Cover letter for BIOL 359 Study Abroad in Neuroscience Course Approval

We are seeking approval to make BIOL 359 Study Abroad in Neuroscience a permanent course offering in Biology.

New Course Form - BIOL 359 Study Abroad in Neuroscience
Change of Major forms with Program of Study forms:
- BS Biology
- BS Biology – Molecular Biology Concentration
- BS Biology – with Teaching Option
- BS Marine Biology
- BA Biology

Change of Minor Forms for:
- Biology Minor
- Neuroscience Minor

Letter of Support from Gabrielle Principe, Chair of Psychology

Approval for PSYC cross listed course has passed Senate.
FACULTY CURRICULUM COMMITTEE
SIGNATURE PAGE

- In section A, list ALL of the forms covered by this signature page. If you submit a form that is not listed in A, your proposal will be held back until we receive a new, updated signature page.
- You must obtain the signature of your department chair and dean before submitting your proposal.

A. FORMS COVERED BY THIS SIGNATURE PAGE.

BIOL359 New Course Form; Change of Major forms for BS Biology, BS Biology – Molecular Biology Concentration, BS – Biology with Teaching Option, BS – Marine Biology, BA – Biology; Change of Minor Forms for Biology Minor and Neuroscience Minor

B. APPROVAL AND SIGNATURES.

1. Signature of Department Chair or Program Director:

   [Signature]

   Date: 11/3/14

2. Signature of Academic Dean:

   [Signature]

   Date: 11/3/14

3. Signature of Provost:

   [Signature]

   Date: 12/30/14

4. Signature of Business Affairs (only for course fees):

   [Signature]

   Date: _____________

   □ fee approved on _____________

   □ BOT approval pending

5. Signature of Curriculum Committee Chair:

   [Signature]

   Date: 1/20/2015

6. Signature of Budget Committee Chair (only for new programs):

   [Signature]

   Date: _____________

7. Signature of Academic Planning Committee Chair (only for new programs):

   [Signature]

   Date: _____________

8. Signature of Faculty Senate Secretary:

   [Signature]

   Date: _____________

Date Approved by Faculty Senate: ________________
FACULTY CURRICULUM COMMITTEE
COURSE FORM

Instructions:
- Please fill out one of these forms for each course you are adding, changing, deactivating, or reactivating.
- Fill out the parts of the form specified in part B. You must do this before your request can move forward!
- Remember that your changes will not be implemented until the next catalog year at the earliest.
- If you have questions, start by checking the instructions on the website. Please feel free to contact the committee chairs with any remaining questions you might have.

A. CONTACT/COURSE INFORMATION.

Name: Chris Korey  Phone: 3-7178  Email: koreyc@cofc.edu

Department or Program: Biology  School: SSM

Subject Acronym and Course Number: BIOL 359

Catalog Year in which changes will take effect: FALL 2015

B. TYPE OF REQUEST. Please check all that apply, then fill out the specified parts of the form.

☐ Add a New Course (complete parts C, D, F, G, H, I, J)
☐ Change Part of an Existing Course (complete parts C, D, E, F, G, H, I, J)
  ☐ Course Number (you must submit a course deactivation request for the old course number)
  ☐ Course Name
  ☐ Course Description
  ☐ Credit/Contact Hours
  ☐ Restrictions (prerequisites, co-requisites, junior/senior standing, etc.)
☐ Deactivate an Existing Course (complete parts C, D, E, G, I, J)
☐ Reactivate a Previously-Deactivated Course (complete parts C, D, E, G, I, J)

C. RATIONALE AND EXPLANATION. Please describe your request and explain why you are making it.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so then their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international neuroscience and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Neuroscience and German/Slavic Studies.

This form was last updated on 12/13/13 and replaces all others.
D. IMPACT ON EXISTING PROGRAMS AND COURSES. Please briefly describe the impact of your request on your own programs and courses as well other programs and courses. If another program requires the course, you must submit their written acknowledgement with this proposal. Also, the affected program must describe any change in the number of credit hours they require. Include a list of similar courses in other departments and explain any overlap.

This course will be an upper-level, specialized elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will serve as an upper level elective that fulfills the laboratory requirement for Biology majors. It will not be required for any other existing major or minor on campus. Due to its specialized nature and limited enrollment, we expect it would have limited impact on other electives including other study abroad courses run by the Biology Department (10-16 students).

EXISTING COURSE INFORMATION. If you are proposing a new course, just leave this blank. Otherwise, please fill out all fields.

Department: School: Subject Acronym: Course Number:

Credit hours: __ lecture __ lab __ seminar __ independent study
Contact hours: __ lecture __ lab __ seminar __ independent study

Course title:

Course description (maximum 50 words, exactly as it appears in the catalog):

Restrictions (pre-requisites, co-requisites, majors only, etc.):

Cross-listing, if any:

Is this course repeatable? ☐ yes ☐ no If yes, how many total credit hours may the student earn? ______

E. NEW COURSE INFORMATION. If you are deactivating a course, leave this blank. Otherwise, please fill out all fields. For changed courses, use **boldface** for the information that is changing.

Department: School: Subject Acronym: Course Number:

Biology SSM BIOL 359

Credit hours: __3__ lecture __1__ lab __3__ seminar __ independent study
Contact hours: __3__ lecture __1__ lab __3__ seminar __ independent study

Course title: Study Abroad in Neuroscience

Course description (maximum 50 words, exactly as it appears in the catalog):

An intensive international seminar and laboratory course. This course will include the reading of primary literature and an exploration of experimental techniques related to the research specialties of participating international faculty members. This course will also develop intercultural skills necessary for success in international Neuroscience research opportunities.

Restrictions (pre-requisites, co-requisites, majors only, etc.):

Enrollment will be by permission of instructor only.

This form was last updated on 12/13/13 and replaces all others.
If this is a newly-created course, is it intended to be the equivalent of an existing course? □ yes  ☒ no
If so, which course? _________________

If equivalent, will the newly-created course replace the existing course? □ yes  ☒ no
Note: If yes, you must deactivate that course by submitting an additional Course Form.

Cross-listing, if any (submit approval from relevant department): ___ PSYC 359 _____
Note: Cross-listed courses are equivalent.

Is this course repeatable? □ yes  ☒ no  If yes, how many total credit hours may the student earn? ___

Is there an activity, lab, or other fee associated with this course? ☒ yes  □ no

There is no lab fee for this course. For any study abroad course offered by the College of Charleston there is a program fee associated with the cost of travel, housing and food for the duration of the course. This fee varies with each course offering and is tied, in part, to the exchange rate in the destination country. This fee is determined 6-9 months ahead of each course offering.

Note: The Senate cannot approve new fees; Business Affairs will submit any such request to the Board of Trustees. The course can still be created, but the fee will not be attached until the Board has approved it.

F. COSTS. List all of the new costs or cost savings (including new faculty/staff requests, library, equipment, etc.) associated with your request. none

H. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the course?</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
<tr>
<td>1. Read and critique primary literature from scientific journals in the field of Neuroscience</td>
<td>Students will write critical analysis papers of primary literature.</td>
</tr>
<tr>
<td>2. Perform, observe and engage in a variety of novel and state-of-the-art laboratory techniques. These techniques will include (but are not limited to) patch-clamping, fluorescent microscopy, histology and neurophysiology.</td>
<td>Student-led class discussions of the experimental hypothesis, methods and results. Students will be assessed on the efficacy of their technical skills, attention to detail and appropriate data collection.</td>
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</table>

Students will be required to explain the significance of the technique and demonstrate an understanding of how it could be implemented in various research paradigms. This will be done through both student-led class discussions and critical analysis papers. The final written exam will require students to implement their knowledge of experimental techniques, by describing probable experiments that might occur as a ‘next step’ in the research programs they have engaged in during the course.

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<th></th>
<th>Students will be expected to demonstrate a minimum of 70% efficiency for all assessment metrics above.</th>
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<tbody>
<tr>
<td>How does this course align with the student learning outcomes articulated for the major, program, or general education? What program-level outcome or outcomes does it support? Is the content or skill introduced, reinforced, or demonstrated in this course?</td>
<td></td>
</tr>
<tr>
<td>Study Abroad in Neuroscience is a “high impact” course designed to provide Neuroscience academic content and an intercultural science experience. Increasing the number of high impact learning experiences is part of the College of Charleston Strategic Plan.</td>
<td></td>
</tr>
<tr>
<td>Through Study Abroad in Neuroscience students gain:</td>
<td></td>
</tr>
<tr>
<td>1) an understanding of molecular, cellular, and systems neuroscience</td>
<td></td>
</tr>
<tr>
<td>2) an appreciation for the multidisciplinary/comparative and international nature of the field of neuroscience.</td>
<td></td>
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<tr>
<td>3) experience conducting neuroscience research</td>
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<tr>
<td>4) professional communication skills (in both verbal and written form) for discussing, analyzing and presenting scientific research.</td>
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<tr>
<td>This course will introduce students to new concepts in neuroscience, reinforce concepts learned in pre-requisite neuroscience and other science courses and demonstrate the skills acquired.</td>
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I. PROGRAM CHANGES. Will this course be added to the existing degree requirements or list of approved electives of a major, minor, or concentration?  

<p>| | |</p>
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<tbody>
<tr>
<td>☒ yes</td>
<td>☐ no</td>
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If yes, please attach a Change Minor and/or Change Major/Program Form as appropriate.

J. CHECKLIST.

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>☒ I have completed all relevant parts of the form.</td>
<td></td>
</tr>
<tr>
<td>☒ I have attached a cover letter that describes my request and lists all the documents I am submitting.</td>
<td></td>
</tr>
<tr>
<td>☒ (For new courses only) I have attached a syllabus.</td>
<td></td>
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<tr>
<td>☒ (For courses used in any way by other departments, including cross-listing) I have attached an acknowledgement from the relevant department.</td>
<td></td>
</tr>
<tr>
<td>☐ (For courses intended to fulfill a Gen Ed requirement) I have submitted the proposal to the Gen Ed committee.</td>
<td></td>
</tr>
<tr>
<td>☒ I have submitted one Signature Form that lists all of the different forms I am submitting.</td>
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Study Abroad in Neuroscience

BIOLOGY 359/PSYCHOLOGY 359  
Summer 2015

Program Directors:
• Dr. Chris Korey, Associate Professor of Biology, College of Charleston  
koreyc@cofc.edu, Ph: 843-953-7178
• Dr. Michael Ruscio, Associate Professor of Psychology, College of Charleston  
rusciom@cofc.edu, Ph: 843-953-7106

Course Website: blogs.cofc.edu/germanneuro

Program Dates:
• Berlin: May 23rd – June 10th
• Munich: June 10th – June 23rd

Neuroscience Seminar in Germany is a summer study abroad program for undergraduate students, which emphasizes the international nature of neuroscience research and the collaborative educational opportunities that are possible in today’s scientific community. The course content will focus on current topics in neuroscience research while taking advantage of the historical lens Germany provides to examine the origins of our knowledge about nervous system function. Two German universities will host us: Ludwig Maximilians Universität (LMU) in Munich and Charité Medical University in Berlin. Both universities are members of the German Graduate Schools of Neuroscience (GSN). The course topics have been selected based on the research specialties of the faculty at these institutions and the unique historical perspective provided by each location. Each week’s material will build upon each other. The course will have a thread of neuroanatomy and neural function throughout the month long visit. In Berlin, students will learn the historical underpinnings of microscopy and electrophysiology, while exploring modern approaches to identifying neural networks. In Munich, students will be exposed to comparative vertebrate/invertebrate neuroanatomy and systems level neuroscience. Students will also learn about graduate school opportunities available at each university and throughout the GSN affiliated institutions. Cultural excursions into Berlin and Munich are also part of the program. Berlin and Munich are exciting cities, providing a view into the spectrum of German culture. The capital city of Berlin teems with museums, galleries, restaurants and rich diversity of cultural opportunities. Munich blends historical Bavarian culture with a vibrant modern city dynamic.

Student Learning Objectives
• Students will learn to read and critique primary literature from scientific journals in the field of Neuroscience.
• Students will perform, observe and engage in a variety of novel and state-of-the-art laboratory techniques. These techniques will include (but are not limited to) patch-clamping, fluorescent microscopy, histology and neurophysiology.
Course Locations

• **Berlin:** Medical Neuroscience is the focus of research at Charité Medical University in Berlin. Berlin also has deep connections to the history of neuroscience both in microscopy and recording neural activity. Students in the course will explore current microscopy and imaging technologies while looking back at the development of the microscope. We will also look at the action potential, both from the historical context of the first recordings to current work examining neural activity. Students will get a historical perspective through visits to the Berlin Medical Historical Museum and the Optical History Museum in Jena.

• **Munich:** Ludwig Maximilians Universitat (LMU) has a strong program in comparative and systems level neuroscience. Students will be exposed to comparative approaches to studying nervous system function and anatomy through exposure to research programs that use avian, mammalian and fish model species. We will also explore invertebrate model systems to further broaden our understanding of the comparative approach. In addition to class activities, students will visit the Max Planck Institute for Ornithology and go out into the field to observe animal behavior in a natural setting.

Student Participation and Study Abroad Course Expectations

For many reasons, this course promises to be extremely fun and exciting. Both Munich and Berlin are cities that have a rich history of science as well as research programs at the forefront of neuroscience. Both cities provide unique cultural experiences for students. As course directors our intention is to ensure that students get the most they can out of the course and enjoy this opportunity. However, it is an enormous mistake to view this course as a potential vacation. This course is designed to be challenging and rigorous. You will be expected to be fully engaged with the course from Monday morning through Friday. Friday afternoon through Sunday afternoon as well as the evenings will be your time to explore our two host cities.

**Class Participation:** Students will be expected to understand the intricacies and methodologies of a number of different research programs presented by current faculty and primary investigators at LMU and Charité. Most importantly, students should understand that a seminar style course does not imply a passive experience. Students are expected to be active participants in all seminars and laboratory tours and demonstrations. You are expected to be prepared to engage lecturers and researchers with intelligent and insightful questions. It is a rare opportunity to engage with such a diversity of faculty members and understand the associated techniques they employ in their research. Students will be expected to perform substantial background reading and complete written work related to each faculty presentation.

**Class Etiquette:** We expect that each student, be prompt, respectful and consistent in their behavior inside and outside of the classroom. We are collectively representing the College of Charleston, and more broadly developing neuroscientists in the United States. Our hosts in Munich and Berlin have provided a unique opportunity to us and we should meet this hospitality with respect and professionalism for the duration of our stay. Program instructors reserve the right to remove any student from the program at any point should their conduct be inappropriate, disrespectful, offensive or illegal. These decisions are at the discretion of the instructors. Should such instances occur, the student will be required to return to the United States immediately and will incur the costs of associated flight arrangements.
Course Organization and Assessment

Class Discussions: A major goal of this course is to understand how a research program works from inception to publication of peer reviewed articles. To this end, students will be required to read primary research articles written by each faculty member contributing to the program. Each presentation by a faculty member will be preceded by a class discussion of the faculty member’s published research. These readings have several goals. First, they allow you to explore a research program in greater depth. Second, they allow you to become familiar with the process of reading and evaluating the primary literature. Third, they continue the development of your critical thinking and writing skills. On the discussion days listed in the syllabus, please come prepared to contribute to an interesting, informed, and friendly discussion about the assigned article. This means you need to read the article (or articles) carefully and thoughtfully in advance. **Since you will have the readings several weeks before leaving for Germany we encourage you to read them ahead of time.**

Laboratory Component: While in Germany, you will have the opportunity to perform, observe and engage in a variety of novel and state-of-the-art laboratory techniques. During the course, you will be required to explain the significance of the techniques and demonstrate an understanding of how they could be implemented in various research paradigms. This will be done through both our student-led class discussions and critical analysis papers. The final written exam will require you to implement your knowledge of experimental techniques, by describing probable experiments that might occur as a ‘next step’ in the research programs you have engaged with during the course.

Written Commentary Assignments: Each student will be expected to write a 3-5 page commentary or journal club paper on one of the discussion papers at each location. These assignments will be made prior to our departure on the trip allowing everyone to complete their papers prior to the start of the program. On **May 14th or earlier**, students will have access to the course web site via OAKS (details forthcoming). All readings and assignments will be posted. Each student will be assigned to 2 papers associated with the guest faculty presenters: one for Munich and one for Berlin. You will be expected to write a 3-5 page critical review for each paper and lead class discussions prior to the presenter. **The due dates for both critical reviews will be on Tuesday, May 22nd (before the flight to Germany).** Assignments should be uploaded to the OAKS course page. Having the assignments due before the trip will accomplish two things: (A) You will have more time to enjoy Berlin and Munich while you are there and (B) It will avoid complications with access to computers and the internet while in Germany.

These papers should be modeled on published scientific commentary in peer reviewed journals or journal club style papers (e.g. http://www.jneurosci.org). In your paper you will be required to discuss the premises of the research, the methodologies used, the implications of the findings for the field of neuroscience. Your written commentary can be an informed critique of some scientific aspect of the paper, an alternative interpretation of the results, an idea for an additional or different experiment, a discussion of a question raised by the research, or (if you feel you didn’t understand the paper) a coherent statement of what you didn’t understand. Your commentary should (a) show that you read the paper carefully, (b) demonstrate informed, analytical, clear and (whenever possible) creative thought and writing, and (c) be your best writing (proper grammar and spelling, no typographical or word processing errors, etc.). You should not summarize the article (except perhaps in an opening sentence or two) or simply repeat its content, nor do you need to write.
answers to the questions listed below. All information that is not your own should receive proper citations.

The commentary paper should be inspired by a close reading of the assigned article(s). A close reading of any paper reporting an experiment means asking yourself the following questions as you read to gain an understanding of the research:
(These questions should serve as guideposts to making an informed commentary or critique; you are not expected to answer them directly in your commentary).

Why was the experiment done? 
What was the question asked?
What was the hypothesis?
What were the predicted results?
What was the independent variable?
What was measured?
What was the critical dependent variable?
What were the controls?
Why were these particular controls needed?

What was the main finding?
What was the answer to the question posed in the introduction?
Was the hypothesis confirmed?
How solid (conclusive) was the evidence?
What questions remain unanswered?
What new questions are raised by the research?
What would be an interesting and logical experiment to do next?

Take Home Final Exam: There will be one exam associated with the course. The exam will be take-home and will involve questions associated with topics discussed from both locations. You must choose one question from each location that was not assigned to you for the Commentary Assignment. The due date for both Take Home Exam questions is June 26th. Assignments should be uploaded to the OAKS course page.

Tentative/ Preliminary Grading Breakdown

<table>
<thead>
<tr>
<th>Munich-Source of Points</th>
<th>% of Total Points</th>
</tr>
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<tbody>
<tr>
<td>1 Written Assignment - Commentary</td>
<td>15%</td>
</tr>
<tr>
<td>Take Home Exam</td>
<td>15%</td>
</tr>
<tr>
<td>Class Discussion, Seminar Participation, Laboratory Technique/Understanding</td>
<td>20%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Berlin-Source of Points</th>
<th>% of Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Written Assignment - Commentary</td>
<td>15%</td>
</tr>
<tr>
<td>Take Home Exam</td>
<td>15%</td>
</tr>
<tr>
<td>Class Discussion, Seminar Participation, Laboratory Technique/Understanding</td>
<td>20%</td>
</tr>
</tbody>
</table>

50%
Berlin
Course Details

Travel: USA to Berlin
- Flights Depart Wednesday, May 22nd – Arrive Thursday, May 23rd
- Dr. Korey is traveling with the Newark to Berlin Group
- We will meet as a class at Tegel International Airport and then travel into the city together
- International airfare includes one carry-on and one checked bag (<50lbs). *You are responsible for the baggage fee if you decide to check a second bag.*

Transportation to Hotel
- We’ll be taking Taxis from Tegel to Baxpax Hostel/Hotel

Hotel
- Baxpax Hostel/Hotel(www.baxpax.de/downtown/en/home/)
- Ziegelstrasse 28, 10117 Berlin, Germany
- Tel.: +49(0)30 278 748 80, info@baxpax-downtown.de
- The Hotel is located in the heart of Mitte and is within walking distance of most of Berlin’s well known points of interest. (Indicated by bed on map)

Laundry
- Laundry is available at Baxpax. They will do the laundry for 7 euros. It is well worth the money. I would probably do any laundry you may have just before heading to Munich.

Meals
- Breakfast will be covered at the Hotel
- Most Lunches and many Dinners with the group will be included.

Classroom Location
- Humboldt Graduate School

Things to do in Berlin
- We’ll be running some optional sightseeing outings to Potsdam and the Berlin Wall-East Side Gallery.
- Other points of interest in Berlin can be found at: [www.visitberlin.de/en](http://www.visitberlin.de/en)
Munich
Course Details

Travel: Berlin to Munich
Transportation to Airport
  • Taxi to Berlin-Tegel
  • Meet at 10:00 am sharp for taxis.

Flight:
  • Air Berlin; Flight Number AB6191
  • Departure: Berlin-Tegel 12:30; Arrival Munich 13:40
  • Airfare includes one carry-on and one checked bag (<50lbs). You are responsible for the baggage fee if you decide to check a second bag.

Transportation From Airport
  • We have pre-purchased round-trip tickets for the Lufthansa Airport Bus (Munich Airport to Hauptbahnhof). 40 minute Bus Ride. Dr. Ruscio will meet you at the Hauptbahnhof.

Hotel
  • Smart Stay Hostel Munich City, Mozartstraße 4, 80336 Munich
  • Tel: +49-89-5587-970, e-mail: munichcity@smart-stay.de
  • The hotel is located just a few blocks away from heart of historic downtown Munich.

Meals
  • Breakfast is included in Hotel Costs.
  • 3-4 Dinners with the group will be included.
  • Internet will be available in the hotel.
  • Laundry facilities are available on site.

Excursions – Hiking
  • Friday, June 14th: After our day at the Institute for Ornithology in Seewiesen we will take a short hike/walk (about 3 km) to a nearby Beer Garden for dinner. This is a very easy hike.
  • Tegernsee: The first or second weekend in Munich (depending upon the weather) we will take day trip to Tegernsee and hike in the foot-hills of the Alps. Please bring good hiking shoes as this hike is a substantial trek up to an impressive vista of the Alps.

Things to do in Munich
  • Radius Tours: [http://www.radiusmunich.com/](http://www.radiusmunich.com/)
  • Schloss und Park Nymphenburg [http://www.schloss-nymphenburg.de/](http://www.schloss-nymphenburg.de/)
  • Schloss und Park Linderhof: [http://www.schlosslinderhof.de/index.htm](http://www.schlosslinderhof.de/index.htm)
Departure from Munich.
- We will check out of the Smart Stay Hostel **early the morning of the Tuesday June 18th**. Although there will be various flight departure times, please be ready to check out early that morning with the group. Cab fare to the Hauptbahnhof will be provided where you can use your round trip ticket for Lufthansa Airport Bus. Please plan on arriving at the airport 2 hours before your scheduled departure time.

Transportation to LMU Biocentre
- We will take the U-Bahn from Munich out to the LMU Biocentre each day. Take the U6 from Mozartstraße. (direction “Klinikum Großhadern”) exit at station “Großhadern”. Change to bus 266 (direction Planegg), exit Großhaderner Straße”. If weather permits you can continue to the very last stop and take an 8 min stroll towards the LMU-Biozentrum.
Readings and Commentary Paper Assignments:

Below are the daily itineraries with a list of student assignments for each paper we will be discussing in Berlin and Munich. Each student is assigned a particular article(s) associated with a topic/ faculty presenter; you are expected to write your commentary papers in the article assigned. Each student will write one paper associated with a topic presenter in Berlin and another for Munich. **The deadline for the commentary papers is May 22nd.** Folders will be set up in OAKS for you to upload your commentary papers. For Berlin, the dates below refer to the dates of discussion in class. Some will be prior to a seminar with a faculty member while others will be before a lab/museum experience. In addition to your commentary papers, in Berlin you will also be expected to provide a very brief background on a historical scientist. Your historical scientist is listed below. For Munich, the dates for class discussion (preceding each faculty seminar) as well as dates of the seminar with the faculty member are listed in the daily itinerary. In both cities, in-class discussion days you are expected to be able to lead class discussion (for the topics or presenters you have been assigned to) with a synopsis of the article for the class and questions raised by your reading of the articles. Since much of this material is new to you, we will look at most of the figures and techniques in our discussion. In Berlin, we may or may not have access to projectors, so we will use the papers as the basis of our discussions. In Munich, if you wish to use any presentation materials to aid in your synopsis, projectors for power point (etc.) will be available on site.

Regardless of your assignment, all students are expected to read the assigned materials. One of the main goals of this program is learning how to engage in productive and insightful discussion. Everyone is expected to contribute to each class discussion with questions or comments. This participation comprises 40% of your entire grade for the course.

The readings are challenging. They are specific and detailed for a particular area of research. Although we do not expect everyone to become experts in each area in a brief amount of time, we do expect you to delve into the material with critical analysis skills and enjoy exploring what will be hopefully be new and exciting information for everyone in the class (your professors included). In some cases background articles are provided to help with the material in the target reading. Given the detail of these articles and the depth of the presentations, bring any questions you might have to Dr. Ruscio or Dr. Korey in person or by email. We will also spend a significant amount of time talking about the work in class. We are here to help you navigate through these details and make this a productive experience.

**Berlin Historical Scientists Assignment:** Many key findings in early neuroscience were made in Germany. Several of these figures worked in and around Berlin for part of their careers. On our first class day we will set the historical stage for our course material.

- **Historical Scientists – The Neuron:** Matthias Schleiden (Alannah Aldstadt), Theodor Schwann (Caitlin Hof), Joseph von Gerlach (Jessica Dugan), Otto Karl Deiters (Avery Anderson), Santiago Ramon y Cajal (Dr. Korey)

- **Historical Scientists - Electrophysiology:** Herman von Helmholtz (Madeline Berry), Johannes Peter Müller (Yim Rodriguez), Emil du Bois-Reymond (Josh McGuire), Julius Bernstein (Kelsey O’Leary)
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<th>Lecture Topic</th>
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**Assignment:**
- **Background Reading:**

**Lecture:**
- Classical Anatomy: Head & Neck: Dr. Hong, Dr. Kim
- Cellular Physiology: Dr. Kim
- Neurochemistry: Dr. Kim
- Neuroimaging: Dr. Kim

**Key Concepts:**
- Classical Anatomy: Head & Neck
- Cellular Physiology
- Neurochemistry
- Neuroimaging
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FACULTY CURRICULUM COMMITTEE
CHANGE/DELETE PROGRAM FORM

Instructions:
- Please fill out all of the portions of the form that are specified in section B. You must do this before your request can move forward!
- Remember that your changes will not be implemented until the next catalog year at the earliest.
- If you have questions, please start by checking the detailed instructions on the website.
- Please feel free to contact the committee chair with any remaining questions you might have.

A. CONTACT INFORMATION.

Name: Christopher Korey Phone: 843-953-7178 Email: koreyc@cofc.edu
School: SSM Department or Program: Biology
Name and Acronym of Major: BS in BIOLOGY

B. CATEGORY OF REVIEW. Please check all that apply, then fill out the specified parts of the form.

☑ Change Request
☐ Add an existing course to requirements or electives (fill out all sections)
☐ Add a new course to requirements or electives (attach completed course form for each; fill out all sections)
☐ Delete courses from requirements or electives (fill out all sections)
☐ Add or modify concentration (fill out C, D, E, G, H, and I)*
☐ Add or modify cognate (fill out C, D, E, G, H, and I)*
*Note: Only concentrations and cognates requiring 18 or more credit hours will be tracked in Banner and Degree Works and noted on the transcript.

☐ Terminate Program (fill out E, G, H, and I)
☐ Terminate degree
☐ Terminate major
☐ Terminate concentration
☐ Terminate cognate

C. GENERAL INFORMATION

Number of Current Credit Hours (for existing program): 65+
Number of Proposed Credit Hours (for changed program): 65+
Catalog Year in which changes will take effect: FALL 2015

D. CURRICULUM. Please list every change you are making below AND attach the current Program of Study Worksheet for this major (https://registrar.cofc.edu/program-of-study-worksheets/index.php) with changes marked in RED. Additions should show where the course will be inserted, deletions should be noted by crossing out the course, and moves indicated with arrows. Distinguish between required and elective courses, and note any prerequisites, corequisites, sequencing, or other restrictions. Provide the catalog description and course list exactly as they should appear in the catalog. For each new course, submit the Curriculum Committee's Course Form and a sample syllabus.

This form was last updated on 6/6/2013 and replaces all others.
BIOL 359: Study Abroad in Neuroscience (4)
An intensive international seminar and laboratory course. This course will include the reading of primary literature and an exploration of experimental techniques related to the research specialties of participating international faculty members. This course will also develop intercultural skills necessary for success in international Neuroscience research opportunities. Enrollment will be by permission of instructor only.

E. RATIONALE AND EXPLANATION. Please provide a narrative addressing the request you are making and why you are making it.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so then their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level biology and neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international science and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Biology/Psychology/Neuroscience and German/Slavic Studies.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

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<th>Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
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<td>What will students know and be able to do when they complete the major or program?</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
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<td>1. At the end of the foundation sequence (BIOL 111, BIOL 112, BIOL 211) students demonstrate improvement in their understanding of the core concepts and competencies in biology.</td>
<td>Success is demonstrated by improved performance on the Biology Major Field Test (MFT) over the incoming first year class performance.</td>
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<td>2. At the end of the program (BS, BA, BS Marine) students demonstrate maintained understanding of the core concepts and competencies in biology</td>
<td>Success is demonstrated by steady performance overall on the Biology MFT compared to performance at the end of the foundation sequence.</td>
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<td>3. At the end of the program (BS, BA, BS Marine) students demonstrate improvement from the foundation sequence.</td>
<td>Success is demonstrated by improved group performance for some of the Assessment Indicators on the Biology MFT compared to the end of the foundation sequence</td>
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This form was last updated on 6/6/2013 and replaces all others.
4. At the end of the program (BS, BA, BS Marine) students demonstrate the ability to understand standard scientific communication and to communicate their own work clearly and effectively using a variety of methods.

Success is demonstrated by acceptable oral and written reports evaluated by common departmental rubrics.

Additional Outcomes or Comments:

G. IMPACT ON EXISTING PROGRAMS AND COURSES. Please describe the impact of this request on other programs and courses. If you are deleting a program, please describe the effect on all programs that will be impacted; if you are adding or changing a program, please explain any overlap with existing programs at the College.

This course will be an upper-level, specialized elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will serve as an upper level elective that fulfills the laboratory requirement for Biology majors. It will not be required for any other existing major or minor on campus. Due to its specialized nature and limited enrollment, we expect it would have limited impact on other electives including other study abroad courses run by the Biology Department (10-16 students).

H. COSTS ASSOCIATED WITH THE REQUESTED ACTION. List all of the new costs or cost savings (including new faculty/staff requests, library, or equipment) associated with your request. None

I. CHECKLIST

☒ I have completed all relevant parts of the form.

☒ I have attached a cover letter that describes my request and lists all the documents I am submitting.

☒ I have attached a Course Form for each newly-created or modified course.

☒ (For proposals that affect other departments in any way) I have attached an acknowledgement from the relevant department.

☒ I have provided the complete curriculum for the program, concentration, emphasis, etc., including the description and course list, exactly as it should appear in the catalog.

☒ I have submitted one Signature Form that lists all of the different forms I am submitting.

This form was last updated on 6/6/2013 and replaces all others.
Biology Major Requirements  
Catalog Year: 2013-14  
Degree: Bachelor of Science  
Credit Hours: 65+

"PR" indicates a pre-requisite. "CO" indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses

- **BIOL 111** Introduction to Cell and Molecular Biology (3) PR: None; CO: BIOL 111L
- **BIOL 111L** Introduction to Cell and Molecular Biology Lab (1) CO: BIOL 111
- **HONS 151** Honors Biology I (3) PR: None; CO: HONS 151L
- **HONS 151L** Honors Biology I Lab (1) CO: HONS 151
- **BIOL 112** Evolution, Form, and Function of Organisms (3) PR: BIOL 111 and 111L; CO: BIOL 112L
- **BIOL 112L** Evolution, Form, and Function of Organisms Lab (1) CO: BIOL 112L
- **HONS 152** Honors Biology II (3) PR: HONS 151 and 151L; CO: HONS 152L
- **HONS 152L** Honors Biology II Lab (1) CO: HONS 152
- **BIOL 211** Biodiversity, Ecology, and Conservation Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; CO: BIOL 211D
- **BIOL 211D** Biodiversity, Ecology, and Conservation Biology Discussion (0) CO: BIOL 211
- **BIOL 305** Genetics (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D and MATH 250 or instructor permission

- Complete 19 credit hours of 300-level or above BIOL courses including at least four courses with labs from the BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST. Note: Independent study, tutorial, Bachelor's Essay, or BIOL 450 and 451 with labs do not fulfill the lab requirement.

**BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST**

- **BIOL 300** Botany (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- **BIOL 301** Plant Taxonomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- **BIOL 302** Plant Anatomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- **BIOL 303** Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- **BIOL 304** Plant Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of chemistry; PR or CO: BIOL 305 and MATH 250
- **BIOL 305L** Genetics Lab (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; BIOL 305 and MATH 250
- **BIOL 310** General Microbiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L
- **BIOL 312** Molecular Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250
- **BIOL 312L** Molecular Biology Laboratory (1) PR or CO: BIOL 312 and MATH 250. Students cannot use both BIOL 412 and BIOL 312L towards their major requirements.
BIOL 313  Cell Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L, PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L

BIOL 313L  Cell Biology Laboratory (1) PR or CO: BIOL 313 and MATH 250

BIOL 314  Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and one year of Chemistry; PR or CO: MATH 250

BIOL 320  Histology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 321  General and Comparative Physiology PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250 or equivalent course in statistics or instructor permission

BIOL 322  Developmental Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

BIOL 323  Comparative Anatomy of Vertebrates (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 332  Vertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 333  Ornithology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 334  Herpetology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 335  Biology of Fishes (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 336  Parasitology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: MATH 250

BIOL 337  Invertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 338  Entomology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 339  Dinosaur Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 340  Zoogeography (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 341  General Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 342  Oceanography (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250; one year of college-level Math and one year of college-level Chemistry

BIOL 343  Animal Behavior (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

BIOL 350  Evolution (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D or PSYC 214; PR or CO: MATH 250

BIOL 351  Principles of Neurobiology (3) PR: PSYC 103 and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D or PSYC 214; PR or CO: MATH 250
BIOL 352  Neurobiology and Behavior (3) PR: BIOL 351 or PSYC 351 or PSYC 214; PR or CO: MATH 250

BIOL 353  Hormones and Behavior (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 354  Techniques in Neuroscience (4) PR: BIOL 351 or PSYC 351; MATH 250 or PSYC 211 and PSYC 220 or PSYC 250; and instructor permission

BIOL 357  Oceanographic Research (4) PR: BIOL 342 and instructor permission; PR or CO: MATH 250

BIOL 360  Introduction to Biometry (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 396  Biophysical Modeling of Excitable Cells (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and PHYS 111 and 111L and PHYS 112 and 112L or HONS 158 and 158L or BIOL 211 and 211D and BIOL 305 and PHYS 101 and 101L and PHYS 102 and 102L; PR or CO: MATH 250

BIOL 399  Tutorial (1-3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL; junior standing and tutor and department chair permission; PR or CO: MATH 250

BIOL 406  Conservation Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and BIOL 341 or permission of instructor; PR or CO: MATH 250

BIOL 410  Applied and Environmental Microbiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; BIOL 310 and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 411  Microtechnique and Cytochemistry (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 412  Capstone in Molecular Biology (3) PR: BIOL 111/111L or HONS 151/151L, BIOL 112/112L or HONS 152/152L, BIOL 211/211D, BIOL 305, BIOL 312, MATH 111 PR or CO: CHEM 351, MATH 250. Students cannot use both BIOL 412 and BIOL 312L towards their major requirements.

BIOL 414  Environmental Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and BIOL 312 or CHEM 351 and MATH 250

BIOL 420  General and Comparative Endocrinology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and MATH 250 and a course in physiology or instructor permission

BIOL 421  Topics in Physiology, Cell, and Molecular Biology of Marine Organisms (3) PR: BIOL 312 or 313; BIOL 321 and instructor permission; PR or CO: MATH 250

BIOL 444  Plant Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 341 and instructor permission; PR or CO: BIOL 305 and MATH 250

BIOL 445  Systematic Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; junior standing and at least one upper division course in organismal Biology; PR or CO: MATH 250

BIOL 446  Special Topics in Neuroscience (3) PR: Junior or senior standing and instructor permission; PR or CO: MATH 250

BIOL 447  Seminar in Neuroscience (3) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352; CO: BIOL 448 or PSYC 448; PR or CO: MATH 250

BIOL 448  Bachelor's Essay in Neuroscience (6) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352 and permission of student's major department and the neuroscience program director; PR or CO: MATH 250

BIOL 449  Biology of Coral Reefs (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.00 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 450  Problems in Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250
BIOL 451 Problems in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250

BIOL 452 Seminar (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; 2.50 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed; PR or CO: BIOL 305 and MATH 250

BIOL 453 Special Topics (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and instructor permission; PR or CO: BIOL 305 and MATH 250

BIOL 455 Seminar in Molecular Biology (2) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305, 312 and 313; PR or CO: MATH 250

BIOL 499 Bachelor's Essay (6) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL; instructor and department chair permission; PR or CO: MATH 250

BIOL 501 Biology of the Crustacea (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 337; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 502 Special Topics in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 503 Special Topics in Ecology (3-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

Chemistry Requirement

☐ CHEM 111 Principles of Chemistry (3) PR or CO: unless students exempt MATH 111 (via diagnostic testing) or have completed this course as a prerequisite, they are required to take MATH 111 as a corequisite; CO: CHEM 111

☐ CHEM 111L Principles of Chemistry Lab (1) CO: CHEM 111

☐ CHEM 112 Principles of Chemistry (3) PR: CHEM 111 and 111L or HONS 153 and 153L; CO: CHEM 112L (MATH 120 strongly recommended)

☐ CHEM 112L Principles of Chemistry Lab (1) CO: CHEM 112

☐ CHEM 231 Organic Chemistry (3) PR: CHEM 112 and CHEM 112L or HONS 154 and HONS 154L; CO: CHEM 231L

☐ CHEM 231L Introduction to Organic Chemistry Laboratory Techniques (1) CO: CHEM 231

☐ CHEM 232 Organic Chemistry (3) PR: CHEM 231 and CHEM 231L; CO: CHEM 232L

☐ CHEM 232L Organic Synthesis and Analysis (1) CO: CHEM 232

Physics Requirement

☐ PHYS 101 Introductory Physics (3) PR: None; CO or PR: PHYS 101L

☐ PHYS 101L Introductory Physics Lab (1) CO: PHYS 101

AND

☐ PHYS 102 Introductory Physics II (3) PR: PHYS 101 or PHYS 111 or HONS 157; CO: PHYS 102L

☐ PHYS 102L Introductory Physics Lab (1) CO: PHYS 102

OR

☐ PHYS 111 General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111L

☐ PHYS 111L General Physics I Lab (1) CO: PHYS 111

AND

☐ PHYS 112 General Physics II (3) PR: PHYS 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112L

☐ PHYS 112L General Physics II Lab (1) CO: PHYS 112
Mathematics Requirement

☐ MATH 120  Introductory Calculus (4) PR: Placement or C- or better in MATH 111

☐ MATH 250  Statistical Methods I (3) PR: Either MATH 111, 120 or instructor permission

Notes:

- MATH 250 is a prerequisite for all 300-level BIOL courses.
- CHEM 221 is a recommended course.
- Honors students can take the alternative sequence of HONS191/HONS191L, HONS 192/HONS192L, HONS293/HONS293L, and HONS294/HONS294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/CHEM 232L
- Honors students can take the alternative sequence of HONS 157/HONS 157L and HONS 158/HONS 158L in lieu of PHYS 111/111L and PHYS 112/112L
FACULTY CURRICULUM COMMITTEE
CHANGE/DELETE PROGRAM FORM

Instructions:
- Please fill out all of the portions of the form that are specified in section B. You must do this before your request can move forward!
- Remember that your changes will not be implemented until the next catalog year at the earliest.
- If you have questions, please start by checking the detailed instructions on the website.
- Please feel free to contact the committee chair with any remaining questions you might have.

A. CONTACT INFORMATION.
Name: Christopher Korey  Phone: 843-953-7178  Email: koreyc@cofc.edu
School: SSM  Department or Program: Biology
Name and Acronym of Major: BA in BIOLOGY

B. CATEGORY OF REVIEW. Please check all that apply, then fill out the specified parts of the form.

[ ] Change Request
- Add an existing course to requirements or electives (fill out all sections)
- Add a new course to requirements or electives (attach completed course form for each; fill out all sections)
- Delete courses from requirements or electives (fill out all sections)
- Add or modify concentration (fill out C, D, E, G, H, and I)*
- Add or modify cognate (fill out C, D, E, G, H, and I)*
*Note: Only concentrations and cognates requiring 18 or more credit hours will be tracked in Banner and Degree Works and noted on the transcript.

[ ] Terminate Program (fill out E, G, H, and I)
- Terminate degree
- Terminate major
- Terminate concentration
- Terminate cognate

C. GENERAL INFORMATION
Number of Current Credit Hours (for existing program): 39+
Number of Proposed Credit Hours (for changed program): 39+
Catalog Year in which changes will take effect: FALL 2015

D. CURRICULUM. Please list every change you are making below AND attach the current Program of Study Worksheet for this major (http://registrar.cofc.edu/program-of-study-worksheets/index.php) with changes marked in RED. Additions should show where the course will be inserted, deletions should be noted by crossing out the course, and moves indicated with arrows. Distinguish between required and elective courses, and note any prerequisites, co-requisites, sequencing, or other restrictions. Provide the catalog description and course list exactly as they should appear in the catalog. For each new course, submit the Curriculum Committee's Course Form and a sample syllabus.

This form was last updated on 6/6/2013 and replaces all others.
BIOL 359: Study Abroad in Neuroscience (4)
An intensive international seminar and laboratory course. This course will include the reading of primary literature and an exploration of experimental techniques related to the research specialties of participating international faculty members. This course will also develop intercultural skills necessary for success in international Neuroscience research opportunities. Enrollment will be by permission of instructor only.

This course will be listed as a 4-credit lecture/lab course elective for both the BA in Biology and the BS in Biology. (see attached program of study worksheets)

E. RATIONALE AND EXPLANATION. Please provide a narrative addressing the request you are making and why you are making it.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so then their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level biology and neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international science and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Biology/Psychology/Neuroscience and German/Slavic Studies.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the major or program?</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
<tr>
<td>1. At the end of the foundation sequence (BIOL 111, BIOL 112, BIOL 211) students demonstrate improvement in their understanding of the core concepts and competencies in biology.</td>
<td>Success is demonstrated by improved performance on the Biology Major Field Test (MFT) over the incoming first year class performance.</td>
</tr>
<tr>
<td>2. At the end of the program (BS, BA, BS Marine) students demonstrate maintained understanding of the core concepts and competencies in biology</td>
<td>Success is demonstrated by steady performance overall on the Biology MFT compared to performance at the end of the foundation sequence.</td>
</tr>
</tbody>
</table>

This form was last updated on 6/6/2013 and replaces all others.
3. At the end of the program (BS, BA, BS Marine) students demonstrate improvement from the foundation sequence. Success is demonstrated by improved group performance for some of the Assessment Indicators on the Biology MFT compared to the end of the foundation sequence.

4. At the end of the program (BS, BA, BS Marine) students demonstrate the ability to understand standard scientific communication and to communicate their own work clearly and effectively using a variety of methods. Success is demonstrated by acceptable oral and written reports evaluated by common departmental rubrics.

Additional Outcomes or Comments:

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G. IMPACT ON EXISTING PROGRAMS AND COURSES. Please describe the impact of this request on other programs and courses. If you are deleting a program, please describe the effect on all programs that will be impacted; if you are adding or changing a program, please explain any overlap with existing programs at the College.

This course will be an upper-level, specialized elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will serve as an upper level elective that fulfills the laboratory requirement for Biology majors. It will not be required for any other existing major or minor on campus. Due to its specialized nature and limited enrollment, we expect it would have limited impact on other electives including other study abroad courses run by the Biology Department (10-16 students).

H. COSTS ASSOCIATED WITH THE REQUESTED ACTION. List all of the new costs or cost savings (including new faculty/staff requests, library, or equipment) associated with your request. None

I. CHECKLIST

☒ I have completed all relevant parts of the form.

☒ I have attached a cover letter that describes my request and lists all the documents I am submitting.

☒ I have attached a Course Form for each newly-created or modified course.

☐ (For proposals that affect other departments in any way) I have attached an acknowledgement from the relevant department.

☒ I have provided the complete curriculum for the program, concentration, emphasis, etc., including the description and course list, exactly as it should appear in the catalog.

☒ I have submitted one Signature Form that lists all of the different forms I am submitting. This form was last updated on 6/6/2013 and replaces all others.
Biology Major Requirements
Catalog Year: 2013-14
Degree: Bachelor of Arts
Credit Hours: 39+  

*PR* indicates a pre-requisite.  *CO* indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://Registrar.cofc.edu/general-ede for more information.

Required Courses

- BIOL 111  Introduction to Cell and Molecular Biology (3) PR: None; CO: BIOL 111L
- BIOL 111L  Introduction to Cell and Molecular Biology Lab (1) CO: BIOL 111

OR

- HONS 151  Honors Biology I (3) PR: None; CO: HONS 151L
- HONS 151L  Honors Biology I Lab (1) CO: HONS 151

- BIOL 112  Evolution, Form, and Function of Organisms (3) PR: BIOL 111 and 111L; CO: BIOL 112L
- BIOL 112L  Evolution, Form, and Function of Organisms Lab (1) CO: BIOL 112L

OR

- HONS 152  Honors Biology II (3) PR: HONS 151 and 151L; CO: HONS 152L
- HONS 152L  Honors Biology II Lab (1) CO: HONS 152

- BIOL 211  Biodiversity, Ecology, and Conservation Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; CO: BIOL 211D
- BIOL 211D  Biodiversity, Ecology, and Conservation Biology Discussion (0) CO: BIOL 211

- BIOL 305  Genetics (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L, PR or CO: BIOL 211 and 211D and MATH 250 or instructor permission

Complete 13 credit hours of BIOL courses from the following, including 9 credit hours at the 300-level or above; three courses must be taken with labs; two of the courses with labs must be at the 300-level or above. Labs may carry separate credit or be part of a 4 credit course. (Independent study, tutorial, Bachelor’s Essay, or BIOL 450 and 451 with labs do not fulfill the lab requirement).

- BIOL 201  Human Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L
- BIOL 202  Human Anatomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L
- BIOL 204  Man and the Environment (3) PR: None
- BIOL 209  Marine Biology (4) PR: None
- BIOL 250  Special Topics in Biology (1-4) PR: One year of biology or instructor permission
- BIOL 300  Botany (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- BIOL 301  Plant Taxonomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- BIOL 302  Plant Anatomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- BIOL 303  Phycology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
- BIOL 304  Plant Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of chemistry; PR or CO: BIOL 305 and MATH 250
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites/Co-requisites</th>
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<tbody>
<tr>
<td>BIOL 305L</td>
<td>Genetics Lab (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D, BIOL 305 and MATH 250</td>
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<td>BIOL 310</td>
<td>General Microbiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L</td>
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<td>Molecular Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250</td>
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<td>BIOL 314</td>
<td>Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and one year of Chemistry; PR or CO: MATH 250</td>
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<td>BIOL 320</td>
<td>Histology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<td>General and Comparative Physiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250 or equivalent course in statistics or instructor permission</td>
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<tr>
<td>BIOL 322</td>
<td>Developmental Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250</td>
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<tr>
<td>BIOL 323</td>
<td>Comparative Anatomy of Vertebrates (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
<td></td>
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<tr>
<td>BIOL 332</td>
<td>Vertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 333</td>
<td>Ornithology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
<td></td>
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<tr>
<td>BIOL 334</td>
<td>Herpetology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 335</td>
<td>Biology of Fishes (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
<td></td>
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<tr>
<td>BIOL 336</td>
<td>Parasitology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250</td>
<td></td>
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<tr>
<td>BIOL 337</td>
<td>Invertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 338</td>
<td>Entomology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
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<tr>
<td>BIOL 339</td>
<td>Dinosaur Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
<td></td>
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<tr>
<td>BIOL 340</td>
<td>Zoogeography (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
<td></td>
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<tr>
<td>BIOL 341</td>
<td>General Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250</td>
<td></td>
</tr>
</tbody>
</table>
BIOL 342 Oceanography (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; OR or CO: BIOL 305 and MATH 250; one year of college-level Math and one year of college-level Chemistry

BIOL 343 Animal Behavior (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; OR or CO: MATH 250

BIOL 350 Evolution (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; OR or CO: MATH 250

BIOL 351 Principles of Neurobiology (3) PR: PSYC 103 and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D or PSYC 214; PR or CO: MATH 250

BIOL 352 Neurobiology and Behavior (3) PR: BIOL 351 or PSYC 351 or PSYC 214; PR or CO: MATH 250

BIOL 353 Hormones and Behavior (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 354 Techniques in Neuroscience (4) PR: BIOL 351 or PSYC 351; MATH 250 or PSYC 211 and PSYC 220 or PSYC 250; and instructor permission

BIOL 357 Oceanographic Research (4) PR: BIOL 342 and instructor permission; PR or CO: MATH 250

BIOL 360 Introduction to Biometry (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 396 Biophysical Modeling of Excitable Cells (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and PHYS 111 and 111L and PHYS 112 and 112 L or HONS 158 and 158L or BIOL 211 and 211D and BIOL 305 and PHYS 101 and 101L and PHYS 102 and 102L; PR or CO: MATH 250

BIOL 399 Tutorial (1-3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.000 GPA or higher in BIOL; junior standing and tutor and department chair permission; PR or CO: MATH 250

BIOL 406 Conservation Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and BIOL 341 or permission of instructor; PR or CO: MATH 250

BIOL 410 Applied and Environmental Microbiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 411 Microtechnique and Cytochemistry (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 412 Capstone in Molecular Biology (3) PR: BIOL 111/111L or HONS 151/151L, BIOL 112/112L or HONS 152/152L, BIOL 211/211D, BIOL 305, BIOL 312, MATH 111 OR or CO: CHEM 351, MATH 250. Students cannot use both BIOL 412 and BIOL 312 towards their major requirements.

BIOL 414 Environmental Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and BIOL 312 or BIOL 313 or CHEM 351 and MATH 250

BIOL 420 General and Comparative Endocrinology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250 and a course in physiology or instructor permission

BIOL 421 Topics in Physiology, Cell, and Molecular Biology of Marine Organisms (3) PR: BIOL 312 or 313; BIOL 321 and instructor permission; PR or CO: MATH 250

BIOL 444 Plant Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 341 or instructor permission; PR or CO: BIOL 305 and MATH 250

BIOL 445 Systematic Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; junior standing and at least one upper division course in organismal Biology; PR or CO: MATH 250

BIOL 446 Special Topics in Neuroscience (3) PR: Junior or senior standing and instructor permission; PR or CO: MATH 250

BIOL 447 Seminar in Neuroscience (3) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352; CO: BIOL 448 or PSYC 448; PR or CO: MATH 250
BIOL 448 Bachelor's Essay in Neuroscience (6) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352 and permission of student's major department and the neuroscience program director; PR or CO: MATH 250

BIOL 449 Biology of Coral Reefs (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.000 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 450 Problems in Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.000 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250

BIOL 451 Problems in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.000 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250

BIOL 452 Seminar (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; 2.500 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed; PR or CO: BIOL 305 and MATH 250

BIOL 453 Special Topics (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and instructor permission; PR or CO: BIOL 305 and MATH 250

BIOL 455 Seminar in Molecular Biology (2) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305, 312 and 313; PR or CO: MATH 250

BIOL 499 Bachelor's Essay (6) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.000 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 501 Biology of the Crustacea (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 337; 3.000 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 502 Special Topics in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.000 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 503 Special Topics in Ecology (3-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.000 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

Chemistry Requirement

☐ CHEM 101 General Chemistry (3) PR: None; CO: CHEM 101L

☐ CHEM 101L General Chemistry Lab (1) CO: CHEM 101

AND

☐ CHEM 102 Organic and Biological Chemistry (3) PR: CHEM 101 and 101L or CHEM 111 and 111L; CO: CHEM 102L

☐ CHEM 102L Organic and Biological Chemistry Lab (1) CO: CHEM 102

OR

☐ CHEM 111 Principles of Chemistry (3) PR or CO: unless students exempt MATH 111 (via diagnostic testing) or have completed this course as a pre-requisite, they are required to take MATH 111 as a co-requisite; CO: CHEM 111L

☐ CHEM 111L Principles of Chemistry Lab (1) CO: CHEM 111

AND

☐ CHEM 112 Principles of Chemistry (3) PR: CHEM 111 and 111L or HONS 153 and 153L; CO: CHEM 112L (MATH 120 strongly recommended)

☐ CHEM 112L Principles of Chemistry Lab (1) CO: CHEM 112

Mathematics Requirement

☐ MATH 250 Statistical Methods I (3) PR: Either MATH 111, 120 or instructor permission

Notes:
• MATH 250 is a prerequisite for all 300-level BIOL courses.

• CHEM 221 is a recommended course.

• Honors students can take the alternative sequence of HONS191/HONS191L, HONS 192/HONS192L, HONS293/HONS293L, and HONS294/HONS294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/CHEM 232L

• Honors students can take the alternative sequence of HONS157/HONS157L and HONS 158/HONS158L in lieu of PHYS 111/111L and PHYS112/112L
FACULTY CURRICULUM COMMITTEE
CHANGE/DELETE PROGRAM FORM

Instructions:
• Please fill out all of the portions of the form that are specified in section B. You must do this before your request can move forward!
• Remember that your changes will not be implemented until the next catalog year at the earliest.
• If you have questions, please start by checking the detailed instructions on the website.
• Please feel free to contact the committee chair with any remaining questions you might have.

A. CONTACT INFORMATION.

Name: Christopher Korey Phone: 843-953-7178 Email: koreyc@cofc.edu

School: SSM Department or Program: Biology

Name and Acronym of Major: BS in Marine Biology

B. CATEGORY OF REVIEW. Please check all that apply, then fill out the specified parts of the form.

☒ Change Request
☐ Add an existing course to requirements or electives (fill out all sections)
☒ Add a new course to requirements or electives (attach completed course form for each; fill out all sections)
☐ Delete courses from requirements or electives (fill out all sections)
☐ Add or modify concentration (fill out C, D, E, G, H, and I)*
☐ Add or modify cognate (fill out C, D, E, G, H, and I)*

*Note: Only concentrations and cognates requiring 18 or more credit hours will be tracked in Banner and Degree Works and noted on the transcript.

☐ Terminate Program (fill out E, G, H, and I)
☐ Terminate degree
☐ Terminate major
☐ Terminate concentration
☐ Terminate cognate

C. GENERAL INFORMATION

Number of Current Credit Hours (for existing program): 64+
Number of Proposed Credit Hours (for changed program): 64+
Catalog Year in which changes will take effect: FALL 2015

D. CURRICULUM. Please list every change you are making below AND attach the current Program of Study Worksheet for this major (http://registrar.cofc.edu/program-of-study-worksheets/index.php) with changes marked in RED. Additions should show where the course will be inserted, deletions should be noted by crossing out the course, and moves indicated with arrows. Distinguish between required and elective courses, and note any prerequisites, corequisites, sequencing, or other restrictions. Provide the catalog description and course list exactly as they should appear in the catalog. For each new course, submit the Curriculum Committee's Course Form and a sample syllabus.

This form was last updated on 6/6/2013 and replaces all others.

Page 1 of 3
BIOL 359: Study Abroad in Neuroscience (4)
An intensive international seminar and laboratory course. This course will include the reading of primary literature and an exploration of experimental techniques related to the research specialties of participating international faculty members. This course will also develop intercultural skills necessary for success in international Neuroscience research opportunities. *Enrollment will be by permission of instructor only.*

E. RATIONALE AND EXPLANATION. Please provide a narrative addressing the request you are making and why you are making it.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so then their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level biology and neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international science and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Biology/Psychology/Neuroscience and German/Slavic Studies.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the major or program?</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
<tr>
<td>I. At the end of the foundation sequence (BIOL 111, BIOL 112, BIOL 211) students demonstrate improvement in their understanding of the core concepts and competencies in biology.</td>
<td>Success is demonstrated by improved performance on the Biology Major Field Test (MFT) over the incoming first year class performance.</td>
</tr>
<tr>
<td>2. At the end of the program (BS, BA, BS Marine) students demonstrate maintained understanding of the core concepts and competencies in biology</td>
<td>Success is demonstrated by steady performance overall on the Biology MFT compared to performance at the end of the foundation sequence.</td>
</tr>
<tr>
<td>3. At the end of the program (BS, BA, BS Marine) students demonstrate improvement from the foundation sequence.</td>
<td>Success is demonstrated by improved group performance for some of the Assessment Indicators on the Biology MFT compared to the end of the foundation sequence.</td>
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</tbody>
</table>

This form was last updated on 6/6/2013 and replaces all others.  
Page 2 of 3
4. At the end of the program (BS, BA, BS Marine) students demonstrate the ability to understand standard scientific communication and to communicate their own work clearly and effectively using a variety of methods.

Success is demonstrated by acceptable oral and written reports evaluated by common departmental rubrics.

Additional Outcomes or Comments:

G. IMPACT ON EXISTING PROGRAMS AND COURSES. Please describe the impact of this request on other programs and courses. If you are deleting a program, please describe the effect on all programs that will be impacted; if you are adding or changing a program, please explain any overlap with existing programs at the College.

This course will be an upper-level, specialized elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will serve as an upper level elective that fulfills the laboratory requirement for Biology majors. It will not be required for any other existing major or minor on campus. Due to its specialized nature and limited enrollment, we expect it would have limited impact on other electives including other study abroad courses run by the Biology Department (10-16 students).

H. COSTS ASSOCIATED WITH THE REQUESTED ACTION. List all of the new costs or cost savings (including new faculty/staff requests, library, or equipment) associated with your request. None.

I. CHECKLIST

☒ I have completed all relevant parts of the form.

☒ I have attached a cover letter that describes my request and lists all the documents I am submitting.

☒ I have attached a Course Form for each newly-created or modified course.

☒ (For proposals that affect other departments in any way) I have attached an acknowledgement from the relevant department.

☒ I have provided the complete curriculum for the program, concentration, emphasis, etc., including the description and course list, exactly as it should appear in the catalog.

☒ I have submitted one Signature Form that lists all of the different forms I am submitting.

This form was last updated on 6/6/2013 and replaces all others.  

Page 3 of 3
Marine Biology Major Requirements
Catalog Year: 2013-14
Degree: Bachelor of Science
Credit Hours: 64+

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses

☐ BIOL 111
Introduction to Cell and Molecular Biology (3) PR: None; CO: BIOL 111
☐ BIOL 111L
Introduction to Cell and Molecular Biology Lab (1) CO: BIOL 111

OR

☐ HONS 151
Honors Biology I (3) PR: None; CO: HONS 151L
☐ HONS 151L
Honors Biology I Lab (1) CO: HONS 151

☐ BIOL 112
Evolution, Form, and Function of Organisms (3) PR: BIOL 111 and 111L; CO: BIOL 112L
☐ BIOL 112L
Evolution, Form, and Function of Organisms Lab (1) CO: BIOL 112L

OR

☐ HONS 152
Honors Biology II (3) PR: HONS 151 and 151L; CO: HONS 152L
☐ HONS 152L
Honors Biology II Lab (1) CO: HONS 152

☐ BIOL 211
Biodiversity, Ecology, and Conservation Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; CO: BIOL 211D
☐ BIOL 211D
Biodiversity, Ecology, and Conservation Biology Discussion (0) CO: BIOL 211

☐ BIOL 305
Genetics (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D and MATH 250 or instructor permission

☐ BIOL 335
Biology of Fishes (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

☐ BIOL 337
Invertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

☐ BIOL 341
General Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

☐ BIOL 342
Oceanography (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250; one year of college-level Math and one year of college-level Chemistry

Complete 3 credit hours of 300-level or above Biology courses from the BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST.

☐ BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST

BIOL 300
Botany (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 301
Plant Taxonomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 302
Plant Anatomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 303
Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
BIOL 304  Plant Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 305L  Genetics Lab (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D, BIOL 305 and MATH 250

BIOL 310  General Microbiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L

BIOL 312  Molecular Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250

BIOL 312L  Molecular Biology Laboratory (1) PR or CO: BIOL 312 and MATH 250. Students cannot use both BIOL 412 and BIOL 312L towards their major requirements.

BIOL 313  Cell Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L

BIOL 313L  Cell Biology Laboratory (1) PR or CO: BIOL 313 and MATH 250

BIOL 314  Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and one year of Chemistry; PR or CO: MATH 250

BIOL 320  Histology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 321  General and Comparative Physiology PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250 or equivalent course in statistics or instructor permission

BIOL 322  Developmental Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

BIOL 323  Comparative Anatomy of Vertebrates (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 332  Vertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 333  Ornithology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 334  Herpetology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 336  Parasitology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

BIOL 338  Entomology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 339  Dinosaur Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 340  Zoogeography (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 343  Animal Behavior (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

BIOL 350  Evolution (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250
BIOL 351 Principles of Neurobiology (3) PR: PSYC 103 and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D or PSYC 214; PR or CO: MATH 250

BIOL 352 Neurobiology and Behavior (3) PR: BIOL 351 or PSYC 351 or PSYC 214; PR or CO: MATH 250

BIOL 353 Hormones and Behavior (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 354 Techniques in Neuroscience (4) PR: BIOL 351 or PSYC 351; MATH 250 or PSYC 211 and PSYC 220 or PSYC 250; and instructor permission

BIOL 357 Oceanographic Research (4) PR: BIOL 342 and instructor permission; PR or CO: MATH 250

BIOL 360 Introduction to Biometry (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

BIOL 396 Biophysical Modeling of Excitable Cells (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and PHYS 111 and 111L and PHYS 112 and 112L or HONS 155 and 155L or BIOL 211 and 211D and BIOL 305 and PHYS 101 and 101L and PHYS 102 and 102L; PR or CO: MATH 250

BIOL 399 Tutorial (1-3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL; junior standing and tutor and department chair permission; PR or CO: MATH 250

BIOL 406 Conservation Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and BIOL 341 or permission of instructor; PR or CO: MATH 250

BIOL 410 Applied and Environmental Microbiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; BIOL 310 and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 411 Microtechnique and Cytochemistry (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

BIOL 412 Capstone in Molecular Biology (3) PR: BIOL 111/111L or HONS 151/151L, BIOL 112/112L or HONS 152/152L, BIOL 211/211D, BIOL 305, BIOL 312, MATH 111 PR or CO: CHEM 351, MATH 250. Students cannot use both BIOL 412 and BIOL 312L towards their major requirements.

BIOL 414 Environmental Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and BIOL 312 or BIOL 313 or CHEM 351 and MATH 250

BIOL 420 General and Comparative Endocrinology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250 and a course in physiology or instructor permission

BIOL 421 Topics in Physiology, Cell, and Molecular Biology of Marine Organisms (3) PR: BIOL 312 or 313; BIOL 321 and instructor permission; PR or CO: MATH 250

BIOL 444 Plant Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 341 or instructor permission; PR or CO: BIOL 305 and MATH 250

BIOL 445 Systematic Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; junior standing and at least one upper division course in organismal Biology; PR or CO: MATH 250

BIOL 446 Special Topics in Neuroscience (3) PR: Junior or senior standing and instructor permission; PR or CO: MATH 250

BIOL 447 Seminar in Neuroscience (3) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352; CO: BIOL 448 or PSYC 448; PR or CO: MATH 250

BIOL 448 Bachelor's Essay in Neuroscience (6) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352 and permission of student's major department and the neuroscience program director; PR or CO: MATH 250

BIOL 449 Biology of Coral Reefs (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.00 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250
BIOL 450 Problems in Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250

BIOL 451 Problems in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: BIOL 305 and MATH 250

BIOL 452 Seminar (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; 2.50 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed; PR or CO: BIOL 305 and MATH 250

BIOL 453 Special Topics (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and instructor permission; PR or CO: BIOL 305 and MATH 250

BIOL 455 Seminar in Molecular Biology (2) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305, 312 and 313; PR or CO: MATH 250

BIOL 499 Bachelor's Essay (6) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL; instructor and department chair permission; PR or CO: MATH 250

BIOL 501 Biology of the Crustacea (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 337; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 502 Special Topics in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

BIOL 503 Special Topics in Ecology (3-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

Chemistry Requirement

☐ CHEM 111 Principles of Chemistry (3) PR or CO: unless students exempt MATH 111 (via diagnostic testing) or have completed this course as a pre-requisite, they are required to take MATH 111 as a co-requisite; CO: CHEM 111

☐ CHEM 111L Principles of Chemistry Lab (1) CO: CHEM 111

☐ CHEM 112 Principles of Chemistry (3) PR: CHEM 111 and 111L or HONS 153 and 153L; CO: CHEM 112L (MATH 120 strongly recommended)

☐ CHEM 112L Principles of Chemistry Lab (1) CO: CHEM 112

AND

☐ CHEM 221 Quantitative Analysis (4) PR: CHEM 112 and CHEM 112L or HONS 154 and HONS 154L; CO: CHEM 221L

☐ CHEM 231 Organic Chemistry (3) PR: CHEM 112 and CHEM 112L or HONS 154 and HONS 154L; CO: CHEM 231L

☐ CHEM 231L Introduction to Organic Chemistry Laboratory Techniques (1) CO: CHEM 231

☐ CHEM 232 Organic Chemistry (3) PR: CHEM 231 and CHEM 231L; CO: CHEM 232L

☐ CHEM 232L Organic Synthesis and Analysis (1) CO: CHEM 232

Physics Requirement

☐ PHYS 101 Introductory Physics (3) PR: None; CO or PR: PHYS 101L

☐ PHYS 101L Introductory Physics Lab (1) CO: PHYS 101

AND

☐ PHYS 102 Introductory Physics II (3) PR: PHYS 101 or PHYS 101L or HONS 157; CO: PHYS 102L

☐ PHYS 102L Introductory Physics Lab (1) CO: PHYS 102

OR
□ PHYS 111  General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111L
□ PHYS 111L General Physics I Lab (1) CO: PHYS 111

AND
□ PHYS 112  General Physics II (3) PR: PHYS 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112L
□ PHYS 112L General Physics II Lab (1) CO: PHYS 112

Mathematics Requirement
□ MATH 120  Introductory Calculus (4) PR: Placement or C- or better in MATH 111
□ MATH 250  Statistical Methods I (3) PR: Either MATH 111, 120 or instructor permission

Complete one of the following Geology courses:
□ __________

GEOL 101  Dynamic Earth (3) PR: None; CO: GEOL 101L
GEOL 101L Dynamic Earth Lab (1) CO: GEOL 101

GEOL 103  Environmental Geology (3) PR: None; CO: GEOL 103L
GEOL 103L Environmental Geology Lab (1) CO: GEOL 103

GEOL 107*  Introduction to Coastal and Marine Geology (3) PR: None.

Note: *This course may not be used to fulfill natural science general education or Geology major requirements. Students may not receive credit for both GEOL 107 and 257. This course is recommended for Marine Biology majors.

Notes:
• MATH 250 is a prerequisite for all 300-level BIOL courses.
• CHEM 221 is a recommended course.
• Honors students can take the alternative sequence of HONS191/HONS191L, HONS 192/HONS192L, HONS293/HONS293L, and HONS294/HONS294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/CHEM 232L
• Honors students can take the alternative sequence of HONS157/HONS157L and HONS 158/HONS158L in lieu of PHYS 111/111L and PHYS112/112L
FACULTY CURRICULUM COMMITTEE
CHANGE/DELETE PROGRAM FORM

Instructions:
- Please fill out all of the portions of the form that are specified in section B. You must do this before your request can move forward!
- Remember that your changes will not be implemented until the next catalog year at the earliest.
- If you have questions, please start by checking the detailed instructions on the website.
- Please feel free to contact the committee chair with any remaining questions you might have.

A. CONTACT INFORMATION.

Name: Christopher Korey Phone: 843-953-7178 Email: koreyc@cofc.edu

School: SSM Department or Program: Biology

Name and Acronym of Major: BS in BIOLOGY with Molecular Biology Concentration

B. CATEGORY OF REVIEW. Please check all that apply, then fill out the specified parts of the form.

☒ Change Request
☐ Add an existing course to requirements or electives (fill out all sections)
☒ Add a new course to requirements or electives (attach completed course form for each; fill out all sections)
☐ Delete courses from requirements or electives (fill out all sections)
☐ Add or modify concentration (fill out C, D, E, G, H, and I)*
☐ Add or modify cognate (fill out C, D, E, G, H, and I)*

*Note: Only concentrations and cognates requiring 18 or more credit hours will be tracked in Banner and Degree Works and noted on the transcript.

☐ Terminate Program (fill out E, G, H, and I)
☐ Terminate degree
☐ Terminate major
☐ Terminate concentration
☐ Terminate cognate

C. GENERAL INFORMATION

Number of Current Credit Hours (for existing program): 72+
Number of Proposed Credit Hours (for changed program): 72+
Catalog Year in which changes will take effect: FALL 2015

D. CURRICULUM. Please list every change you are making below AND attach the current Program of Study Worksheet for this major (http://registrar.cofc.edu/program-of-study-worksheets/index.php) with changes marked in RED. Additions should show where the course will be inserted, deletions should be noted by crossing out the course, and moves indicated with arrows. Distinguish between required and elective courses, and note any prerequisites, co-requisites, sequencing, or other restrictions. Provide the catalog description and course list exactly as they should appear in the catalog. For each new course, submit the Curriculum Committee's Course Form and a sample syllabus.

This form was last updated on 6/6/2013 and replaces all others.
BIOL 359: Study Abroad in Neuroscience (4)
An intensive international seminar and laboratory course. This course will include the reading of primary literature and an exploration of experimental techniques related to the research specialties of participating international faculty members. This course will also develop intercultural skills necessary for success in international Neuroscience research opportunities. Enrollment will be by permission of instructor only.

This course will be listed as a 4-credit lecture/lab course elective for both the BA in Biology and the BS in Biology. (see attached program of study worksheets)

E. RATIONALE AND EXPLANATION. Please provide a narrative addressing the request you are making and why you are making it.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so then their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level biology and neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international science and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Biology/Psychology/Neuroscience and German/Slavic Studies.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the major or program?</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
<tr>
<td>1. At the end of the foundation sequence (BIOL 111, BIOL 112, BIOL 211) students demonstrate improvement in their understanding of the core concepts and competencies in biology.</td>
<td>Success is demonstrated by improved performance on the Biology Major Field Test (MFT) over the incoming first year class performance.</td>
</tr>
<tr>
<td>2. At the end of the program (BS, BA, BS Marine) students demonstrate maintained understanding of the core concepts and competencies in biology</td>
<td>Success is demonstrated by steady performance overall on the Biology MFT compared to performance at the end of the foundation sequence.</td>
</tr>
</tbody>
</table>
3. At the end of the program (BS, BA, BS Marine) students demonstrate improvement from the foundation sequence. Success is demonstrated by improved group performance for some of the Assessment Indicators on the Biology MFT compared to the end of the foundation sequence.

4. At the end of the program (BS, BA, BS Marine) students demonstrate the ability to understand standard scientific communication and to communicate their own work clearly and effectively using a variety of methods. Success is demonstrated by acceptable oral and written reports evaluated by common departmental rubrics.

Additional Outcomes or Comments:

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G. IMPACT ON EXISTING PROGRAMS AND COURSES. Please describe the impact of this request on other programs and courses. If you are deleting a program, please describe the effect on all programs that will be impacted; if you are adding or changing a program, please explain any overlap with existing programs at the College.

This course will be an upper-level, specialized elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will serve as an upper level elective that fulfills the laboratory requirement for Biology majors. It will not be required for any other existing major or minor on campus. Due to its specialized nature and limited enrollment, we expect it would have limited impact on other electives including other study abroad courses run by the Biology Department (10-16 students).

H. COSTS ASSOCIATED WITH THE REQUESTED ACTION. List all of the new costs or cost savings (including new faculty/staff requests, library, or equipment) associated with your request. None

I. CHECKLIST

- I have completed all relevant parts of the form.
- I have attached a cover letter that describes my request and lists all the documents I am submitting.
- I have attached a Course Form for each newly-created or modified course.
- (For proposals that affect other departments in any way) I have attached an acknowledgement from the relevant department.
- I have provided the complete curriculum for the program, concentration, emphasis, etc., including the description and course list, exactly as it should appear in the catalog.
- I have submitted one Signature Form that lists all of the different forms I am submitting.

This form was last updated on 6/6/2013 and replaces all others.
Biology Major with Concentration in Molecular Biology Requirements
Catalog Year: 2013-14
Degree: Bachelor of Science
Credit Hours: 72+

"PR" indicates a pre-requisite. "CO" indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Required Courses

- [ ] BIL 111 Introduction to Cell and Molecular Biology (3) PR: None; CO: BIL 111
- [ ] BIL 111L Introduction to Cell and Molecular Biology Lab (1) CO: BIL 111
- [ ] HONS 151 Honors Biology I (3) PR: None; CO: HONS 151L
- [ ] HONS 151L Honors Biology I Lab (1) CO: HONS 151
- [ ] BIL 112 Evolution, Form, and Function of Organisms (3) PR: BIL 111 and 111L; CO: BIL 112
- [ ] BIL 112L Evolution, Form, and Function of Organisms Lab (1) CO: BIL 112L
- [ ] HONS 152 Honors Biology II (3) PR: HONS 151 and 151L; CO: HONS 152L
- [ ] HONS 152L Honors Biology II Lab (1) CO: HONS 152
- [ ] BIL 211 Biodiversity, Ecology, and Conservation Biology (4) PR: BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L; CO: BIL 211D
- [ ] BIL 211D Biodiversity, Ecology, and Conservation Biology Discussion (0) CO: BIL 211
- [ ] BIL 305 Genetics (3) PR: BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L; PR or CO: BIL 211 and 211D, BIL 305 and MATH 250
- [ ] BIL 305L Genetics Lab (1) PR: BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L; PR or CO: BIL 211 and 211D, BIL 305 and MATH 250
- [ ] BIL 312 Molecular Biology (3) PR: One year of Chemistry and BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L; BIL 211 and 211D and BIL 305 or CHEM 232 and 232L; PR or CO: MATH 250
- [ ] BIL 313 Cell Biology (3) PR: One year of Chemistry and BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L; and BIL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIL 305 or CHEM 232 and 232L
- [ ] BIL 313L Cell Biology Laboratory (1) PR or CO: BIL 313 and MATH 250
- [ ] BIL 412 Capstone in Molecular Biology (3) PR: BIL 111/111L or HONS 151/151L, BIL 112/112L or HONS 152/152L, BIL 211/211D, BIL 305, BIL 312, MATH 111 PR or CO: CHEM 351, MATH 250. Students cannot use both BIL 412 and BIL 312L towards their major requirements.

- [ ] Complete 8 credit hours of 300-level or above BIL courses from the BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST for a total of four courses with labs (independent study, tutorial, Bachelor's Essay, or BIL 450 and 451 with labs do not fulfill the lab requirement).

BIOLOGY 300-LEVEL AND ABOVE ELECTIVES LIST

- [ ] BIL 300 Botany (4) PR: BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L and BIL 211 and 211D; PR or CO: BIL 305 and MATH 250
- [ ] BIL 301 Plant Taxonomy (4) PR: BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L and BIL 211 and 211D; PR or CO: BIL 305 and MATH 250
- [ ] BIL 302 Plant Anatomy (4) PR: BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L and BIL 211 and 211D; PR or CO: BIL 305 and MATH 250
- [ ] BIL 303 Physiology (4) PR: BIL 111 and 111L or HONS 151 and 151L and BIL 112 and 112L or HONS 152 and 152L and BIL 211 and 211D; PR or CO: BIL 305 and MATH 250
Biology 304 Plant Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of chemistry; PR or CO: BIOL 305 and MATH 250

Biology 310 General Microbiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L

Biology 314 Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and one year of Chemistry; PR or CO: MATH 250

Biology 320 Histology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 321 General and Comparative Physiology PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250 or equivalent course in statistics or instructor permission

Biology 322 Developmental Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Biology 323 Comparative Anatomy of Vertebrates (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 332 Vertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 333 Ornithology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 334 Herpetology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 335 Biology of Fishes (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 336 Parasitology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Biology 337 Invertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 338 Entomology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 339 Dinosaur Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 340 Zoogeography (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 341 General Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biology 342 Oceanography (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250; one year of college-level Math and one year of college-level Chemistry

Biology 343 Animal Behavior (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Biology 350 Evolution (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250
Biol 351: Principles of Neurobiology (3) PR: PSYC 103 and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D or PSYC 214; PR or CO: MATH 250

Biol 352: Neurobiology and Behavior (3) PR: BIOL 351 or PSYC 351 or PSYC 214; PR or CO: MATH 250

Biol 353: Hormones and Behavior (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 354: Techniques in Neuroscience (4) PR: BIOL 351 or PSYC 351; MATH 250 or PSYC 211 and PSYC 220 or PSYC 250; and instructor permission

Biol 357: Oceanographic Research (4) PR: BIOL 342 and instructor permission; PR or CO: MATH 250

Biol 360: Introduction to Biometry (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 396: Biophysical Modeling of Excitable Cells (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and PHYS 111 and 111L and PHYS 112 and 112L or HONS 158 and 158L or BIOL 211 and 211D and BIOL 305 and PHYS 101 and 101L and PHYS 102 and 102L; PR or CO: MATH 250

Biol 399: Tutorial (1-3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL; junior standing and tutor and department chair permission; PR or CO: MATH 250

Biol 406: Conservation Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and BIOL 341 or permission of instructor; PR or CO: MATH 250

Biol 410: Applied and Environmental Microbiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and BIOL 341 or permission of instructor; PR or CO: MATH 250

Biol 411: Microtechnique and Cytochemistry (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; BIOL 310 and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

Biol 414: Environmental Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of Chemistry; PR or CO: BIOL 305 and BIOL 312 or BIOL 313 or CHEM 351 and MATH 250

Biol 420: General and Comparative Endocrinology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250 and a course in physiology or instructor permission

Biol 421: Topics in Physiology, Cell, and Molecular Biology of Marine Organisms (3) PR: BIOL 312 or 313; BIOL 321 and instructor permission; PR or CO: MATH 250

Biol 444: Plant Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 341 or instructor permission; PR or CO: BIOL 305 and MATH 250

Biol 445: Systematic Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; junior standing and at least one upper division course in organismal Biology; PR or CO: MATH 250

Biol 446: Special Topics in Neuroscience (3) PR: Junior or senior standing and instructor permission; PR or CO: MATH 250

Biol 447: Seminar in Neuroscience (3) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352; CO: BIOL 448 or PSYC 448; PR or CO: MATH 250

Biol 448: Bachelor's Essay in Neuroscience (6) PR: BIOL 351 or PSYC 351 and BIOL 352 or PSYC 352 and permission of student's major department and the neuroscience program director; PR or CO: MATH 250

Biol 449: Biology of Coral Reefs (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.00 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

Biol 450: Problems in Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250
Biol 451 Problems in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L or BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250

Biol 452 Seminar (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; 2.50 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed; PR or CO: BIOL 305 and MATH 250

Biol 453 Special Topics (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and instructor permission; PR or CO: BIOL 305 and MATH 250

Biol 499 Bachelor’s Essay (6) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL; instructor and department chair permission; PR or CO: MATH 250

Biol 501 Biology of the Crustacea (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and (BIOL 305 or 337); 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

Biol 502 Special Topics in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

Biol 503 Special Topics in Ecology (3-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and 341; 3.00 GPA or higher in BIOL and junior standing and 15 credit hours of BIOL completed or instructor and department chair permission; PR or CO: MATH 250

Chemistry Requirement

- Chem 111 Principles of Chemistry (3) PR or CO: unless students exempt MATH 111 (via diagnostic testing) or have completed this course as a pre-requisite, they are required to take MATH 111 as a co-requisite; CO: Chem 111L
- Chem 111L Principles of Chemistry Lab (1) CO: Chem 111
- Chem 112 Principles of Chemistry (3) PR: Chem 111 and 111L or HONS 153 and 153L; CO: Chem 112L (MATH 120 strongly recommended)
- Chem 112L Principles of Chemistry Lab (1) CO: Chem 112
- Chem 231 Organic Chemistry (3) PR: Chem 112 and Chem 112L or HONS 154 and HONS 154L; CO: Chem 231L
- Chem 231L Introduction to Organic Chemistry Laboratory Techniques (1) CO: Chem 231
- Chem 232 Organic Chemistry (3) PR: Chem 231 and Chem 231L; CO: Chem 232L
- Chem 232L Organic Synthesis and Analysis (1) CO: Chem 232
- Chem 351 Biochemistry (3) PR: Chem 231, Chem 231L
- Chem 351L Biochemistry II (3) PR: Chem 351
- Chem 354L Biochemistry II Laboratory (1) PR: Chem 351

Physics Requirement

- Phys 101 Introductory Physics (3) PR: None; CO or PR: Phys 101L
- Phys 101L Introductory Physics Lab (1) CO: Phys 101

AND
- Phys 102 Introductory Physics II (3) PR: Phys 101 or Phys 111 or HONS 157; CO: Phys 102L
- Phys 102L Introductory Physics Lab (1) CO: Phys 102

OR

- Phys 111 General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: Phys 111L
- Phys 111L General Physics I Lab (1) CO: Phys 111

AND
- Phys 112 General Physics II (3) PR: Phys 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: Phys 112L
- Phys 112L General Physics II Lab (1) CO: Phys 112
Mathematics Requirement

- MATH 120  Introductory Calculus (4) PR: Placement or C- or better in MATH 111
- MATH 250  Statistical Methods I (3) PR: Either MATH 111, 120 or instructor permission

Notes:

- MATH 250 is a prerequisite for all 300-level BIOL courses.
- CHEM 221 is a recommended course.
- Honors students can take the alternative sequence of HONS191/HONS191L, HONS 192/HONS192L, HONS293/HONS293L, and HONS294/HONS294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/CHEM 232L.
- Honors students can take the alternative sequence of HONS 157/HONS 157L and HONS 158/HONS 158L in lieu of PHYS 111/111L and PHYS 112/112L.
FACULTY CURRICULUM COMMITTEE  
CHANGE/DELETE PROGRAM FORM

Instructions:
- Please fill out all of the portions of the form that are specified in section B. You must do this before your request can move forward!
- Remember that your changes will not be implemented until the next catalog year at the earliest.
- If you have questions, please start by checking the detailed instructions on the website.
- Please feel free to contact the committee chair with any remaining questions you might have.

A. CONTACT INFORMATION.

Name: Christopher Korey  Phone: 843-953-7178  Email: koreyc@cofc.edu

School: SSM  Department or Program: Biology

Name and Acronym of Major: BS in Biology with Teaching Option

B. CATEGORY OF REVIEW. Please check all that apply, then fill out the specified parts of the form.

☐ Change Request
☐ Add an existing course to requirements or electives (fill out all sections)
☐ Add a new course to requirements or electives (attach completed course form for each; fill out all sections)
☐ Delete courses from requirements or electives (fill out all sections)
☐ Add or modify concentration (fill out C, D, E, G, H, and I)*
☐ Add or modify cognate (fill out C, D, E, G, H, and I)*

*Note: Only concentrations and cognates requiring 18 or more credit hours will be tracked in Banner and Degree Works and noted on the transcript.

☐ Terminate Program (fill out E, G, H, and I)
☐ Terminate degree
☐ Terminate major
☐ Terminate concentration
☐ Terminate cognate

C. GENERAL INFORMATION

Number of Current Credit Hours (for existing program): 97+ (Biology 61+; Secondary Cognate 36)
Number of Proposed Credit Hours (for changed program): 97+ (Biology 61+; Secondary Cognate 36)
Catalog Year in which changes will take effect: FALL 2015

D. CURRICULUM. Please list every change you are making below AND attach the current Program of Study Worksheet for this major (http://registrar.cofc.edu/program-of-study-worksheets/index.php) with changes marked in RED. Additions should show where the course will be inserted, deletions should be noted by crossing out the course, and moves indicated with arrows. Distinguish between required and elective courses, and note any prerequisites, corequisites, sequencing, or other restrictions. Provide the catalog description and course list exactly as they should appear in the catalog. For each new course, submit the Curriculum Committee's Course Form and a sample syllabus.

This form was last updated on 6/6/2013 and replaces all others.
BIOL 359: Study Abroad in Neuroscience (4)
An intensive international seminar and laboratory course. This course will include the reading of primary literature and an exploration of experimental techniques related to the research specialties of participating international faculty members. This course will also develop intercultural skills necessary for success in international Neuroscience research opportunities. Enrollment will be by permission of instructor only.

E. RATIONALE AND EXPLANATION. Please provide a narrative addressing the request you are making and why you are making it.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so then their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level biology and neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international science and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Biology/Psychology/Neuroscience and German/Slavic Studies.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Method and Performance Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>What will students know and be able to do when they complete the major or program?</td>
<td>How will each outcome be measured? Who will be assessed, when, and how often? How well should students be able to do on the assessment?</td>
</tr>
<tr>
<td>1. At the end of the foundation sequence (BIOL 111, BIOL 112, BIOL 211) students demonstrate improvement in their understanding of the core concepts and competencies in biology.</td>
<td>Success is demonstrated by improved performance on the Biology Major Field Test (MFT) over the incoming first year class performance.</td>
</tr>
<tr>
<td>2. At the end of the program (BS, BA, BS Marine) students demonstrate maintained understanding of the core concepts and competencies in biology</td>
<td>Success is demonstrated by steady performance overall on the Biology MFT compared to performance at the end of the foundation sequence.</td>
</tr>
<tr>
<td>3. At the end of the program (BS, BA, BS Marine) students demonstrate improvement from the foundation sequence.</td>
<td>Success is demonstrated by improved group performance for some of the Assessment Indicators on the Biology MFT compared to the end of the foundation sequence.</td>
</tr>
</tbody>
</table>
4. At the end of the program (BS, BA, BS Marine) students demonstrate the ability to understand standard scientific communication and to communicate their own work clearly and effectively using a variety of methods. Success is demonstrated by acceptable oral and written reports evaluated by common departmental rubrics.

Additional Outcomes or Comments:

G. IMPACT ON EXISTING PROGRAMS AND COURSES. Please describe the impact of this request on other programs and courses. If you are deleting a program, please describe the effect on all programs that will be impacted; if you are adding or changing a program, please explain any overlap with existing programs at the College.

This course will be an upper-level, specialized elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will serve as an upper level elective that fulfills the laboratory requirement for Biology majors. It will not be required for any other existing major or minor on campus. Due to its specialized nature and limited enrollment, we expect it would have limited impact on other electives including other study abroad courses run by the Biology Department (10-16 students).

H. COSTS ASSOCIATED WITH THE REQUESTED ACTION. List all of the new costs or cost savings (including new faculty/staff requests, library, or equipment) associated with your request. None

I. CHECKLIST

☒ I have completed all relevant parts of the form.

☒ I have attached a cover letter that describes my request and lists all the documents I am submitting.

☒ I have attached a Course Form for each newly-created or modified course.

☐ (For proposals that affect other departments in any way) I have attached an acknowledgement from the relevant department.

☒ I have provided the complete curriculum for the program, concentration, emphasis, etc., including the description and course list, exactly as it should appear in the catalog.

☒ I have submitted one Signature Form that lists all of the different forms I am submitting.

This form was last updated on 6/6/2013 and replaces all others. Page 3 of 3
Biology Major Teaching Option and Secondary Cognate Major Requirements
Catalog Year: 2013-14
Degree: Bachelor of Science
Credit Hours: 97+ (Biology 61+; Secondary Cognate 36)

Teacher Education Track (Grades 9-12)

Students interested in teacher certification in biology must complete the following courses and the secondary education cognate major requirements. See the School of Education, Health and Human Performance section of the undergraduate catalog for a listing of the required secondary education cognate major courses. Students should apply for acceptance to this program no later than the second semester of their sophomore year. Requirements for this program include admission to and successful completion of the approved teacher education program. Students must successfully complete all requirements for certification in secondary education.

Notes: When declaring teacher certification in biology through the Program of Study Management System (POSM), students must first select " Declare or Add a Major" and then "Secondary Education Cognate" from the major list. Once this selection is made, a second menu box will appear with a list of the associated majors. Select the biology major and follow the on-screen instructions.

"PR" indicates a pre-requisite. "CO" indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.co.fc.edu/general-edu for more information.

Required Courses:

- BIOL 111 Introduction to Cell and Molecular Biology (3) PR: None; CO: BIOL 111L
- BIOL 111L Introduction to Cell and Molecular Biology Lab (1) CO: BIOL 111
- OR
- HONS 151 Honors Biology I (3) PR: None; CO: HONS 151L
- HONS 151L Honors Biology I Lab (1) CO: HONS 151
- BIOL 112 Evolution, Form, and Function of Organisms (3) PR: BIOL 111 and 111L; CO: BIOL 112L
- BIOL 112L Evolution, Form, and Function of Organisms Lab (1) CO: BIOL 112L
- OR
- HONS 152 Honors Biology II (3) PR: HONS 151 and 151L; CO: HONS 152L
- HONS 152L Honors Biology II Lab (1) CO: HONS 152
- BIOL 211 Biodiversity, Ecology, and Conservation Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; CO: BIOL 211D
- BIOL 211D Biodiversity, Ecology, and Conservation Biology Discussion (0) CO: BIOL 211
- BIOL 305 Genetics (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D and MATH 250 or instructor permission

19 additional credit hours in courses at the 300-level or above including:

Complete one of the following courses:

- BIOL 312 Molecular Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250

- BIOL 313 Cell Biology (3) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L

Complete one of the following laboratories

- ___________________________
Biol 305L  Genetics Lab (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; PR or CO: BIOL 211 and 211D; BIOL 305 and MATH 250

Biol 312L  Molecular Biology Laboratory (1) PR or CO: BIOL 312 and MATH 250. Students cannot use both BIOL 412 and BIOL 312L towards their major requirements.

Biol 313L  Cell Biology Laboratory (1) PR or CO: BIOL 313 and MATH 250

Complete one of the following courses:

☐  

Biol 304  Plant Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of chemistry; PR or CO: BIOL 305 and MATH 250

Biol 321  General and Comparative Physiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; BIOL 211 and 211D and BIOL 305 or CHEM 232 and 232L; PR or CO: MATH 250 or equivalent course in statistics or instructor permission

Complete at least one course from the following:

☐  

Biol 300  Botany (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 302  Plant Anatomy (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 303  Phycology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 304*  Plant Physiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and one year of chemistry; PR or CO: BIOL 305 and MATH 250

Note: *BIOL 304 may be used to fulfill the other above requirements.

Complete at least one course from the following:

☐  

Biol 310  General Microbiology (4) PR: One year of Chemistry and BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L; and BIOL 211 and 211D or CHEM 232 and 232L; PR or CO: MATH 250; BIOL 305 or CHEM 232 and 232L

Biol 322  Developmental Biology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Biol 323  Comparative Anatomy of Vertebrates (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Biol 332  Vertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 333  Ornithology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 334  Herpetology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Biol 335  Biology of Fishes (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250
Parasitology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Invertebrate Zoology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Entomology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Animal Behavior (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Select 3-7 credit hours of any 300-level course listed above or from the following:

Immunology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and one year of Chemistry; PR or CO: MATH 250

Zoogeography (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

General Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250

Oceanography (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250; one year of college-level Math and one year of college-level Chemistry

Evolution (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; PR or CO: MATH 250

Techniques in Neuroscience (4) PR: BIOL 351 or PSYC 351; MATH 250 or PSYC 211 and PSYC 220 or PSYC 250; and instructor permission

Conservation Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305 and BIOL 341 or permission of instructor; PR or CO: MATH 250

Applied and Environmental Microbiology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; BIOL 310 and one year of Chemistry; PR or CO: BIOL 305 and MATH 250

General and Comparative Endocrinology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; PR or CO: BIOL 305 and MATH 250 and a course in physiology or instructor permission

Topics in Physiology, Cell, and Molecular Biology of Marine Organisms (3) PR: BIOL 312 or 313; BIOL 321 and instructor permission; PR or CO: MATH 250

Plant Ecology (4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 341 or instructor permission; PR or CO: BIOL 305 and MATH 250

Systematic Biology (3) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; junior standing and at least one upper division course in organismal biology; PR or CO: MATH 250

Problems in Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250

Problems in Marine Biology (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and BIOL 305; 3.00 GPA or higher in science courses; junior standing and instructor and department chair permission; PR or CO: MATH 250

Seminar (1) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D; 2.50 GPA or higher in BIOL; junior standing and 15 credit hours of BIOL completed; PR or CO: BIOL 305 and MATH 250

Special Topics (1-4) PR: BIOL 111 and 111L or HONS 151 and 151L and BIOL 112 and 112L or HONS 152 and 152L and BIOL 211 and 211D and instructor permission, PR or CO: BIOL 305 and MATH 250
Mathematics Requirement

- MATH 120  Introductory Calculus (4) PR: Placement or C. or better in MATH 111
- MATH 250  Statistical Methods I (3) PR: Either MATH 111, 120 or instructor permission

Physics Requirement

- PHYS 101  Introductory Physics (3) PR: None; CO or PR: PHYS 101L
- PHYS 101L  Introductory Physics Lab (1) CO: PHYS 101

AND

- PHYS 102  Introductory Physics II (3) PR: PHYS 101 or PHYS 111 or HONS 157; CO: PHYS 102L
- PHYS 102L  Introductory Physics Lab (1) CO: PHYS 102

OR

- PHYS 111  General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111L
- PHYS 111L  General Physics I Lab (1) CO: PHYS 111

AND

- PHYS 112  General Physics II (3) PR: PHYS 111 or HONS 157, CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112L
- PHYS 112L  General Physics II Lab (1) CO: PHYS 112

Chemistry Requirement

- CHEM 111  Principles of Chemistry (3) PR or CO: unless students exempt MATH 111 (via diagnostic testing) or have completed this course as a prerequisite, they are required to take MATH 111 as a co-requisite; CO: CHEM 111L
- CHEM 111L  Principles of Chemistry Lab (1) CO: CHEM 111

AND

- CHEM 112  Principles of Chemistry (3) PR: CHEM 111 and 111L or HONS 153 and 153L; CO: CHEM 112L (MATH 120 strongly recommended)
- CHEM 112L  Principles of Chemistry Lab (1) CO: CHEM 112

AND

- CHEM 102  Organic and Biological Chemistry (3) PR: CHEM 101 and 101L or CHEM 111 and 111L; CO: CHEM 102L
- CHEM 102L  Organic and Biological Chemistry Lab (1) CO: CHEM 102

OR

- CHEM 231  Organic Chemistry (3) PR: CHEM 112 and CHEM 112L or HONS 154 and HONS 154L; CO: CHEM 231L
- CHEM 231L  Introduction to Organic Chemistry Laboratory Techniques (1) CO: CHEM 231

Notes:

- MATH 250 is a prerequisite for all 300-level BIOL courses.
- CHEM 221 is a recommended course.
- Honors students can take the alternative sequence of HONS191/HONS191L, HONS 192/HONS192L, HONS293/HONS293L, and HONS294/HONS294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/CHEM 232L
- Honors students can take the alternative sequence of HONS157/HONS157L and HONS 158/HONS158L in lieu of PHYS 111/111L and PHYS112/112L

Secondary Cognate Major Requirements

"PR" indicates a prerequisite. "CO" indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Students interested in teacher certification in secondary education must complete a content major, additional coursework required for certification (if applicable), and the secondary education cognate major requirements. Content majors are available in biology (Bachelor of Science Teaching Option), chemistry (Bachelor of Arts), English (Bachelor of Arts), history (Bachelor of Arts, for certification in social studies), mathematics (Bachelor of Science teacher education track), physics (Bachelor of Arts). Students must successfully complete all requirements for certification in secondary education.
Required Courses

☐ COMM 104  Public Speaking (3) PR: None

☐ EDFS 201* Foundations of Education (3) PR: Sophomore standing.

Note: *EDFS 201 is prerequisite to all other education courses with a grade of C or better.

☐ EDFS 303* Human Growth and the Educational Process (3) PR: None

☐ EDFS 326* Integrating Technology into Teaching (3) PR: None

☐ EDFS 330* Classroom and Behavior Management (3) PR: EDFS 201 and class rank of junior or above

☐ EDFS 345 Introduction to the Education of Exceptional Children and Youth (3) PR: EDFS 303 or equivalent.

☐ EDFS 455 Literacy and Assessment in the Content Areas (3) PR: None

☐ EDFS 456 Teaching Strategies in the Content Areas (English, Math, Science, Social Studies) (3) PR: None

Note: *Candidates who have received credit for PSYC 224 (previously listed as PSYC 311) prior to beginning a teacher education program should not take EDFS 303 (credit will not be awarded). Students must enroll in the Secondary sections for each of the courses marked with an asterisk. (See associate department chair to register for courses.) Each course requires a school-based field experience. Students will need a 3-hour block of time per week between the hours of 7 a.m. and 2 p.m. Monday through Friday, to complete each school-based experience.

Clinical Practice Internship Requirement

☐ EDFS 460* Clinical Practice in the Content Area (12) PR: Admission to a teacher education program and completion of all education requirements.

Note: *Students seeking recommendation for South Carolina certification in Secondary Education must complete the program of study above and meet the admission, retention, and exit requirements of the program and the School of Education, Health, and Human Performance. Recommendation to the South Carolina Department of Education for certification in South Carolina is contingent upon successful completion of Clinical Practice, and achievement of passing scores on the necessary Praxis II test(s) for recommendation. Students who do not take Clinical Practice may not earn a degree in Secondary Education and will not be recommended for certification. See your faculty advisor for additional information.

Notes:

• You should apply for admission (this is NOT declaring your major) to the Teacher Education Program the semester you are enrolled in EDFS 201 Foundations of Education. Requirements for admission:
  o Minimum overall GPA of 2.50 and 60 earned credit hours.
  o Passing score on the 3 components of the PRAXIS 1: Pre-Professional Skills Test (Reading, Writing, and Mathematics) as designated by the South Carolina Department of Education OR qualifying SAT or ACT scores.
  o Disposition forms from (a) a general education faculty member, (b) your EDFS 201 professor, and (c) someone who has observed you working with children.
  o If a student has transfer credit for a course that is equivalent to EDFS 201, they must meet with the Teacher Education department chair and complete 1 hour of work.
  o A grade of C or better in EDFS 201 Foundations of Education.

• Your admission process must be completed before beginning the professional program.

• You must complete a major in the content area and the cognate major to be forwarded to the State Department of Education for certification.
FACULTY CURRICULUM COMMITTEE
MINOR FORM

Instructions:
• Please fill out all of the portions of the form that are specified in section B. You must do this before your request can move forward!
• Remember that your changes will not be implemented until the next catalog year at the earliest.
• If you have questions, please start by checking the detailed instructions on the website. Please feel free to contact the committee chair with any remaining questions you might have.

A. CONTACT INFORMATION.

Name: Christopher Korey
Phone: 843-953-7178
Email: koreyc@cofc.edu

School: SSM
Department or Program: Biology

Name and Acronym of Minor: Biology Minor - BIOL

B. TYPE OF REQUEST. Please check all that apply, then fill out the specified parts of the form.

☐ Add a New Minor (complete all portions)

☒ Change an Existing Minor (complete C, D, E, G, H, and I)
  ☐ Add existing course or courses to requirements or electives
  ☐ Add new course(s) to requirements or electives (attach completed course form for each)
  ☐ Delete courses from requirements or electives

☐ Terminate a Minor (complete E, G, H, and I)

C. GENERAL INFORMATION.

Number of Current Credit Hours (for existing minors): 23
Number of Proposed Credit Hours (for new or changing minors): ______

Catalog year in which changes will take effect: Fall 2014

☒ Interdisciplinary (please see guidelines on the Curriculum Committee website and include acknowledgments from relevant departments)

According to academic policy, students may not obtain a major/concentration and minor in the same subject. Will students in specific majors be prohibited from declaring this minor because of this policy?

☒ Yes—Which major(s) or concentration(s)? Biology
  ☐ No

D. CURRICULUM. For a changed minor, please list every change you are making below AND attach the current catalog entry for this minor (from the Minor Requirements section) with changes marked in RED. Additions should show where the course will be inserted, deletions should be noted by crossing out the course, and moves indicated with arrows. Distinguish between required and elective courses, and note any prerequisites, co-requisites, sequencing, or other restrictions. For each new course, submit the Curriculum Committee’s Course Form and a sample syllabus. For
a new program, please submit the complete curriculum and catalog description exactly as they should appear in the catalog.

BIOL 359: Study Abroad in Neuroscience (4)
An intensive international seminar and laboratory course. This course will include the reading of primary literature and an exploration of experimental techniques related to the research specialties of participating international faculty members. This course will also develop intercultural skills necessary for success in international Neuroscience research opportunities.
Enrollment will be by permission of instructor only.

This course will be listed as a 4-credit lecture/lab course elective the minor in Biology. (see attached program of study worksheets)

E. RATIONALE AND EXPLANATION. Please provide a narrative addressing the request you are making and why you are making it. In addition, for a new minor, please address its objectives, provide evidence of student interest (e.g. interviews with student focus groups, enrollment in special-topics courses in this area), and explain how the minor supports the liberal arts tradition as well as the mission of the institution.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so then their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level biology and neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international science and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Biology/Psychology/Neuroscience and German/Slavic Studies.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT.

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
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<td>What will students know and be able to do when they complete the major or program?</td>
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G. IMPACT ON EXISTING PROGRAMS AND COURSES. Please describe the impact of this request on other programs and courses. If you are deleting a minor, please identify all programs that will be affected. If you are adding or changing a minor, please explain any overlap with existing programs at the College.

This course will be an upper level elective that fulfills the laboratory requirement for Biology majors and minors. It will also be a specialized-elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will not be required for any other existing major or minor on campus and should have minimal impact on enrollment on other electives due to its specialized nature and limited enrollment (10-16 students).

H. COSTS. List all of the new costs or cost savings (including new faculty/staff requests, library, equipment, etc.) associated with your request. None

I. CHECKLIST.

- I have completed all relevant parts of the form.
- I have attached a cover letter that describes my request and lists all the documents I am submitting.
- I have attached a Course Form for each newly-created or modified course.

This form was last updated on 6/5/2013 and replaces all others
☒ (For proposals that affect other departments in any way) I have attached an acknowledgement from the relevant department.

☒ I have provided the complete curriculum for the minor, including the description and course list, exactly as it should appear in the catalog.

☒ I have submitted one Signature Form that lists all of the different forms I am submitting.
FACULTY CURRICULUM COMMITTEE
MINOR FORM

Instructions:
- Please fill out all of the portions of the form that are specified in section B. You must do this before your request can move forward!
- Remember that your changes will not be implemented until the next catalog year at the earliest.
- If you have questions, please start by checking the detailed instructions on the website. Please feel free to contact the committee chair with any remaining questions you might have.

A. CONTACT INFORMATION.

Name: Christopher Korey  Phone: 843-953-7178  Email: koreyc@cofc.edu
School: SSM  Department or Program: Biology

Name and Acronym of Minor: Neuroscience Minor

B. TYPE OF REQUEST. Please check all that apply, then fill out the specified parts of the form.

☐ Add a New Minor (complete all portions)

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  ☒ Add new course(s) to requirements or electives (attach completed course form for each)
  ☐ Delete courses from requirements or electives

☐ Terminate a Minor (complete E, G, H, and I)

C. GENERAL INFORMATION.

Number of Current Credit Hours (for existing minors): 24-26
Number of Proposed Credit Hours (for new or changing minors): ______

Catalog year in which changes will take effect: Fall 2015

☒ Interdisciplinary (please see guidelines on the Curriculum Committee website and include acknowledgments from relevant departments)

According to academic policy, students may not obtain a major/concentration and minor in the same subject. Will students in specific majors be prohibited from declaring this minor because of this policy?

  Yes—Which major(s) or concentration(s)?
  ☒ No

D. CURRICULUM. For a changed minor, please list every change you are making below AND attach the current catalog entry for this minor (from the Minor Requirements section) with changes marked in RED. Additions should show where the course will be inserted, deletions should be noted by crossing out the course, and moves indicated with arrows. Distinguish between required and elective courses, and note any prerequisites, co-requisites, sequencing, or other restrictions. For each new course, submit the Curriculum Committee’s Course Form and a sample syllabus. For this form was last updated on 6/6/2013 and replaces all others.  Page 1 of 4
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BIO1. 359: Study Abroad in Neuroscience (4)
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Enrollment will be by permission of instructor only.

This course will be listed as a 4-credit lecture/lab course elective the minor in Biology. (see attached program of study worksheets)

E. RATIONALE AND EXPLANATION. Please provide a narrative addressing the request you are making and why you are making it. In addition, for a new minor, please address its objectives, provide evidence of student interest (e.g., interviews with student focus groups, enrollment in special-topics courses in this area), and explain how the minor supports the liberal arts tradition as well as the mission of the institution.

There is a growing push on this campus as well as nationally to provide intercultural and study abroad experiences for undergraduate students. Intercultural awareness and collaboration are liberal arts and science values/skills that are essential for the future scholarly and academic success of our students. In fact, a recent AAC&U survey of employers indicated that skills like intercultural awareness, communication skills, and teamwork skills are essential qualities that they want in our graduates, more so than their ultimate major. The growing international and collaborative nature of science makes it imperative that students have experiences that prepare them to be successful in an international context. To fill this need, we have spent time developing international relationships and teaching a study abroad course for upper-level biology and neuroscience students in Germany. This course has run as a summer course for the past three years and we wish to formally add this to the curriculum. It provides students the opportunity to explore international science and observe and engage in the process of scientific research in the laboratories and universities we visit. In its current form, Ludwig-Maximilians University (Munich) and Humboldt University/Charité Medical University (Berlin) have been our partner universities for the summer course thus far and into the foreseeable future. Presently, the course is on the leading edge of the very limited number of neuroscience study abroad programs in the country. We are asking for a course that is not tied specifically to the German Summer Program because we see opportunities for similar courses to be taught by other faculty in other countries. For instance, we imagine this new course providing the opportunity to teach a similar program in the fall Trujillo semester given the rich history of Neuroscience in Spain. It is also a platform for our ongoing, but early developmental stages of a semester abroad program partnering between Biology/Psychology/Neuroscience and German/Slavic Studies.

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This course will be an upper level elective that fulfills the laboratory requirement for Biology majors and minors. It will also be a specialized-elective in the Neuroscience program. The course will also serve as an upper level elective for Psychology majors or minors. It will not be required for any other existing major or minor on campus and should have minimal impact on enrollment on other electives due to its specialized nature and limited enrollment (10-15 students).

H. COSTS. List all of the new costs or cost savings (including new faculty/staff requests, library, equipment, etc.) associated with your request. None

I. CHECKLIST.

☒ I have completed all relevant parts of the form.

☒ I have attached a cover letter that describes my request and lists all the documents I am submitting.

☒ I have attached a Course Form for each newly-created or modified course.
☑ (For proposals that affect other departments in any way) I have attached an acknowledgement from the relevant department.

☑ I have provided the complete curriculum for the minor, including the description and course list, exactly as it should appear in the catalog.

☑ I have submitted one Signature Form that lists all of the different forms I am submitting.
Neuroscience Minor

Phone: 843.953.2298

Director: Elizabeth Meyer-Bernstein (Biology)

The neuroscience minor is designed to provide students with a full-spectrum approach to understanding how the brain and nervous system work in the expression of behavior. The field of neuroscience is a hybrid that integrates biology with psychology while drawing from other academic areas. This program fulfills the interdisciplinary nature of the field of neuroscience by allowing students to take neuroscience-related courses in the sciences, social sciences, and humanities in addition to core courses offered by the Departments of Biology and Psychology. In order to adequately prepare students for future careers in neuroscience-related fields, students are required to complete two semesters of independent research on a neuroscience-related topic.

Requirements

Credit Hours: 24-26

At least nine hours in the minor at the 200 level or above must be earned at the College of Charleston.

All of the following core courses:

15 credit hours

BIOL 351/PSYC 351 Principles of Neurobiology

BIOL 352/PSYC 352 Neurobiology and Behavior

BIOL 447/PSYC 447 Seminar in Neuroscience

BIOL 448/PSYC 448 Bachelor's Essay in Neuroscience (6 hours)

One of the following specialized neuroscience electives: 3 credit hours

BIOL 354 Techniques in Neuroscience

BIOL 359 Study Abroad in Neuroscience

PSYC 356 Behavioral Genetics

PSYC 386 Behavioral Pharmacology

PSYC 387 Neuropsychology
Subject: RE: Chair Letters Acknowledging Course Cross-List  
Date: Monday, September 22, 2014 at 8:25:55 AM Eastern Daylight Time  
From: Principe, Gabrielle F  
To: Korey, Christopher A

Chris –

I am writing to approve BIO 359 as a cross-listed course with PSYC 359 (“Study Abroad in Neuroscience”).

Best,
Gabby

PS Chris – If you need a more formal letter, please let me know.

~~~~~~~~~~~~~~~~~~~~~~~~
Gabrielle F. Principe, Ph.D.  
Professor and Chair  
Department of Psychology  
College of Charleston  
66 George Street  
Charleston, SC 29401  
Tel: 843.953.8204  
principeg@cofc.edu

Office: 57 Coming St., Rm. 104

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From: Korey, Christopher A  
Sent: Wednesday, September 17, 2014 1:47 PM  
To: Principe, Gabrielle F; Hillenius, Willem Jacob  
Cc: Tribblehorn, Jeffrey D; Galuska, Chad M; Ruscio, Michael Gerard  
Subject: Chair Letters Acknowledging Course Cross-List

Dear Gabby and Jaap,

The – “Study Abroad in Neuroscience” new course proposal made it through both Psychology and Biology late last spring as BIOL 359 and PSYC 359. The last piece we need is a letter approving the cross listing of the courses in the respective departments. Gabby would you mind writing a short letter approving BIOL 359 as a cross-list for PSYC 359. Jaap would you mind writing a short letter approving PSYC 359 as a cross-list for BIOL 359. You can both send them to me and I will coordinate with Jeff and Chad to get the two proposals sent in together. Thanks so much for the help with this.

Chris

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Christopher Korey, Ph.D. | Director, First Year Experience  
New Student Programs | College of Charleston  
Associate Professor | Biology Department  
Office: New Student Programs, Room 187  
Mailing Address: 66 George Street | Charleston SC 29424