The University of Georgia  
Course Change Application

1. COURSE ID:
   
   Current: CBIO 4980

2. TITLES

   Current:
   Course Title: Research in Cellular Biology
   Course Computer Title: CELL BIOL RESEARCH

   Proposed:
   Course Title: Research in Cellular Biology
   Course Computer Title: Research in Cellular Biology

3. COURSE DESCRIPTION (must be 50 words or less)

   Current:
   Independent laboratory research directed by departmental faculty members. Two semesters may fulfill the departmental techniques requirement.

4. GRADING SYSTEM

   Current:
   A-F (Traditional)

5. CREDIT HOURS AND LECTURE/LAB/DISCUSSION HOURS

   Current: FIXED VARIABLE
   Credit Hours 1 to 4

6. NON-TRADITIONAL FORMAT (if lecture/lab hours or lecture/discussion hours are fewer than credit hours, please justify)

   Current: Independent research under the direction of a faculty member.

   Proposed:
   CBIO 4980 EL justification CBIO 4980 (Research in Cellular Biology) is an independent research course for students to conduct laboratory research under the supervision of a faculty member in cellular biology. Students will perform their research in a research laboratory and gain independent research experience and one-to-one mentoring by a Department of Cellular Biology faculty member. Students will develop a diverse set of skills essential for a biological researcher, including critical reading of primary papers, learning and employing the basic elements of experimental design, how to organize and perform experiments, statistical or other methods of analysis of their results, preparation of data for presentation at scientific meetings, extensive oral communication and discussions with colleagues and faculty mentor, ethical behavior, computer literacy, and maintaining accurate and complete written records. The Department of Cellular Biology faculty members have a record of excellence in cutting-edge research with emphasis on 4 main research areas: cells and disease, cells in development, cells in infection and immunity and cell structure and function. Within these areas of emphasis, laboratories in the Department of Cellular Biology incorporate a diverse expertise in genetics, parasitology, virology, immunology, chemical biology, bio image analysis, evolution, biochemistry, neuroscience and science education into their individual research programs. By enrolling in the CBIO 4980 independent research
Course in faculty’s laboratories, students will be directly involved in solving some of the most exciting and challenging cellular biology research problems, many in areas with a direct impact on human health and disease. This is an area of particular interest for Cellular Biology majors that collectively are interested in basic cellular biology research as well as medicine and other allied health professions. Students enrolled in CBIO 4980 will not only directly contribute to the advancement of the field of cellular biology and get a first-hand laboratory research training to prepare them for a career in research, they will also be prepared for future careers in medicine where they will need to be able to articulate and apply basic research clinically. CBIO 4980 is not confined to only research with faculty within the Department of Cellular Biology; however, enrollment in CBIO 4980 with faculty outside of the Department of Cellular Biology is contingent on approval the student’s independent research project by the cellular biology undergraduate coordinator (i.e., research must be within the 4 main areas of departmental research emphasis). As described below, the independent research students will conduct in faculty’s laboratories entails substantive ENGAGEMENT of students and one-to-one faculty MENTORSHIP, and will also demonstrate measurable student learning outcomes in the areas of CHALLENGE and OWNERSHIP. Of note, students enrolled in CBIO 4980 are held to the same research goals and standards and learning objectives as those students enrolled in CBIO 4980H, a class already approved for experiential learning. 1. ENGAGEMENT: Students will first meet with the cellular biology undergraduate advisor and coordinator to discuss their research interests. Based on their interests, students will be directed to read faculty’s research descriptions on the various departmental web sites to find research that aligns well with their interests. Students will then directly contact faculty of interest to make appointments to discuss research opportunities, and eventually choose a faculty as their research mentor and the host lab for their independent research. The student and faculty mentor will discuss and agree on the expectations of the students enrolled in a given lab and create a student/ lab specific syllabus. Students will finally be assigned a course registration number to register CBIO 4980 under their faculty mentor. The whole application process presents a learning experience for students to be directly involved in searching and deciding a faculty mentor for their independent research and advocating for themselves when setting course expectations in conjunction with their mentor. Under the guidance of a faculty mentor, a student will choose a research problem that aligns well with both the student’s interest and faculty’s current research activities, read some original research literature related to the chosen research problem, design experimental approaches to address the chosen problem, carry out the designed experiments, record and analyze the experimental data and present the data to colleagues and the research mentor. Of note, all cellular biology majors are required to co-enroll in CBIO 4040 (with CBIO 4980), which is a laboratory meeting course, for at least 1 semester. In this class, students must demonstrate their ability to effectively communicate scientific information by placing their work in the greater scientific context, provide experimental rationales and understand research methods. This class will compliment and emphasize the scientific communication aspect of CBIO 4980 with a clear expectation. Finally, all students enrolled in CBIO 4980 will present their research findings in the format of a research paper or a poster to be presented at a UGA venue (CURO, CBIO retreat or undergraduate spring symposium, CTEGD symposium, etc.). One of these options will be chosen and expectations outlined in the student’s final syllabus. A student will enroll 3 or 4 credit hours and spend 9 to 12 hours preforming research per week. 2. MENTORSHIP: Each student will receive one-to-one intensive mentorship from a faculty mentor. Because faculty typically have graduate students and/or postdoctoral researchers in the lab, the student will also have a chance to work with and receive mentoring from graduate students and/or postdoctoral researchers. The faculty mentor will work closely with the student and mentor the student by having face-to-face discussions and providing written comments on any reports as required per the specific student’s syllabus. The faculty mentor will give the student specific comments and suggestions in terms of selecting research problems, designing experiments, interpreting and presenting the experimental data. The faculty mentor will provide hands-on guidance of carrying out various research experiments, and help the student solve technical questions that arise in their experiments. The faculty mentor will work closely with the student on writing up a paper or presenting a poster describing the research findings and give constructive feedback comments on how to improve communicating and presenting the findings when needed. The student will also participate in the
faculty’s lab meetings and learning other ongoing research activities and experimental techniques and
approaches that may be useful to the student’s research. 3. STUDENT LEARNING OUTCOMES: 3.1.
CHALLENGE: This is an intensive, independent research course designed to engage a student and give
the student an excellent venue to apply what the student has learned in the classroom to a research
project in a real research laboratory setting. A student will first be challenged to conduct an interview
with faculty and then choose a faculty as research mentor. Under the guidance of the faculty mentor, the
student will be challenged to find a research problem in cellular biology by reading original literature,
and design the experimental approaches to solve the chosen problem. Students are expected to
successfully articulate their research problem and goals, the current knowledge of the field in the chosen
research problem, hypothesis, and proposed experimental approaches. The student will then carry out the
designed experiments, record and analyze the data, and interpret the data in the context of the current
knowledge of the field. The student will either present their data in a format of a paper or a poster at a
UGA venue (CURO, Cellular Biology Retreat, CBIO undergraduate spring symposium, CTEGD
symposium, etc.) at the end of the project as determined per their syllabus. These are essential and
valuable research skills a student will gain from conducting CBIO 4980 independent research so that the
student will be better prepared for his/her future careers. 3.2. OWNERSHIP: Because a student will
define research problems, design experimental approaches, execute designed experiments, interpret and
present their research findings, the student will take the ownership of the experiments and final research
findings. The student will have the opportunity to write up a paper that may potentially be publishable in
a cell biology journal. All students enrolled in CBIO 4980 will present their research findings in the
format of a research paper or a poster to be presented at a UGA venue (CURO, CBIO retreat or
undergraduate spring symposium, CTEGD symposium, etc.) at the end of the project.

7. REPEAT POLICY

Current:
Course can be repeated for credit - maximum credit allowed 9 hours

8. DUPLICATE CREDIT STATEMENT (do not list quarter course IDs)

The course will not be open to students who have credit in the following courses:

Current:

9. REQUIRED PREREQUISITES

Current:
Permission of department

10. PREREQUISITE OR COREQUISITE COURSES

Current:

11. COREQUISITE COURSES

Current:

12. PRIMARY DELIVERY MECHANISM (select only one):

Current:
Directed Study

13. COURSE WILL BE OFFERED

Current:
Every Year - Fall Spring Summer
14. **DESIRED EFFECTIVE SEMESTER AND YEAR**

Semester following UCC approval

15. **ADDITIONAL INFORMATION REQUIRED FOR THE SYLLABUS**

**COURSE OBJECTIVES OR EXPECTED LEARNING OUTCOMES**

**Current:**

By the end of this course, students will have developed a knowledge base to support lifelong interest and learning in cellular biology and should be able to:

- Read and appreciate the scientific literature.
- Integrate ideas from conventional classes into addressing current scientific questions.
- Be capable of designing and critiquing experimental design and interpreting results from experiments.

**TOPICAL OUTLINE**

**Current:**

The course is based on individual study, reading, or laboratory research directed by faculty of the Cellular Biology department. Typically, faculty and student meet on a weekly basis at an arranged time.

Non-traditional format: Independent reading/research under the direction of a faculty member.

**UNIVERSITY HONOR CODE AND ACADEMIC HONESTY POLICY**

UGA Student Honor Code: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others." *A Culture of Honesty,* the University's policy and procedures for handling cases of suspected dishonesty, can be found at [www.uga.edu/ovpi](http://www.uga.edu/ovpi). Every course syllabus should include the instructor's expectations related to academic integrity.

**Current:**

All academic work must meet the standards contained in "A Culture of Honesty." Each student is responsible to inform themselves about those standards before performing any academic work.

**COMMENTS**

<table>
<thead>
<tr>
<th>Comment By</th>
<th>Comment Date</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paree Shedd</td>
<td>October 16, 2017</td>
<td>Course was returned to Department Course Initiator with the following note: Returned to edit Experiential Learning information. Please return when done.</td>
</tr>
</tbody>
</table>

**ORIGINATOR OF REQUEST**

https://www.capa.uga.edu/cgi/Capa/BrowsePrefix_DisplayCourse.exe?36731C1395
ORIGINATING UNIT APPROVALS

Department Head: Kojo Mensa-Wilmot
Date: September 22, 2017

College Committee: College Curriculum Committee  College Committee Chair: Ron Orlando
Date: September 29, 2017

College/School Dean: Alan T. Dorsey
Date: September 29, 2017

<table>
<thead>
<tr>
<th>Faculty Member</th>
<th>First Name</th>
<th>Last Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Kimberly</td>
<td>Klonowski</td>
<td><a href="mailto:klonowsk@uga.edu">klonowsk@uga.edu</a></td>
</tr>
</tbody>
</table>

Department: Cellular Biology  
School/College: Franklin College of Arts and Sciences  
Date: September 22, 2017

https://www.capa.uga.edu/cgi/Capa/BrowsePrefix_DisplayCourse.exe?36731C1395