**PI(s): Michael Larsen**
**Email:** LarsenML@cofc.edu
**Institution:** College of Charleston
**Department:** Physics and Astronomy
**Email:** LarsenML@cofc.edu
**Start date:** Flexible
**Duration:** Flexible
**Research Summary/Student Expectations:**
I study atmospheric microphysics -- stuff in the sky smaller than a loaf of bread. My particular emphasis lately has been on studying rainfall variability on space and time scales that can not be resolved by traditional radar, but I also have projects related to aerosol physics, cloud physics, light transmission through the atmosphere, and statistical analysis of large data sets. I am willing and interested in working with motivated researchers. Computer programming and/or mathematical skills are a plus, but not necessary. I'm usually able to find projects that are appropriate to a student's background and of mutual interest.

*Dr. Larsen is no longer available to attend. Interested students are encouraged to contact him directly.*

[larsenml.people.cofc.edu](larsenml.people.cofc.edu)

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**PI(s): Jacqueline McGinty**
**Email:** mcginty@musc.edu
**Institution:** MUSC
**Department:** Neuroscience
**Email:** mcginty@musc.edu
**Start date:** immediately
**Duration:** 9-12 months
**Research Summary/Student Expectations:**
The goal of research in the McGinty Lab is to understand the neurobiology of, and develop therapies for, substance use disorders. Our research has demonstrated that brain-derived neurotrophic factor (BDNF) and inhibitory designer receptor activation suppress drug-seeking in preclinical models of addiction. Our current research is driven by three main questions.
What mechanisms underlie cocaine-induced phospho-protein and dendritic spine disturbances in the prefrontal cortex during early withdrawal and later abstinence that lead to drug-seeking?
How does BDNF suppress drug-seeking when it is infused into the prefrontal cortex during early withdrawal from cocaine?
How does inhibiting specific pathways originating in prefrontal cortex attenuate drug-seeking in a preclinical model of addiction?

[http://academicdepartments.musc.edu/neuro-research/research/lab/McGinty_Lab/](http://academicdepartments.musc.edu/neuro-research/research/lab/McGinty_Lab/)

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**PI(s): Eric McElroy**
**Email:** mcelroye@cofc.edu
**Institution:** College of Charleston
**Department:** Biology
**Email:** mcelroye@cofc.edu
**Start date:** Spring 2019
**Duration:** Flexible
**Research Summary/Student Expectations:**
Various projects involving morphology, physiology, biomechanics, ecology and evolution. Projects may involve work with live or preserved animals. Students will learn basics of Matlab, R and/or Labview for recording and/or analyzing data. Students will learn how to communicate scientific results in writing and via presentation.

[https://sites.google.com/a/cofc.edu/mcelroy-lab/](https://sites.google.com/a/cofc.edu/mcelroy-lab/)
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PI(s): Brian Scholtens
Email: scholtensb@cofc.edu
Institution: College of Charleston
Department: Biology
Email: scholtensb@cofc.edu
Start date: flexible
Duration: No set dates
Research Summary/Student Expectations:
Student will work in insect biodiversity studies in the area, but possibly also in Michigan

PI(s): Demetri Spyropoulos
Email: spyropdd@musc.edu
Institution: MUSC, Hollings Marine Labs
Department: Pathology and Lab Medicine
Email: spyropdd@musc.edu
Start date: Open
Duration: Open
Research Summary/Student Expectations:
Obesogen Toxicology: We study chemical additives in foods, cosmetics, drugs and the environment that act as drivers of obesity. Obesogens drive obesity by slowing down metabolism and activity level, increasing hunger, and shifting stem cells from bone/muscle/etc. fate to a fat cell fate. Students are expected to learn basic concepts and experimental techniques related to asking questions in the field of obesogen biology. This research project will expose students, not only to some really useful biology, but also a mindset for navigating healthy lifestyle choices.
http://pathology.musc.edu/website/people/individual/spyropoulos.html

PI(s): Michael Janech
Email: janechmg@cofc.edu
Institution: College of Charleston
Department: Biology
Email: janechmg@cofc.edu
Start date: 2019
Duration: 2019 - 2022
Research Summary/Student Expectations:
Proteomics is an analytical tool that merges computing with analytical chemistry to help answer biological questions and accelerate discovery through protein analysis. The application of proteomics to clinical, environmental, pharmacological, and biological fields has grown immensely over the last 20 years, which have led to exciting discoveries. Students can ask questions such as: What proteins are in a sample? How do protein compositions differ between species of animals or plants? Are pathogens more or less prevalent at different localities? Can novel proteins predict disease or predict the course of disease? Techniques include sample preparation, liquid chromatography/mass spectrometry, database construction and computational analysis. Laboratory work is conducted at the Hollings Marine Laboratory at the Fort Johnson Marine Complex. Students should be able to attain transportation to the Marine Laboratory. Expectations vary depending upon the scope of projects.
http://biology.cofc.edu/about-the-department/faculty-staff-listing/janech-michael.php
PI(s): Cynthia Cooksey  
Email: cynthia.cooksey@noaa.gov  
Institution: NOAA Fisheries  
Department: Habitat Conservation Division  
Email: cynthia.cooksey@noaa.gov  
Start date: December 2018 or January 2019  
Duration: Timing is flexible as the project can be scaled depending on student interest  
Research Summary/Student Expectations:  
The South Atlantic Branch of the NOAA Fisheries Habitat Conservation Division (HCD) extends from North Carolina to the U.S. Virgin Islands. HCD administers several programs including Essential Fish Habitat (EFH) consultations under the Magnuson-Stevens Fishery Conservation and Management Act. Federal action agencies that fund, permit, or carry out activities in the Southeast that may adversely affect EFH are required to consult with HCD regarding the potential impacts of their actions on EFH. For the past eight years, HCD has tracked all EFH consultations using an Access database. The proposed student project is a data mining activity to document long-term patterns in EFH consultations for HCD’s South Atlantic Branch. This project is a unique opportunity for the student interested in environmental policy and habitat conservation to work directly on regulatory issues. This project may be scaled up or down in size and complexity based on the student’s interest and capabilities.  
Interested student should have experience with Microsoft Access. Additional information about the Habitat Conservation Division may be found here:  
https://sero.nmfs.noaa.gov/habitat_conservati on/index.html  
http://marinebiology.cofc.edu/about-the-program/faculty-listing/cooksey-cindy.php

PI(s): Heather Fullerton  
Email: fullertonhe@cofc.edu  
Institution: College of Charleston  
Department: Biology  
Email: fullertonhe@cofc.edu  
Start date: Jan-19  
Duration: Spring 2019-2021  
Research Summary/Student Expectations:  
I’m looking for a research assistant to help with characterizing microbial communities in the Charleston watershed, with specific focus on the microbes that mediate iron cycling. You will learn how to extract DNA, amplify it by PCR and qPCR. These data will be used to understand microbial and iron cycling dynamics in the Charleston area, which are important for estuary health and productivity. No previous research, molecular biology or microbiology experience required.

PI(s): Steven Jaume  
Email: jaumes@cofc.edu  
Institution: College of Charleston  
Department: Geology  
Email: jaumes@cofc.edu  
Start date: Anytime  
Duration: Ongoing  
Research Summary/Student Expectations:  
I am looking for Geology, Physics, Computer Science and/or Mathematics majors interested in analyzing seismic and geophysical data related to earthquake hazards in the greater Charleston area. This is in support of the ongoing Charleston Area Earthquake Hazards Mapping Project.  
Go to:  
https://earthquake.usgs.gov/cfusion/external_grants/research.cfm and search for PI Jaume in 2016 & 2014 to see some project reports
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PI(s): Tim Barker
Email: barkertj@cofc.edu
Institution: College of Charleston
Department: Chemistry and Biochemistry
Email: barkertj@cofc.edu
Start date: Jan-19
Duration: Spring 2019 - ?, preferably available during Summer 2019
Research Summary/Student Expectations:
My research lab develops new organic reactions. Students are expected to be in lab 6 hours a week on average, ideally on consecutive days. We use NMR to determine reaction outcomes and as the primary way of characterizing our purified products. One current research project is examining alkylboron compounds as nucleophiles with a variety of electrophiles.

PI(s): Mark Hamann
Email: hamannm@musc.edu
Institution: MUSC
Department: Drug Discovery and Biomedical Sciences
Email: hamannm@musc.edu
Start date: Flexible
Duration: Flexible
Research Summary/Student Expectations:
Our group is focused on the use of NMR and MS to expedite the discovery and structural elucidation of new natural products. Furthermore, our group is interested in the synthesis, medicinal chemistry and optimization of natural products with novel mechanisms of action against cancer, infectious disease and neurological disorders. Interested students are welcome to come to a lab meeting/tour our lab. [Link]

PI(s): Jack DiTullio
Email: ditullioj@cofc.edu
Institution: College of Charleston
Department: Biology
Email: ditullioj@cofc.edu
Start date: Flexible
Duration: Flexible
Research Summary/Student Expectations:
The DiTullio lab is looking for motivated students to join their biological oceanography lab at the Hollings Marine Lab on James Island. Our research is focused on the ecology of marine phytoplankton and how these organisms affect the biogeochemical cycling of iron, carbon, nitrogen and sulfur. Within the last year, our lab has participated in research cruises to both the Arctic and Antarctic, returning with an abundance of samples that need to be analyzed. The processing and analysis of these samples would be an ideal project for a bachelor’s essay, or for a student looking to gain some hands-on experience working in a research lab. The data collected would play an important role in understanding the phytoplankton ecology of these polar environments.

I will be unable to attend the mixer due to teaching obligations. But my lab manager, Nicole Schanke will be present to answer all questions. I can be contacted directly via email or at my office at the Grice Marine Lab (Room 204).
PI(s): Christopher Freeman  
Email: freemancj@cofc.edu  
Institution: College of Charleston  
Department: Biology  
Email: freemancj@cofc.edu  
Start date: Flexible  
Duration: Flexible  
Research Summary/Student Expectations:  
My research program is focused on symbiotic interactions between coral reef organisms (sponges, soft corals, jellyfish) and microbial symbionts, but I am also broadly interested in coral reef ecology. I conduct summer fieldwork at the Smithsonian Tropical Research Institute in Bocas del Toro, Panama (https://stri.si.edu/facility/bocas-del-toro) and carry out local research out of the Hollings Marine Laboratory (HML) here in Charleston (https://www.nist.gov/mml/hollings-marine-laboratory). I am predominately looking for research assistants to help with lab work at HML during the school year. Students will have the opportunity to develop independent projects as part of this work and may also be able to join me on summer trips to Panama.  
Email me at freemancj@cofc.edu if you are interested

PI(s): Marcello Forconi  
Email: forconim@cofc.edu  
Institution: College of Charleston  
Department: Chemistry & Biochemistry  
Email: forconim@cofc.edu  
Start date: Spring 2019  
Duration: variable

PI(s): Jenn Wilhelm  
Email: wilhelmjc@cofc.edu  
Institution: College of Charleston  
Department: Psychology (Neuroscience)  
Email: wilhelmjc@cofc.edu  
Start date: Spring 2019  
Duration: ongoing  
Research Summary/Student Expectations:  
The Wilhelm lab is interested in regeneration of the nervous system after injury. We study the effects of exercise on the recovery of neurons after traumatic injury. Previously we have found that exercise in the form of treadmill exercise enhances regeneration of neurons and stabilizes the connections between neurons in the spinal cord. Current studies are focusing on learning which molecules are involved in these exercise-mediated enhancements. In the future we hope to develop pharmaceutical treatments to mimic the benefits of exercise to treat patients with functional deficits caused by traumatic nerve injury. Students working in the lab would be expected to collaborate with Dr. Wilhelm and other students in the lab on all aspects of the project.

PI(s): Agnes Ayme-Southgate  
Email: southgatea@cofc.edu  
Institution: CofC  
Department: Biology  
Email: southgatea@cofc.edu  
Start date: Fall 2019  
Duration: 1 year minimum  
Research Summary/Student Expectations:  
Understanding muscle function in insect and in particular how changes in proteins are triggered by exercise and flight.
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**PI(s):** James Otis, PhD  
**Email:** otis@musc.edu  
**Institution:** Medical University of South Carolina  
**Department:** Neuroscience  
**Email:** otis@musc.edu  
**Start date:** ASAP  
**Duration:** Indefinite  
**Research Summary/Student Expectations:**  
Punctual and interested in neuroscience research  
e-mail me if you’re interested in joining us, at otis@musc.edu  
[https://www.otis-lab.org](https://www.otis-lab.org)

**PI(s):** Bob Podolsky  
**Email:** podolskyr@cofc.edu  
**Institution:** College of Charleston  
**Department:** Biology-Grice Marine Lab  
**Email:** podolskyr@cofc.edu  
**Start date:** open  
**Duration:** open  
**Research Summary/Student Expectations:**  
Research in my laboratory focuses on the ecology and evolution of marine invertebrates, particularly at early life-history stages. Student research projects have focused on the effects of ocean acidification and pollutants on development in sea urchins and molluscs, on sexual selection and reproduction in sea spiders, and on the ecological distribution and morphology of squid. I also have projects that would involve the analysis of data sets from Great Barrier Reef brittlestars and Pacific Northwest sea slugs.  
I will be teaching and not available until 4:45 at the earliest. Please contact me by email if you cannot find me. I am open to developing projects of interest to students depending on time commitment, availability at Grice Marine Lab, and future goals.  
[http://podolskyr.people.cofc.edu/](http://podolskyr.people.cofc.edu/)

**PI(s):** Kris Ghosh  
**Email:** ghoshk@cofc.edu  
**Institution:** College of Charleston  
**Department:** Computer Science  
**Email:** ghoshk@cofc.edu  
**Start date:** January, 2019  
**Duration:** One semester and possibility of extension for one academic year.  
**Research Summary/Student Expectations:**  
Students with science major and computer programming experience in Python/R  
[http://blogs.cofc.edu/krisg/](http://blogs.cofc.edu/krisg/)

**PI(s):** Allison Welch  
**Email:** welcha@cofc.edu  
**Institution:** College of Charleston  
**Department:** Biology  
**Email:** welcha@cofc.edu  
**Start date:** Spring/Summer 2019  
**Duration:** ongoing  
**Research Summary/Student Expectations:**  
My lab is interested in the ecology, behavior, and conservation of amphibians. We are investigating effects of various anthropogenic environmental stressors – including elevated salinity, pharmaceutical pollutants, and pesticides – across different stages of the amphibian life cycle.  
I will be available from 4:00-4:45. Interested students are also welcome to contact me by email (welcha@cofc.edu).  
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**PI(s):** Christopher Cowan  
**Email:** hughesbw@musc.edu  
**Institution:** Medical University of South Carolina  
**Department:** Neuroscience  
**Email:** hughesbw@musc.edu  
**Start date:** Flexible  
**Duration:** Flexible

**Research Summary/Student Expectations:**  
Dr. Cowan’s research laboratory explores the genes and molecular mechanisms that control proper brain wiring during development, and they seek to understand the roles of these molecules in the young and adult brain under pathological conditions, such as autism, intellectual disability, drug addiction, and depression. The lab utilizes a broad array of experimental approaches to gain a better understanding about the underlying regulation, or dysregulation, of healthy brain function, and they take an integrated, multidisciplinary approach to address these important topics for human mental health. Students will be trained in techniques such as molecular biology, rodent behavior, immunohistochemistry, microscopy. Sophomores interested in addiction neuroscience are strongly encouraged to come by our poster. Interested students will then be asked to visit the lab for a tour and interview.  
[http://academicdepartments.musc.edu/neuro-research/research/lab/cowan-lab/our-team/index.html](http://academicdepartments.musc.edu/neuro-research/research/lab/cowan-lab/our-team/index.html)

**PI(s):** Kristin Linesch  
**Email:** lineschk@dnr.sc.gov  
**Institution:** SC Dept. of Natural Resources  
**Department:** Marine Resources Research Institute  
**Email:** lineschk@dnr.sc.gov  
**Start date:** 15-Apr-19  
**Duration:** Summer 2019 (and Spring, if possible)

**Research Summary/Student Expectations:**  
The Crustacean Research and Monitoring Section at SCDNR is interested in assessing horseshoe crab population health in SC. Students interested in marine biology and fisheries management will gain valuable field and laboratory experience. Field work will include horseshoe crab tagging, adult spawning surveys, and sampling for juveniles on beaches throughout SC. Laboratory work will include sorting and preserving samples for genetic analysis. Students must be able to work on beaches during long, hot summer days and sometimes in the evenings; and willing to pick up and handle live horseshoe crabs.

**PI(s):** Daniel McGlinn and Sam Norton  
**Email:** mcglinndj@cofc.edu  
**Institution:** College of Charleston  
**Department:** Biology  
**Email:** mcglinndj@cofc.edu  
**Start date:** Spring 2019  
**Duration:** Flexible

**Research Summary/Student Expectations:**  
We are seeking an undergraduate you is interested in salt marsh plant ecology. The student will collaborate with the PI's on a USDA funded project to examine if a native salt marsh plant Sea pickle (Salicornia sp) can be cultivated for remediation of dredged soils and marked it as an edible plant. Interest in working in the salt marsh environment is critical for this position. A driver's licence would be also be helpful.
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