Table No.: 1
PI(s): Matthew (Moshe) Rhodes
Email: rhodesme@cofc.edu
Institution: College of Charleston
Department: Biology
Email: rhodesme@cofc.edu
Start date: 15-Jan-18
Duration: Spring 18-Fall 18
Research Summary/Student Expectations:
Halophiles are organisms that can grow in extremely salty environments, often more than 10 times more saline than the ocean. These environments are dominated by members of the archaeal group the Haloarchaea. I intend to investigate the potential for the Haloarchaea in large hyper saline lakes and arctic sea ice to contribute to cloud formation. This project would entail culturing a number of halophilic isolates, analyzing cell densities with microscopy and other techniques, and potentially assisting with the cloud ice nucleation chamber at the National Oceanic and Atmospheric Association in Boulder Colorado.
http://biology.cofc.edu/about-the-department/faculty-staff-listing/rhodes-matthew.php

Table No.: 1
PI(s): Kristin Marquardt, PhD
Email: marquard@musc.edu
Institution: Medical University of South Carolina
Department: Institute of Psychiatry/ Addiction Sciences Division
Email: marquard@musc.edu
Start date: flexible
Duration: 1-2 years
Research Summary/Student Expectations:
The Chandler lab is focused on neural adaptations that occur during alcohol exposure, including those that lead to uncontrolled drinking. I, Kristin, am a postdoctoral fellow in the Chandler lab, with several diverse projects focusing on how alcohol disrupts prefrontal cortex function. As a student you would be working directly with me. The expectation, is that you will participate in current projects for 3 to 4 months learning various laboratory techniques before proposing an extension project for a senior thesis. This timeline is highly dependent upon how motivated you are as a student to learn and propose a project. A minimum of 10 lab hours a week is expected.
****You must be okay participating in animal research with both mice and rats.
The two projects I am currently looking for students to extend are as follows:
One project is determining the contribution of dopamine receptor-containing neural populations in the function prefrontal cortex during habitual alcohol seeking.
The second project is focused on how perineuronal nets (a specialized extracellular matrix) in the prefrontal cortex are disrupted by adolescent alcohol exposure and how this ultimately affects adult behavior. This project may ultimately extend to studying perineuronal nets in the context of post-traumatic stress disorder (PTSD).
No qualifications or experience is necessary as the point of an internship is to learn. Some of my projects include copious data analysis through Matlab, therefore an interest or experience in learning coding will increases variability in potential projects.
Looking for 1-2 students
### Table No.: 2
**PI(s):** Alex Kasman  
**Email:** kasmana@cofc.edu  
**Institution:** College of Charleston  
**Department:** Mathematics  
**Email:** kasmana@cofc.edu  
**Start date:** flexible  
**Duration:** flexible  
**Research Summary/Student Expectations:**  
The project will investigate quaternion-valued solutions to one of the most famous wave equations, the KdV equation. The student investigator should have interest in mathematical physics and have had MATH 203 (Linear Algebra) and MATH 221 (Multivariable Calculus). Experience with Mathematica or some other mathematical software would be a plus.  

### Table No.: 3  
**PI(s):** Dr Asemani  
**Email:** asemani@musc.edu  
**Institution:** Medical University of South Carolina  
**Department:** Radiology  
**Email:** asemani@musc.edu  
**Start date:** as soon as possible  
**Duration:** 2017-2019  
**Research Summary/Student Expectations:**  
Statistical analysis, image processing, 3D images, MRI, Psychology, cognitive assessment

### Table No.: 3  
**PI(s):** Heather Fullerton  
**Email:** fullertonhe@cofc.edu  
**Institution:** College of Charleston  
**Department:** Biology  
**Email:** fullertonhe@cofc.edu  
**Start date:** Spring Semester  
**Duration:**  
**Research Summary/Student Expectations:**  
My lab focuses on microbial metabolism and ecology, specifically microbially mediated iron-oxidation. To investigate these processes, students will analyze microbial communities collected from Lō‘ihi Seamount, Mariana arc and/or SC estuaries.

### Table No.: 4  
**PI(s):** Catrina Robinson  
**Email:** robinsoc@musc.edu  
**Institution:** Medical University of South Carolina  
**Department:** Neurology  
**Email:** robinsoc@musc.edu  
**Start date:** ongoing  
**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 4:30-5:30. Interested students are also welcome to contact me by email (welcha@cofc.edu).*  
Overall our research interests are to understand how metabolic disorders, such as diabetes and obesity, impact the brain. For more details, please visit our poster and/or email me.

Table No.: 4
PI(s): Jesse Dean
Email: deaje@musc.edu
Institution: Medical University of South Carolina
Department: Health Professions
Start date: 1-Jun-18
Duration: Summer 2018
Research Summary/Student Expectations:
An undergraduate research position with a focus on rehabilitation to improve functional mobility is available for the summer of 2018. Students in this program will participate in cutting-edge research developing a novel training device that can be used to improve walking ability in individuals with neurological injuries. Ideal applicants will have an interest in research, and an academic background in a relevant field (e.g. biology, computer science, exercise science, neuroscience, physical education, public health).

Table No.: 5
PI(s): Daniel McGlinn
Email: mcglinndj@cofc.edu
Institution: College of Charleston
Department: Biology
Start date: now
Duration: open ended
Research Summary/Student Expectations:
I conduct research on biodiversity and how ecological communities change through time. My field work is primarily in terrestrial longleaf pine forests currently but my students have worked on a variety of systems and taxonomic groups that include both marine and terrestrial organisms. Much of the work done in our lab is computational but I am happy to mentor field studies as well. I expect students to be curiosity driven and to be hard independent workers.

Table No.: 6
PI(s): Donna Roberts
Email: robertdr@musc.edu
Institution: Medical University of South Carolina
Department: Radiology
Start date: as convenient
SSM Annual Research Mixer
Tuesday, November 14, 2017
4:00 p.m. – 5:30 p.m., SSMB Atrium

Duration: ongoing

Research Summary/Student Expectations:
This is a project funded by NASA to examine structural changes of the brains of astronauts following long-term spaceflight. The research will involve neuroimaging data analysis.

Table No.: 6
PI(s): Carla Kmett Danielson (PI); Casey Calhoun (Co-I; will attend the event)
Email: calhouca@musc.edu
Institution: Medical University of South Carolina
Department: Psychiatry and Behavioral Sciences
Email: calhouca@musc.edu
Start date: ASAP
Duration: 04/2017 - 08/2021

Research Summary/Student Expectations:
Study examines the impact of stressful life events on neural and psychological development among 3rd, 6th, and 9th graders. Volunteers would assist with school-based and community-based recruitment efforts, preparation of materials for participants' lab visits at MUSC, assistance with administering a lab-based protocol (includes fMRI, EEG, clinical interviews, and questionnaires), and data management. Volunteers are expected to commit 8-12 hrs per week.

www.musckids.org/charm

Table No.: 7
PI(s): Agnes Ayme-Southgate
Email: southgatea@cofc.edu
Institution: College of Charleston
Department: Biology
Email: southgatea@cofc.edu
Start date: spring 2018
Duration: Spring 2018 - Summer 2018

Research Summary/Student Expectations:
Objective: to carry out a transect along salinity gradient to search for polychaete hosts of fish parasites - Student will be expected to help in the field and in the laboratory. Field work will be wet and muddy. Lab work will include isolating and sorting small polychaetes from oyster shells.

Table No.: 8
PI(s): Neal Tonks
Email: tonksn@cofc.edu
Institution: College of Charleston
Department: Chemistry and Biochemistry
Email: tonksn@cofc.edu
Start date: Jan-18
Duration: Spring 2018-Summer 2018

Research Summary/Student Expectations:
Participate in project on polyurethane foams
**Table No.: 8**
**PI(s):** Marcello Forconi  
**Email:** forconim@cofc.edu  
**Institution:** College of Charleston  
**Department:** Chemistry and Biochemistry  
**Email:** forconim@cofc.edu  
**Start date:** Spring 2018 or later  
**Duration:** Ongoing  
**Research Summary/Student Expectations:**
My lab focuses on three main areas of research. (1) In collaboration with Dr. Mike Giuliano at CoFC, we are using simple chemistry to introduce IR probes into small peptides. Upon binding of the peptide to its target protein, the IR signal of the probe shifts, allowing us to extract information about the nature of the local environment surrounding the probe. In addition, we are planning to use NMR spectroscopy to analyze the structure of the probe-modified peptide to ensure it does not differ from the unmodified one. (2) In collaboration with Dr. Jenn Fox at CofC, we are studying a class of proteins whose function is largely unknown. These proteins are present in all kingdom of life, and we believe that they are in the middle of their evolution process. Students will express and purify selected proteins, and will perform reactivity tests with them to try to understand their natural substrates. (3) In collaboration with Dr. Dan Herschlag (Stanford), Dr. Ivan Korendovych (Syracuse), and Dr. Carla Boga (Bologna, Italy) we are studying a reaction called the “Kemp elimination”. This reaction has been used as a model reaction for proton transfer, and more recently as the target for the computational design of enzymes. We are looking at the mechanisms that simple compounds and more complex proteins use to accelerate this reaction.

**Table No.: 9**
**PI(s):** Craig Plante  
**Email:** plantec@cofc.edu  
**Institution:** College of Charleston  
**Department:** Biology  
**Email:** plantec@cofc.edu  
**Start date:** January, 2018  
**Duration:** 2018  
**Research Summary/Student Expectations:**
Marine microbial ecology projects (varied). Most currently focus on ecology and biogeography of benthic microalgae and employ molecular biology techniques to characterize community structure.

**Table No.: 9**
**PI(s):** Christine Byrum  
**Email:** byrumc@cofc.edu  
**Institution:** College of Charleston  
**Department:** Biology  
**Email:** byrumc@cofc.edu  
**Start date:** Jan-18  
**Duration:** To be determined  
**Research Summary/Student Expectations:**
The Byrum lab is currently studying the roles of nuclear transport proteins in early developmental processes. We use the sea urchin embryo as a model organism to examine the distribution and impact of importins and exportins on cell fate specification. Dedicated student investigators interested in developmental biology, cell/molecular...
processes, and evolution of marine invertebrates are encouraged to apply.

Table No.: 10
PI(s): Jay Forsythe  
Email: forsythejg@cofc.edu  
Institution: College of Charleston  
Department: Chemistry and Biochemistry  
Email: forsythejg@cofc.edu  
Start date: Jan-18  
Duration:  
Research Summary/Student Expectations:  
http://chemistry.cofc.edu/documents/faculty-research-interest/Forsythe_FacultyProfile.pdf

Table No.: 11
PI(s): Drs. Gottfried and Dwyer  
Email: gottfrem@musc.edu  
Institution: Medical University of South Carolina  
Department: Psychiatry and Behavioral Sciences; Community and Public Safety Psychiatry Division  
Email: gottfrem@musc.edu  
Start date:  
Duration:  
Research Summary/Student Expectations:  
Dr. Gottfried will be attending  
http://academicdepartments.musc.edu/psychiatry/cpspd/index.html

Table No.: 11
PI(s): Erin K Beutel  
Email: beutele@cofc.edu  
Institution: College of Charleston  
Department: Geology and Environmental Geosciences  
Start date: Ongoing  
Duration: Ongoing  
Research Summary/Student Expectations:  
I am looking for students who have had at least the introductory Geology sequence to help create a map of deformation in the Southeastern United States associated with the break-up of the super-continent Pangea. No specific skills or time commitment is necessary. Multiple avenues available for approaching this problem.

Table No.: 12
PI(s): M. Scott Harris  
Email: harriss@cofc.edu  
Institution: College of Charleston  
Department: Geology
SSM Annual Research Mixer
Tuesday, November 14, 2017
4:00 p.m. – 5:30 p.m., SSMB Atrium

Email: harriss@cofc.edu
Start date: Ongoing
Duration: Ongoing
Research Summary/Student Expectations:
Students interested in pursuing and understanding of the Continental Shelf, Coastal Zone, or Coastal Plain will benefit greatly from understanding the evolution, construction, and age of this diverse landscape. From tidal variations, sea-level rise since the last glacial maximum, or changes in the landscape over hundreds of thousands of years, we explore these regions using a multitude of remote-sensing and sampling techniques on land and water. While testing hypotheses related to the evolution and understanding of this transitional continental land- and seascape, students may learn high-resolution navigation techniques (real-time kinematic GPS), various marine techniques (sidescan sonar, subbottom profiling, acoustic doppler current profiling, autonomous surface vehicle data collection, sediment sampling), and terrestrial techniques (ground penetrating radar, vibracoring, TEM, drone use).

Table No.: 12
PI(s): Jane Joseph
Email: lohnes@musc.edu
Institution: Medical University of South Carolina
Department: Neurosciences
Email: lohnes@musc.edu
Start date: Any
Duration: 2017-2022
Research Summary/Student Expectations:
Students will have the opportunity to analyze fMRI data relative to a variety of research interests and/or to participate in various elements of human subjects research examining biomarkers as predictors of Alzheimer's Disease.
http://academicdepartments.musc.edu/neuro-research/research/lab/joseph_lab/

Table No.: 13
PI(s): Jane Joseph
Email: lohnes@musc.edu
Institution: Medical University of South Carolina
Department: Neurosciences
Email: lohnes@musc.edu
Start date: Any
Duration: Ongoing
Research Summary/Student Expectations:
Students will have the opportunity to analyze fMRI data relative to a variety of research interests and/or to participate in various elements of human subjects research examining biomarkers as predictors of Alzheimer's Disease.
http://academicdepartments.musc.edu/neuro-research/research/lab/joseph_lab/

Table No.: 13
PI(s): Kate Mullaugh
Email: mullaughkm@cofc.edu
Institution: College of Charleston
Department: Chemistry
Email: mullaughkm@cofc.edu
Start date: Jan-18
Duration: 2 years
Research Summary/Student Expectations:
As the field of nanotechnology has grown, concerns have been raised about the environmental impact of their widespread use. Our lab carries out laboratory experiments to develop analytical strategies to better understand the behavior and transformations of nanoparticles in natural waters. 
I will only have room in my lab for an additional 1 - 2 new student(s)

Table No.: 13
PI(s): Kristin D. Krantzman
Email: krantzmank@cofc.edu
Institution: College of Charleston
Department: Chemistry and Biochemistry
Email: krantzmank@cofc.edu
Start date: Spring 2018
Duration: 1-2 years
Research Summary/Student Expectations:
Students will perform molecular dynamics simulations on a Unix workstation to study the interaction of biomolecules with graphene and graphene oxide surfaces. Only biochemistry and chemistry majors. Students should be comfortable working on computers and be able to troubleshoot problems.
Table No.: 15
PI(s): Gabriel Williams
Email: gabriel.j.williams@gmail.com
Institution: College of Charleston
Department: Physics and Astronomy
Email: gabriel.j.williams@gmail.com
Start date: Spring 2018
Duration: 1 year
Research Summary/Student Expectations:
The goal is to investigate the kinematic and thermodynamic structure of the hurricane boundary layer for landfalling hurricanes. The research involves investigating airplane reconnaissance data, satellite imagery, and radar imagery to explain the structural changes that occur as mature hurricane approach land.  
http://williamsgj.people.cofc.edu/research.html

Table No.: 16
PI(s): Matt Rutter
Email: rutterm@cofc.edu
Institution: College of Charleston
Department: Biology
Email: rutterm@cofc.edu
Start date: Spring or summer 2018
Duration: Ongoing
Research Summary/Student Expectations:
The unPAK project is phenotyping a collection of thousands of mutants that disrupt gene function in the model plant Arabidopsis thaliana. These mutants represent an excellent opportunity for linking genetic variation to phenotypic consequences. Students start out learning the basics of plant care and collecting phenotypic data. It is also possible to work in the molecular lab to investigate the number of mutations in a line, or to work on computational problems involving the large existing dataset. Interested students have many opportunities for independent projects to
examine newly discovered mutant phenotypes or using the mutant collection to ask evolutionary or ecological questions.

arabidopsisunpak.org

Table No.: 16
PI(s): Mark Hamann
Email: hamannm@musc.edu
Institution: Medical University of South Carolina
Department: Drug Discovery Biomedical Sciences
Email: hamannm@musc.edu
Start date: ASAP
Duration: current - next few years
Research Summary/Student Expectations:
To characterize natural products from fruit, vegetables, endangered plant microbiomes, marine organisms that are useful in the control of cancer and infectious diseases
http://academicdepartments.musc.edu/faculty directory/Hamann-Mark;
http://academicdepartments.musc.edu/newscenter/2016/fighting-superbugs-with-sycamore.html#.Wgm89LpFxBS

Table No.: 17
PI(s): Adem Ali
Email: alika@cofc.edu
Institution: College of Charleston
Department: Geology
Email: alika@cofc.edu
Start date: Spring 2018
Duration: Summer 2018
Research Summary/Student Expectations:
Ocean color remote sensing in the US Virgin Islands and/or Guam

Table No.: 17
PI(s): Vijay Vulava
Email: vulava@cofc.edu
Institution: College of Charleston
Department: Geology
Email: vulava@cofc.edu
Start date: Spring 2018
Duration: Rolling
Research Summary/Student Expectations:
Geochemical fate of contaminants in water and soil environments.

Current as of 11.14.17