Cover Sheet: Request 9969

ZOO 4XXXC – Elegans molecular genetics

Info

Process	Course|New|Ugrad/Pro
Status	Denied
Submitter	Tangelyn Mitchell tney0726@ufl.edu
Created	1/28/2015 11:49:05 AM
Updated	4/5/2021 8:46:32 AM
Description of request	A proposal for a new course in biology

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CLAS - Biology 16900300	Ellen Davis		1/29/2015
No document changes					
College	Tabled	CLAS - College of Liberal Arts and Sciences	David Pharies	There is a problem with the request for 4 credits in such a short time. Please contact Dr. David Julian for more information.	2/26/2015
Choe_distinction_grad_undergrad.docx					2/10/2015
College	Recycled	CLAS - College of Liberal Arts and Sciences	Joseph Spillane	Is there still interest in this? Just going through old items in the approval system	5/29/2020
Choe-Cover Letter_ugrad_3.31.docx Choe-UCC1-L4-C. elegans_3.31.15.docx C elegans molecular genetics L4_3.31.docx					3/31/2015 4/1/2015 4/1/2015
Department	Approved	CLAS - Biology 16900300	Marta Wayne		1/22/2021
No document changes					
College	Approved	CLAS - College of Liberal Arts and Sciences	Joseph Spillane		2/19/2021
No document changes					
University Curriculum Committee	Denied	PV - University Curriculum Committee (UCC)	Casey Griffith	The UCC has a policy regarding the timely review of course requests. Requests must be seen by the UCC within 2 years of creation in order to be considered for approval. This request is outside that time frame.	4/5/2021
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					

Step	Status	Group	User	Comment	Updated
Catalog					
No document changes					
College Notified					
No document changes					

ZOO 4926, *C. elegans* molecular genetics – 2 credits

COURSE OVERVIEW

The nematode *Caenorhabditis elegans* is one of the most experimentally tractable animal models for genetics, molecular biology, cell biology, development, and physiology.

OBJECTIVES

This course will introduce students to the theory and practice of common research methods used with *C. elegans* to study genes, proteins, and the processes in which they function.

After this course, students will be able to plan experiments with the following approaches: transgenesis, mating and crossing, histological staining, forward genetic screening, microscopy and anatomy, and high-throughput screening.

Students will become acquainted with members of all labs at UF currently working with *C. elegans*.

COURSE SCHEDULE

Given the nature of some of the methods, this course needs will be conducted over consecutive days. Therefore, the instruction and lab work will be conducted from 9 AM-5 PM **over spring break starting on the first Saturday and ending on Friday (dates TBA)**. Students will be busy conducting experiments throughout the day on these days.

Format: – The course will include lectures to introduce topics and laboratory sessions to practice.

Who: - This course is intended for graduate students using or planning to use *C. elegans* and advanced undergraduate students already working in a *C. elegans* laboratory; undergraduates will need to be recommended by their faculty mentor. These will include transgenesis, mating and crossing, histological staining, forward genetic screening, microscopy and anatomy, and high-throughput screening.

Prerequisites: - Coursework in general biology and genetics is required (e.g., BSC2010 & 2011 and PCB 3063 or AGR 3303 or PCB 4522).

Material Fee: - A fee of **$150 per student** is needed to cover costs of supplies and reagents.

INSTRUCTORS

Keith P. Choe, Bartram Hall room 321, 273-0139, *kchoe@ufl.edu*
Office Hours: TBA

TENTATIVE TOPICS

Genetic

- Nomenclature
- Mating, crossing, and mutant identification by PCR*
- Chemical mutagenesis, screening, outcross, complementation, mutation identification strategies*

Reverse Genetics

- Transgenesis – PCR fusion, Gateway cloning, primer design, micro-injection, integration, transposon methods
- RNA interference – cloning strategies, tips on feeding, tissue-specific strategies, sensitized strains, tips on screening*

- Mutant libraries – Gene Knockout Consortium, National Bioresource Project, Million mutation project
- Genome editing – MOS1, CRISPR, others

Molecular and Cellular Analysis

- Microscopy and anatomy – DIC, fluorescence, WormAtlas*
- Immunohistochemistry and histological staining - fixation, staining, interpretation
- BIOSORT - sorting and measuring*
- High-throughput screening – liquid culture, dispensing, measurements*

*Methods that will be practiced in the laboratory

Others

- Short student presentations on their research

TEXTBOOK REQUIREMENTS

There is no required textbook. Reading material will be selected from available sources or provided.

TENTATIVE GRADING

Experiment goals	50
Student presentation	25
Exam	25
Total	100

Detailed grading policies for the University can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Point Range (%)	Letter Grade
≥ 90.00	A
≥ 86.66	A–
≥ 83.33	B+
≥ 80.00	B
≥ 76.66	B–
≥ 73.33	C+
≥ 70.00	C
≥ 66.66	C–
≥ 63.33	D+
≥ 60.00	D
≥ 56.66	D–
< 56.66	E

STUDENT EVALUATION

There will be a total of 45 points available for the Experimental goals. Therefore, as long as you complete at least 78% of the experiments successfully, you will get full experiment credit; however the maximum possible points are 35.

Presentations will be graded based on a rubric that scores for completeness, clarity, engagement of the audience, and answers to questions.

The exam will be given roughly one week after Spring Break at a time to be announced. It will be based on the background material, reading, and results of experiments.

Participants (lab PI)

TBA

Attendance and absences

Attendance during spring break is mandatory.

Class demeanor

Students will be expected to be spend the majority of the week in class completing experiments and participating in discussions and presentations. Each day will begin and end with presentation of material, so students will need to arrive on time. Cell phones are not to be used during presentations and discussions.

Academic dishonesty

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 (http://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.

Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

Students with special needs

Students with disabilities are required to register with the Disability Resource Center (DRC) if they are requesting accommodations. The DRC may be contacted at (352) 392-2565 or refer to the website at http://www.dso.ufl.edu/drc. It is the student's responsibility to notify the instructor of any accommodation requests. I am happy to help.

No accommodations are available to students who lack this documentation. It is the policy of the University of Florida that the student, not the instructor, is responsible for arranging accommodations when needed.

UF counseling services

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include: 1) UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services, 2) Career Resource Center, Reitz Union, 392-1601, career and job search services, 3) Student Mental Health, Student Health Care Center, 392-1171, personal counseling, 4) "A Self Help Guide for Students" is available through the Counseling Center (301 Peabody Hall, 392-1575) and at their web site: http://www.counsel.ufl.edu/., 5) 5.Phone numbers and contact sites for university counseling services and mental health services: http://www.counseling.ufl.edu/cwc/Default.aspx or 392-1575; University Police Department 392-1111 or 9-1-1 for emergencies.

Online course evaluations

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

College of Liberal Arts and Sciences
Department of Biology

220 Bartram Hall
PO Box 118525
Gainesville, FL 32611-8525
352-392-1175
352-392-3704 Fax

March 31, 2015

Dear Curriculum Committee,

Enclosed are the application materials for a new undergraduate course entitled "*C. elegans* molecular genetics".

The nematode *Caenorhabditis elegans* is one of the most powerful model organisms for studying many aspects of animal biology including genetics, physiology, aging, and development. This organism is currently being studied by five research labs at the University of Florida and six other labs at other institutions in the state of Florida. Although *C. elegans* is extremely powerful, the learning curve can be bewildering for new students.

There are five research labs at UF (Drs. Charlie Baer, Arthur Edison, Rebecca Butcher, and David Julian, and Keith Choe) and two nearby (Dr. Sandy Westerheide at Univ. South FL and Dr. Eric Guisbert at FL Inst. Tech) using *C. elegans*, but with expertise primarily in areas outside of molecular genetics (e.g., structural biology, cell physiology, and protein biochemistry). Each one of these labs has active undergraduate and graduate students that would benefit greatly from this course by giving them exposure to a wide array of research methods. Another benefit of this course is to generate synergy between students in the different *C. elegans* research labs at UF. In 2014, I taught a trial version of the course as a special topic. I filled my capacity of 8 students and had to turn away another 3-4 students.

On average, each of the five *C. elegans* research labs at UF has 2-5+ undergraduates and 1-3+ graduate students. This course is designed to help any students in their first or second year working with *C. elegans*. The course could also be opened to undergraduate students who want to work in a *C. elegans* lab, but have not yet been accepted. A good performance in the course would give these students access to the graduate students already working in a lab. Conflicts with other units on campus for a course with this focus are not expected.

<u>Justification for 2 credit hours for the undergraduate course:</u>
55 hours of actual labwork/homework/reading during spring break
20 hours for presentations (done prior to Spring Break)
15 hours for exam (due one week after Spring Break)
Total 90 hours

Please contact me if you have any questions or concerns.

Sincerely,

Keith Choe
Assistant Professor
Department of Biology
kchoe@ufl.edu
352-273-0139

College of Liberal Arts and Sciences
Department of Biology

220 Bartram Hall
PO Box 118525
Gainesville, FL 32611-8525
352-392-1175
352-392-3704 Fax

February 9, 2015

Distinction between the undergraduate and graduate versions of the course being proposed:
Graduate students will be required to apply understanding of the research approaches covered to their specific area of interest by writing a mock grant proposal that incorporates some of the new approaches learned in the course. A referenced background, rationale, significance, and approach sections will be included. This assignment will be due approximately two weeks after the end of the week of laboratory meetings and will include a review by the instructor and resubmission (please see grading specifics in the syllabus).

4XXX level grade determination:

Experiment goals	50
Student presentation	25
Exam	25
Total	100

6XXX level grade determination:

Experiment goals	35
Student presentation	15
Exam	25
Grant proposal	25
Total	100

Sincerely,

Keith Choe
Assistant Professor
Department of Biology
kchoe@ufl.edu
352-273-0139

UCC1: New Course Transmittal Form

Recommended SCNS Course Identification

1. Prefix ZOO 2. Level 4 3. Number XXX- 4. Lab Code None

5. Course Title C. elegans molecular genetics
6. Transcript Title (21 character maximum) C. elegans Mol. Gen.

7. Effective Term Fall 8. Effective Year 2015 9. Rotating Topic? No
10. Amount of Credit 2 11. If variable, # minimum and # maximum credits per semester.
12. Repeatable credit? No 13. If yes, total repeatable credit allowed #
14. S/U Only? No 15. Contact Type Regularly Scheduled [base hr]
16. Degree Type Baccalaureate 17. If other, please specify: Click here to enter text.
18. Category of Instruction Advanced

19. Course Description

The nematode Caenorhabditis elegans is one of the most experimentally tractable models for genetics, molecular biology, cell biology, development, and physiology. This course will introduce students to the theory and practice of common research methods used with C. elegans to study genes, proteins, and the processes in which they function.

20. Prerequisites

Coursework in general biology and genetics is required (e.g., BSC2010 & BSC2011 and PCB 3063 or AGR3303 or PCB4522).

21. Co-requisites

None

22. Rationale and Placement in Curriculum

Five research labs at UF use C. elegans as a model organism. Each of these labs has active graduate and undergraduate involvement but most have expertise outside of molecular genetics. This course will allow students working in these labs across campus to learn research methods in molecular genetics as they apply to C. elegans. It will also generate synergy among these labs, and can serve as a gateway for undergraduate research opportunities.

23. Complete the syllabus checklist on the next page of this form.

Syllabus Requirements Checklist

The University's complete Syllabus Policy can be found at:
http://www.aa.ufl.edu/Data/Sites/18/media/policies/syllabi_policy.pdf

The syllabus of the proposed course **must** include the following:

- ☒ Course title
- ☒ Instructor contact information (if applicable, TA information may be listed as TBA)
- ☒ Office hours during which students may meet with the instructor and TA (if applicable)
- ☒ Course objectives and/or goals
- ☒ A weekly course schedule of topics and assignments.
- ☒ Methods by which students will be evaluated and their grades determined
- ☒ Information on current UF grading policies for assigning grade points. This may be achieved by including a link to the appropriate undergraduate catalog web page: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.
- ☒ List of all required and recommended textbooks
- ☒ Materials and Supplies Fees, if any
- ☒ A statement related to class attendance, make-up exams and other work such as: *"Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx."*
- ☒ A statement related to accommodations for students with disabilities such as: *"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."*
- ☒ A statement informing students of the online course evaluation process such as: *"Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results."*

It is **recommended** that the syllabus contain the following:

- ☒ Critical dates for exams or other work
- ☒ Class demeanor expected by the professor (e.g. tardiness, cell phone usage)
- ☒ The university's honesty policy regarding cheating, plagiarism, etc.

  Suggested wording: 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 (http://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.

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