They will learn how arthropod populations can be manipulated to favor wildlife and how these principles and practices can be use in wildlife management practices.

Instructional Methods

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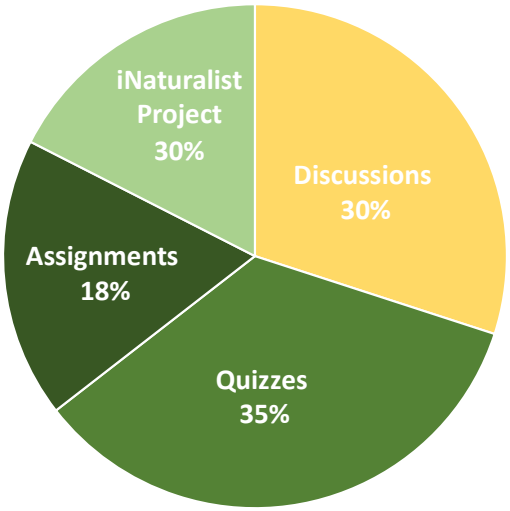

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4 (Sept 19-Sept 25)	Wildlife diets	Module 4 Quiz (20 pts) Module 4 Discussion board (30 pts) Module 4 Assignment (20 pts)	Sept 26
5 (Sept 26-Oct 2)	Insects important as food for wildlife	Module 5 Quiz (30 pts) Module 5 Discussion board (20 pts) Insect Identification Quiz (30 pts) No assignment	Oct 3
6 (Oct 3-Oct 9)	Insects and ecosystems	Module 6 Quiz (10 pts) Module 6 Discussion board (20 pts) Module 6 Assignment (20 pts)	Oct 10
7 (Oct 10-Oct 16)	Transmission of disease agents to wildlife by arthropods	Module 7 Quiz (10 pts) Module 7 Discussion board (20 pts) Mid-course evaluation (**5 pts Extra Credit**) No assignment	Oct 17
8 (Oct 17-Oct 23)	Infectious disease agents transmitted to wildlife by arthropods	Module 8 Quiz (10 pts) Module 8 Discussion board (20 pts) Module 8 Assignment (20 pts)	Oct 24
9 (Oct 24-Oct 30)	Parasitic disease agents transmitted to wildlife by arthropods	Module 9 Quiz (20 pts) Module 9 Discussion board (20 pts) Module 9 Assignment (20 pts)	Nov 1
10 (Oct 31-Nov 6)	Arthropods as parasites of wildlife	Module 10 Quiz (30 pts) Module 10 Discussion board (20 pts) Module 10 Assignment (20 pts)	Nov 7
11 (Nov 7-Nov 13)	Pesticides and their effects on wildlife	Module 11 Quiz (30 pts) Module 11 Discussion board (20 pts) Module 11 Assignment (20pts)	Nov 14
12 (Nov 14-Nov 20)	Alternatives to insecticides	Module 12 Quiz (10 pts) Module 12 Discussion board (20 pts) No assignment	Nov 21
13 (Nov 21-Nov 27)	No class	No assignments but feel free to work ahead!!!	
14 (Nov 28-Dec 4)	Insect-wildlife relationships	Module 14 Quiz (10 pts) Module 14 Discussion board (20 pts) Module 14 Assignment (20 pts) End-course evaluation (**5 pts Extra Credit**)	Dec 5
15 (Dec 5-Dec 11)	Insect and wildlife conservation	Module 15 Quiz (10 pts) Module 15 Discussion board (320 pts) No assignment Assess your knowledge quiz (14 pts)	Dec 12
Throughout the semester	Semester Project	iNaturalist Insects and Wildlife F2022 (150 pts) iNaturalist Insects and Wildlife University of Florida (**10 pts Extra Credit**)	

INSECTS AND WILDLIFE

ENY4210 Undergraduate | **ENY5212** Graduate | Fall Semester | 3 Credit Hours | Online OnCourse

Website: https://ufl.instructure.com/courses/462094

Differences between ENY4212 and ENY5212

Module 1 Assignment (20pts)

Module 2 Discussion (30 points)

Module 3 Assignment (20 points)

Module 4 Assignment (20 points)

Module 6 Discussion (30 points)

Module 8 Assignment (20 points)

Module 14 Assignment (20 points)

Total point difference (**160 points**)

Total points (**1000 points**)

Assignment difference between the two levels 16%. Assignments/Discussions with differential grading between the two levels are highlighted in yellow in the outline below

LECTURE OUTLINE

Module	Course topic	Assessment	Due Dates
0 (Aug 22-Aug 28)	Course introduction	Syllabus quiz (17 pts) Discussion board (30 pts) Assess your knowledge quiz (14 pts)	Aug 29
1 (Aug 29-Sept 4)	Insects and their relatives	Module 1 Quiz (30 pts) Module 1 Discussion board 1(30 pts) Module 1 Assignment (20 pts)	Sept 6
2 (Sept 5-Sept 11)	Insect structure and function	Module 2 Quiz (30 pts) Module 2 Discussion board 2 (30 pts) No assignment	Sept 12
3 (Sept 12-Sept 18)	Food resources for wildlife	Module 3 Quiz (10 pts) Module 3 Discussion board (30 pts) Module 3 Assignment (20 pts)	Sept 19
4 (Sept 19-Sept 25)	Wildlife diets	Module 4 Quiz (30 pts) Module 4 Discussion board (30 pts) Module 4 Assignment (20 pts)	Sept 26

5 **(Sept 26-Oct 2)**	Insects important as food for wildlife	Module 5 Quiz (30 pts) Module 5 Discussion board (30 pts) Insect Identification Quiz (30 pts) No assignment	Oct 3
6 **(Oct 3-Oct 9)**	Insects and ecosystems	Module 6 Quiz (10 pts) Module 6 Discussion board (30 pts) Module 6 Assignment (20 pts)	Oct 10
7 **(Oct 10-Oct 16)**	Transmission of disease agents to wildlife by arthropods	Module 7 Quiz (10 pts) Module 7 Discussion board (30 pts) Mid-course evaluation (**5 pts Extra Credit**) No assignment	Oct 17
8 **(Oct 17-Oct 23)**	Infectious disease agents transmitted to wildlife by arthropods	Module 8 Quiz (10 pts) Module 8 Discussion board (30 pts) Module 8 Assignment (20 pts)	Oct 24
9 **(Oct 24-Oct 30)**	Parasitic disease agents transmitted to wildlife by arthropods	Module 9 Quiz (20 pts) Module 9 Discussion board (30 pts) Module 9 Assignment (20 pts)	Nov 1
10 **(Oct 31-Nov 6)**	Arthropods as parasites of wildlife	Module 10 Quiz (30 pts) Module 10 Discussion board (30 pts) Module 10 Assignment (20 pts)	Nov 7
11 **(Nov 7-Nov 13)**	Pesticides and their effects on wildlife	Module 11 Quiz (30 pts) Module 11 Discussion board (30 pts) Module 11 Assignment (20pts)	Nov 14
12 **(Nov 14-Nov 20)**	Alternatives to insecticides	Module 12 Quiz (10 pts) Module 12 Discussion board (30 pts) No assignment	Nov 21
13 **(Nov 21-Nov 27)**	No class	No assignments but feel free to work ahead!!!	
14 **(Nov 28-Dec 4)**	Insect-wildlife relationships	Module 14 Quiz (10 pts) Module 14 Discussion board (30 pts) Module 14 Assignment (20 pts) End-course evaluation (**5 pts Extra Credit**)	Dec 5
15 **(Dec 5-Dec 11)**	Insect and wildlife conservation	Module 15 Quiz (10 pts) Module 15 Discussion board (30 pts) No assignment Assess your knowledge quiz (14 pts)	Dec 12
Throughout the semester	Semester Project	iNaturalist Insects and Wildlife F2022 (25 pts) iNaturalist Insects and Wildlife University of Florida (**10 pts Extra Credit**)	

INSECTS AND WILDLIFE

ENY 5212 (GRADUATE LEVEL)
SEMESTER: Fall, 3 CREDIT HOURS
ONLINE ONLY

INSTRUCTOR:
Dr. Estelle Martin
Office: 3206, Steinmetz Hall
1881 Natural Area Drive Box 110620
Gainesville, FL 32611
Phone: 352-294-6935
E-mail: estellemartin@ufl.edu

OFFICE HOURS:

- By appointment only
- Students are encourage to contact Kat Halsey at khalsey@ufl.edu or me at estellemartin@ufl.edu to arrange a time to meet with subject line: **FALL 2022 - ENY4210 or ENY 5212 meeting request**. All meetings will occur via Zoom. Please allow for a 48h response time.

COURSE WEBSITE: https://ufl.instructure.com/courses/396353

COURSE DESCRIPTION: Insects and other arthropods and their relationships with wild vertebrate animals.

PREREQUISITE KNOWLEDGE AND SKILLS: As a prerequisite, you must have completed ENY3005L or BSC2005L (or higher).

PURPOSE OF COURSE: This course has several purposes: (1) to introduce students who are mostly interested in vertebrate animals (wildlife) to the importance of smaller, often overlooked, but ecologically important invertebrates, mostly insects; (2) to introduce students

to vertebrate animals that interact with arthropods (mostly insects); (3) to learn how insects are managed, and how vertebrate animals can be positively or negatively affected by the various practices.

COURSE GOALS AND/OR OBJECTIVES: By the end of this course, students will develop an understanding of the ecological relationships of arthropods and pesticides with natural resources, particularly the roles of arthropods as food, nuisance pests, vectors of animal disease, and in natural resource and wildlife conservation. Students will be able to identify the groups of insects (and other arthropods) that are most important as food, nuisance pests, and vectors of animal disease. They will learn methods of arthropod diet assessment and know how different methodologies affect the outcomes of research. They will learn how arthropod populations can be manipulated to favor wildlife and how these principals and practices can be use in wildlife management practices.

INSTRUCTIONAL METHODS: The class will be conducted entirely online uses Canvas. You are responsible for the course content in Canvas. You should view the lectures and read the text in the order shown in the class outline. You should also view the video clips, which serve to illustrate the items discussed.

COURSE TECHNOLOGY: You will need internet access to the UF Canvas eLearning site to see the course contents and complete assessments.

LEARNING OBJECTIVES:

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

1. Compare the major insect orders
2. Discuss insects external and internal structure
3. Summarize the nutritional value of insect
4. Identify insect orders that are important to wildlife diet
5. Analyze the different impact insects have on animal and environmental health
6. Compare and contrast the different type of disease transmission
7. Discuss strategies for pest control, animal disease control and wildlife management
8. Judge and critique scientific literature related to insects and wildlife interaction
9. Create presentations on insect-vectored diseases that are involved in the regulation of animal populations
10. Employ databases to find relevant journal articles related to insects and wildlife

LECTURE OUTLINE:

Module	Course topic	Assessment	Due dates
0 (Aug 22-Aug 28)	Course introduction	Syllabus quiz (17 pts) Discussion board (30 pts) Assess your knowledge quiz (14 pts)	Aug 29
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5 (Sept 26-Oct 2)	Insects important as food for wildlife	Module 5 Quiz (30 pts) Module 5 Discussion board (30 pts) Insect Identification Quiz (30 pts) No assignment	Oct 3
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10 (Oct 31-Nov 6)	Arthropods as parasites of wildlife	Module 10 Quiz (30 pts) Module 10 Discussion board (30 pts) Module 10 Assignment (20 pts)	Nov 7
11 (Nov 7-Nov 13)	Pesticides and their effects on wildlife	Module 11 Quiz (30 pts) Module 11 Discussion board (30 pts) Module 11 Assignment (20pts)	Nov 14

12 (Nov 14-Nov 20)	Alternatives to insecticides	Module 12 Quiz (10 pts) Module 12 Discussion board (30 pts) No assignment	Nov 21
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15 (Dec 5-Dec 11)	Insect and wildlife conservation	Module 15 Quiz (10 pts) Module 15 Discussion board (30 pts) No assignment Assess your knowledge quiz (14 points)	Dec 12
Throughout the semester	Semester Project	iNaturalist Insects and Wildlife F2022 (25 pts) iNaturalist Insects and Wildlife University of Florida (**10 pts Extra Credit**)	

COURSE FORMAT AND REQUIREMENTS:

This course is offered as pre-recorded lectures delivered by the eLearning course management system Canvas. Slides are available as PDF as well as transcripts should you care to print them.

There are 14 quizzes, 15 discussions, 9 assignments and one semester project for this course.

Quizzes are multiple choice tests and must be taken via Canvas unless other arrangements are made in advance

Also, there are 14 “practice quizzes”. These are not graded and it is for your use only as a study aid. If you can answer these questions successfully you are acquiring adequate knowledge about the relationship of insects and their relatives that will allow you to be successful for each of the 14 “end of the module quizzes”

In addition, there is an ‘insect identification quiz’ which will assess your ability for identification of insect orders and insect relatives that are of particular importance to wildlife. This quiz can be taken up to 3 times and the best score will be kept. At the end of each attempt the explanations as to how identification of the images is determined.

In addition, there also is one “syllabus quiz”, two “course assessment quizzes” (midway and end of course) as well as 2 “assess your knowledge quizzes” (beginning and end of the course). For these, full grade will be given just for complete the quiz.

Among the 7 assignments, some are design as presentation of journal articles (1-2 page summary that may be accompanied by the production of a short video). The list of the journal articles is listed below:

Chapter - Journal article
6 - Insect herbivory and nutrients
6 - Salmon flies and nutrients
6 - Termites and elephants
6 - Ticks and global warming
8 - Plague and mountain plover
8 - Plague and prairie dogs
8 - Scavenging and plague
8 - Trout disease and stoneflies
9 - Chagas disease in Brazil
10 - Fire ants and wildlife
11 - Pesticides and intoxication
13 - Bats limit arthropods
13 - Bats limit insects
13 - Beehive-elephants
14 - Plague and vector control
14 - Tick control

Semester project:

The goal of this semester project is to have fun and go outside to look for insects! We will use the iNaturalist plateform to record our encounters with insects. During the semester, you will need to:

1. Upload 25 **unique observations** of insects to https://www.inaturalist.org/projects/insects-and-wildlife-fall-2022
    - These must be your own observations, and not anything you find online!
    - No pets or captive animals (example, you can not post a pic of your pet mantis)

2. These 25 insects must represent at least **10 different orders**

If you are not able to go outside and collect it is ok you will be able to explore iNaturalist and practice your identification skills by identifying 25 insects from at least **10 different orders**!

Insect and wildlife interactions can be fascinating and you will have the opportunity to get 10 points extra credit by capturing examples of arthropod and wildlife interaction and posting them to the project: https://www.inaturalist.org/projects/arthropods-and-wildlife-e94e59cb-6965-4fd0-8d0c-21daeb7c431d

COURSE COMMUNICATIONS: Please post course related question on the discussion board and send private question related to the course or grades to Estellemartin@ufl.edu

NETIQUETTE: COMMUNICATION COURTESY: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats.

REQUIRED TEXT: There are no required textbook. Most of the content for this course was developed using Capinera, J.L. 2010. Insects and Wildlife. Arthropods and their Relationships with Wild Vertebrate Animals. Wiley-Blackwell, Oxford, UK.

ADDITIONAL RESOURCES: All other materials are provided via the eLearning site.

HOW THIS COURSE RELATES TO THE STUDENT LEARNING OUTCOMES:

Biology students – will develop competence in the basic terminology, concepts, methodologies and theories used within the biological sciences; and will develop ability to analyze biological information and develop reasoned solutions to problems.

Wildlife biology students – will develop knowledge of scientific, social and ethical arenas of wildlife ecology and conservation; skills for critical reasoning in conservation management; knowledge of Florida wildlife species and their biology, ecology, natural history and behavior; principles and applications of wildlife management practices, population dynamics and habitat management; and application of biological principles to solve problems in wildlife conservation and preserve biological diversity.

Entomology students - will allow students to demonstrate knowledge of insects, other arthropods and/or nematodes, including their relationship with the environment and humans

COURSE POLICIES:

ATTENDANCE POLICY: There is no attendance policy, but it will be difficult to pass the course unless you read the book carefully, and listen to the lectures. Students are encouraged to work on this class weekly since **All writing assignments are due by the date posted and must be submitted using Canvas.**

QUIZ/EXAM POLICY: You have only one chance to take each test, so prepare in advance. Please take tests using a reliable computer and connections. All assignments are due on the Monday of the following week and the whole content of the course will be available to student as they start the course. To earn points, quizzes, discussion posts and assignments, must be completed and submitted before the Monday of the following course week. All late submissions will be docked 10 points on the individual component grade for each 24 hrs after each deadline. Contact me in advance (minimum of two weeks) if there will be a problem with the dates of the scheduled tests. The insect identification quiz you will be allowed three attempts and the highest score will be recorded.

COURSE GRADING: Students are responsible for the content of the lectures. The quizzes, discussion board and assignments are weighted equally, and the points assigned for each evaluation is listed in the “assessment” column of the lecture outline table (see above).

- Discussion (450 pts, 45.5% of total points)
- Quizzes (345, 34.5% of total points)
- Assignments (180 pts, 18% of total points)
- INaturalist Semester project (25 pts, 2.5% of total points)
- Total (1000 pts, 100%)

The final grade, based on accumulation of points, will be assigned as:

A	93– 100
A-	90– 92.9
B+	87– 89.9
B	83– 86.9
B-	80- 82.9
C+	77- 79.9
C	73- 76.9
C-	70- 72.9
D+	67- 69.9
D	63- 66.9
D-	60- 62.9
E	<59.9 and below

Grade point equivalencies for grades are found at: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

UF POLICIES:

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

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/.

COVID Response Statements
For face to face courses a statement informing students of COVID related practices such as: 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.
• You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.

• 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.

For online course with recorded materials a statement informing students of privacy related issues such as: 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 orally are 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.

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 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

Cover Sheet: Request 17587

Proposed new Ph.D. concentration in Microbial and Cellular Data Science

Info

Process	Concentration|New/Modify/Close|Grad/Interdisciplinary
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Eric Triplett ewt@ufl.edu
Created	8/19/2022 7:07:03 PM
Updated	9/18/2022 4:45:31 PM
Description of request	This proposed concentration is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. This program is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. If approved, admitted students into the concentration would conduct their dissertation at home or wherever they happen to be with good internet access. The research project would be led by a Microbiology and Cell Science graduate trainer and a graduate committee of UF faculty members. All requirements for the Ph.D. post-M.S. degree would be the same as for on-campus students. As the students coming into the program will be our own M.S. degree graduates, their coursework will be largely done by the time they enter this Ph.D. concentration. Many of our online M.S. concentration students are place-bound and would like to pursue a Ph.D. We propose this concentration for those students who have completed our online M.S. degree and wish to pursue Ph.D. dissertation work with Microbiology and Cell Science faculty by distance by working on data-driven research projects. Tuition will be paid by the student or by the student's employer. Tuition will be at the current in-state rate. No stipend will be provided unless the faculty member wishes for the student to spend more than 10 hours per week on the program. Small stipends or tuition waivers may be provided by the department during those terms where a graduate student in the concentration teaches or co-teaches a departmental course. These will be made available for those students in the concentration who desire teaching experience for their career goals. The teaching requirement for the Microbiology and Cell Science PhD degree will be waived for this concentration. The coursework, qualifying exams, and degree requirements will be the same as our current Ph.D. degree. The research would be directed by a UF Microbiology and Cell Science faculty member along with a graduate committee.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Microbiology and Cell Science 60100000	Eric Triplett		8/19/2022
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			8/19/2022
No document changes					
Graduate Council					
No document changes					
Graduate School Notified					
No document changes					

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

Concentration|New for request 17587

Info

Request: Proposed new Ph.D. concentration in Microbial and Cellular Data Science
Description of request: This proposed concentration is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. This program is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. If approved, admitted students into the concentration would conduct their dissertation at home or wherever they happen to be with good internet access. The research project would be led by a Microbiology and Cell Science graduate trainer and a graduate committee of UF faculty members.
All requirements for the Ph.D. post-M.S. degree would be the same as for on-campus students. As the students coming into the program will be our own M.S. degree graduates, their coursework will be largely done by the time they enter this Ph.D. concentration.

Many of our online M.S. concentration students are place-bound and would like to pursue a Ph.D. We propose this concentration for those students who have completed our online M.S. degree and wish to pursue Ph.D. dissertation work with Microbiology and Cell Science faculty by distance by working on data-driven research projects. Tuition will be paid by the student or by the student's employer. Tuition will be at the current in-state rate. No stipend will be provided unless the faculty member wishes for the student to spend more than 10 hours per week on the program. Small stipends or tuition waivers may be provided by the department during those terms where a graduate student in the concentration teaches or co-teaches a departmental course. These will be made available for those students in the concentration who desire teaching experience for their career goals. The teaching requirement for the Microbiology and Cell Science PhD degree will be waived for this concentration.
The coursework, qualifying exams, and degree requirements will be the same as our current Ph.D. degree. The research would be directed by a UF Microbiology and Cell Science faculty member along with a graduate committee.

Submitter: Eric Triplett ewt@ufl.edu
Created: 8/19/2022 6:58:18 PM
Form version: 1

Responses

Proposed Action Create a Concentration
Degree Level D - Doctoral Degree
Thesis or Non-Thesis Thesis
Concentration Name Microbial and Cellular Data Science
Credits 60
Effective Term Spring
Effective Year 2023
Students 20
Percentage of Credits Available Fully Online 100%
Percentage of Credits Available Off-Campus 50% or more
Is this an additional (secondary) concentration? Yes
All Department/Degree/Majors Adding Concentration Microbiology and Cell Science Ph.D. program
Rationale for Proposed Concentration This proposed concentration is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. This program is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. If approved, admitted students into the concentration would conduct their dissertation at home or wherever they happen to be with good internet access. The research project would be led by a Microbiology and Cell Science graduate trainer and a graduate committee of UF faculty members.

All requirements for the Ph.D. post-M.S. degree would be the same as for on-campus students. As the students coming into the program will be our own M.S. degree graduates, their coursework will be largely done by the time they enter this Ph.D. concentration.

Many of our online M.S. concentration students are place-bound and would like to pursue a Ph.D. We propose this concentration for those students who have completed our online M.S. degree and wish to pursue Ph.D. dissertation work with Microbiology and Cell Science faculty by distance by working on data-driven research projects. Tuition will be paid by the student or by the student's employer. Tuition will be at the current in-state rate. No stipend will be provided unless the faculty member wishes for the student to spend more than 10 hours per week on the program. Small stipends or tuition waivers may be provided by the department during those terms where a graduate student in the concentration teaches or co-teaches a departmental course. These will be made available for those students in the concentration who desire teaching experience for their career goals. The teaching requirement for the Microbiology and Cell Science PhD degree will be waived for this concentration.
The coursework, qualifying exams, and degree requirements will be the same as our current Ph.D. degree. The research would be directed by a UF Microbiology and Cell Science faculty member along with a graduate committee.

Impacts on Other Programs As the perspective students in this program are students that are not able to come to Gainesville for personal or financial reasons, no impact on any on-campus Ph.D. program is expected.
As most of the perspective students will be graduates of our online M.S. degree concentration, most of their coursework will be complete prior to entering this 60-credit Ph.D. concentration. Graduates of other M.S. degree programs may also apply but they may need to take more coursework to fulfill the requirements of our Ph.D. program.

Cover Sheet: Request 17587

Proposed new Ph.D. concentration in Microbial and Cellular Data Science

Info

Process	Concentration|New/Modify/Close|Grad/Interdisciplinary
Status	Pending at CALS - College of Agricultural and Life Sciences
Submitter	Eric Triplett ewt@ufl.edu
Created	8/19/2022 7:07:03 PM
Updated	8/19/2022 7:08:25 PM
Description of request	This proposed concentration is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. This program is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. If approved, admitted students into the concentration would conduct their dissertation at home or wherever they happen to be with good internet access. The research project would be led by a Microbiology and Cell Science graduate trainer and a graduate committee of UF faculty members. All requirements for the Ph.D. post-M.S. degree would be the same as for on-campus students. As the students coming into the program will be our own M.S. degree graduates, their coursework will be largely done by the time they enter this Ph.D. concentration. Many of our online M.S. concentration students are place-bound and would like to pursue a Ph.D. We propose this concentration for those students who have completed our online M.S. degree and wish to pursue Ph.D. dissertation work with Microbiology and Cell Science faculty by distance by working on data-driven research projects. Tuition will be paid by the student or by the student's employer. Tuition will be at the current in-state rate. No stipend will be provided unless the faculty member wishes for the student to spend more than 10 hours per week on the program. Small stipends or tuition waivers may be provided by the department during those terms where a graduate student in the concentration teaches or co-teaches a departmental course. These will be made available for those students in the concentration who desire teaching experience for their career goals. The teaching requirement for the Microbiology and Cell Science PhD degree will be waived for this concentration. The coursework, qualifying exams, and degree requirements will be the same as our current Ph.D. degree. The research would be directed by a UF Microbiology and Cell Science faculty member along with a graduate committee.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Microbiology and Cell Science 60100000	Eric Triplett		8/19/2022
No document changes					
College	Pending	CALS - College of Agricultural and Life Sciences			8/19/2022
No document changes					
Graduate Council					
No document changes					
Graduate School Notified					
No document changes					

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

Concentration|New for request 17587

Info

Request: Proposed new Ph.D. concentration in Microbial and Cellular Data Science
Description of request: This proposed concentration is expected to fulfill the need of our place- bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. However, we expect to only have the capacity to properly mentor the Ph.D. research of 3-10 students in this concentration each year.

This program is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. If approved, admitted students into the concentration would conduct their dissertation at home or wherever they happen to be with good internet access. The research project would be led by a Microbiology and Cell Science graduate trainer and a graduate committee of UF faculty members.

All requirements for the Ph.D. post-M.S. degree would be the same as for on-campus students. As the students coming into the program will be our own M.S. degree graduates, their coursework will be completed by the time they enter this Ph.D. concentration.

Many of our online M.S. concentration students are place-bound and would like to pursue a Ph.D. We propose this concentration be primarily for those students who have completed our online M.S. degree and wish to pursue Ph.D. dissertation work with Microbiology and Cell Science faculty by distance by working on data-driven research projects. These students will have completed all their graduate coursework during their M.S. degree. The average time to degree among our online M.S. graduates is 2.5 years.

Other M.S. graduates may apply but will be less competitive than our own M.S. graduates because we won't know them as well and because they haven't completed our coursework thereby taking longer to complete their Ph.D. Nevertheless, we acknowledge that we may find outstanding applicants from other M.S. degree programs that would require our serious consideration. However, our expectation is that at least 90% of the students accepted into this concentration will be our own M.S. graduates. The program will be marketed exclusively to our current M.S. students and graduates. Given that we can't accept many students into this program each year, that is all the marketing we need to do. This marketing effort will be done on our own.

No matter how the word gets out about this program, there are only so many students we can mentor for this Ph.D. concentration. We will give these students the same close attention in their research progress as we do our on-campus Ph.D. students. Also, we only have so many faculty who have projects that require a high level of computational power and have the skills to mentor quantitative graduate students. Hence, we don't expect to admit more than 3-10 per year.

We have no need or desire to attract students from other Ph.D. programs. Current Ph.D. students have already shown that they are capable of attending a residential program. Our interest is in recruiting those students who otherwise would not have the chance to complete a Ph.D.

For these reasons, we don't see this program having any significant enrollment impact on any courses outside of our program. The coursework taken by any Ph.D. student, including those in this proposed concentration, is determined by the graduate committee. As a result of that curriculum oversight by the faculty, there may be an occasional request for one of these students to take a course outside of our department. However, those courses would need to be online and asynchronous. In any case, such cases are expected to be rare.

Awarding of Ph.D. degrees will not be granted solely by the completion of 60 credits. Sixty credits are the minimum required for any Ph.D. beyond the M.S. degree. The same level of productivity, research accomplishments, and breadth of knowledge will be required of students in this concentration as in our standard Ph.D. program. We expect these students to be completing their Ph.D. in 4-6 years. We expect

them to take 6-9 credits per term but may need more than the 60 credits required to complete their degrees following the M.S. degree, as often happens in our standard Ph.D. program.

None of the required courses for this concentration require permanent prefixes of course numbers.

The research projects done by these students will be on general topics of interest generated by the faculty member. The faculty member will describe those topics where the faculty members need graduate student participation. A graduate committee for each new student will be selected during the first semester. Qualifying exam processes, committee meetings, lab meetings, seminars, and final defense will all be required as usual for students in this concentration as in our standard Ph.D. program.

The students in this concentration will have the same access to UF computing resources as on-campus students. HiperGator, OneDrive, Canvas, SPSS, Zoom, Microsoft Teams, library resources, and other UF resources will be available to these students. UF training will also be required of all these students to ensure appropriate use of these resources. As with all UF students, student in this proposed Ph.D. concentration will be required to have a computer and internet access.

In most cases, tuition will be paid by the student or by the student's employer. Tuition will be at the current in-state rate. No stipend will be provided unless the faculty member wishes for the student to spend more than 10 hours per week on the program. Small stipends or tuition waivers may be provided by the department during those terms where a graduate student in the concentration teaches or co-teaches a departmental course. These will be made available for those students in the concentration who desire teaching experience for their career goals. The teaching requirement for the Microbiology and Cell Science PhD degree will be waived for this concentration.

Students in this concentration will never be required to come to campus. However, in our limited experience to date, we have learned that the distance students will likely want to come to campus from time to time to meet the faculty and their peer students in-person. We will subsidize the travel costs for such visits once a year.

Data driven projects are increasingly common particularly with multi-omics, big data analyses. There are many PIs around the world who don't generate their own data directly. They either use facilities such as UF's ICBR or simply mine data from the many datasets available. For example, one of my colleagues recently downloaded over 400,000 human genomes from a UK project that can keep her lab busy for years with analyses. Soon, the National Institutes of Aging will release data from their Health and Retirement Study, a study of over 26,000 Americans begun in 1992. The NIH "All of Us" has genomes and lots of other data from over 200,000 Americans with a goal of one million subjects. Our country needs more people who can analyze datasets like these and we want to play our part in training them. There are also large datasets available from long-term NSF studies such as LTER and NEON. Other federal agencies have similarly data-rich projects.

Submitter: Eric Triplett ewt@ufl.edu
Created: 9/18/2022 5:30:18 PM
Form version: 1

Responses

Proposed Action Create a Concentration
Degree Level D - Doctoral Degree
Thesis or Non-Thesis Thesis
Concentration Name Microbial and Cellular Data Science
Credits 60
Effective Term Spring
Effective Year 2023
Students 20
Percentage of Credits Available Fully Online 100%
Percentage of Credits Available Off-Campus 50% or more
Is this an additional (secondary) concentration? Yes
All Department/Degree/Majors Adding Concentration Microbiology and Cell Science Ph.D. program

Rationale for Proposed Concentration This proposed concentration is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. At the moment, we know of 50 students in our online M.S. degree program who are interested and have sufficient programming skills. However, we expect to only have the capacity to properly mentor the Ph.D. research of 3-10 students in this concentration each year.

This program is expected to fulfill the need of our place-bound online M.S. degree graduates seeking to further their education. If approved, admitted students into the concentration would conduct their dissertation at home or wherever they happen to be with good internet access. The research project would be led by a Microbiology and Cell Science graduate trainer and a graduate committee of UF faculty member.

All requirements for the Ph.D. post-M.S. degree would be the same as for on-campus students. As the students coming into the program will be our own M.S. degree graduates, their coursework will be largely done by the time they enter this Ph.D. concentration.

Many of our online M.S. concentration students are place-bound and would like to pursue a Ph.D. We propose this concentration for those students who have completed our online M.S. degree and wish to pursue Ph.D. dissertation work with Microbiology and Cell Science faculty by distance by working on data-driven research projects. Tuition will be paid by the student or by the student's employer. Tuition will be at the current in-state rate. No stipend will be provided unless the faculty member wishes for the student to spend more than 10 hours per week on the program. Small stipends or tuition waivers will be provided by the department during those terms where a graduate student in the concentration teaches or co-teaches a departmental course. The teaching requirement for the Microbiology and Cell Science PhD degree will remain in place for this concentration.

The coursework, qualifying exams, and degree requirements will be the same as our current Ph.D. degree. The research would be directed by a UF Microbiology and Cell Science faculty member along with a graduate committee.

Impacts on Other Programs As the prospective students in this program are students that are not able to come to Gainesville for personal or financial reasons, no impact on any on-campus Ph.D. program is expected.

As most of the prospective students will be graduates of our online M.S. degree concentration, most of their coursework will be complete prior to entering this 60-credit Ph.D. concentration. Graduates of other M.S. degree programs may also apply but they may need to take more coursework to fulfill the requirements of our Ph.D. program.