PI(s): Chris Fragile, Physics & Astronomy, College of Charleston
Email: fragilep@cofc.edu
Seeking # of students: 2-4
Desired start date: May 2017
Time period of the project: Summer 2017 & beyond
Research Summary/Student Expectations: I am looking for students with interests in some aspect of computational astrophysics. This could include code development, testing, and profiling on clustered computer environments, or application of computer code to problems in astrophysics, such as accretion of gas onto black holes. [http://fragilep.people.cofc.edu/research/research.html](http://fragilep.people.cofc.edu/research/research.html)

PI(s): Bashar W. Badran, Psychiatry & Neuroscience, MUSC
Email: badran@musc.edu
Seeking # of students: 1
Desired start date: ASAP
Time period of the project: 2-3 months
Research Summary/Student Expectations: I work on developing non-invasive brain stimulation techniques and am looking for undergraduates interested in conducting human experiments and data analysis. The primary projects are optimizing non-invasive vagus nerve stimulation in the laboratory and conducting human imaging trial using fMRI. [http://academicdepartments.musc.edu/psychiatry/research/bsl](http://academicdepartments.musc.edu/psychiatry/research/bsl)

PI(s): Agnes Ayme-Southgate, Biology, College of Charleston
Email: Southgatea@cofc.edu
Seeking # of students: 1
Desired start date: Fall 2017
Time period of the project: At least one year
Research Summary/Student Expectations: Perform molecular biology-bioinformatics research related to muscle adaptation a to flight in insects. Minimum 8-10 hours/week. Also writing a research paper and presenting a poster at the Spring SSM session.

PI(s): Adem Ali, Geology, College of Charleston
Email: alika@cofc.edu
Seeking # of students: 2
Desired start date: May 2016
Time period of the project: Summer
Research Summary/Student Expectations: Conduct ocean color - remote sensing research in the lab and image processing

PI(s): Na Jin Seo, Health Professions, Health Science and Research, MUSC
Email: seon@musc.edu
Seeking # of students: 2
Desired start date: ASAP
Time period of the project: 1-2 years
Research Summary/Student Expectations: Research summary: Our research is to improve upper limb rehabilitation for patients with stroke, particularly by using sensory stimulation to enhance hand functional outcomes. We use tools including clinical assessments, 3-D motion capture, electroencephalogram (EEG), and transcranial magnetic stimulation (TMS) to assess patients’ improvement over time. Student expectation: Persistence, ability for problem-solving and trouble-shooting, motivation to excel. [http://academicdepartments.musc.edu/chp/ot/research/upper_extremity_lab/](http://academicdepartments.musc.edu/chp/ot/research/upper_extremity_lab/)
**Research Mixer Participating Labs**  
**Tuesday, November 15, 2016**  
**4:00 p.m. – 5:30 p.m.**

**PI(s):** Gary Hardiman, Departments of Medicine, Public Health Sciences and Marine Biomedical Environmental Sciences Program, Medical University of South Carolina  
**Email:** hardiman@musc.edu  
**Seeking # of students:** 2-3  
**Desired start date:** Jan 2017  
**Time period of the project:** Jan 2017 - June 2017  
**Research Summary/Student Expectations:**  
https://sites.google.com/site/ghardimanlab/current-research-focus Looking for students interested in 2 categories, 1) Computational Biology approaches, 2) Marine Genomics  
https://sites.google.com/site/ghardimanlab/

**PI(s):** Jesse Dean, Physical Therapy, MUSC  
**Email:** deaje@musc.edu  
**Seeking # of students:** 1-2  
**Desired start date:** June 2017  
**Time period of the project:** Summer 2017  
**Research Summary/Student Expectations:**  
Undergraduate research positions with a focus on rehabilitation to improve functional mobility are available at the Medical University of South Carolina for the summer of 2017. This line of research has the long-term goal of improving the well-being of members of society with disabilities. Participants in this program will participate in cutting-edge research developing a novel training device that can be used to improve walking ability, and will have the opportunity to assist with pro-bono clinical therapy provided to underinsured members of the Charleston community. Through these activities, participants will be exposed to potential future careers in academic science, physical therapy, and occupational therapy.

**PI(s):** Kit N. Simpson, DrPH, Comparative Effectiveness Data Analytics Core (CEDAR), Medical University of South Carolina  
**Email:** simpsonk@musc.edu  
**Seeking # of students:** one  
**Desired start date:** ASAP  
**Time period of the project:** about 12 weeks  
**Research Summary/Student Expectations:**  
Learn to extract data from electronic medical records and analyzed the data under faculty supervision to assess if telemedicine improves care for SC patients with stroke This is a hands-on opportunity to learn how to ask questions of "Big Data" to improve care for patients  
http://academicdepartments.musc.edu/chp/research/cedar.html

**PI(s):** Cynthia Dodds, College of Health Professions, Physical Therapy, Medical University of South Carolina  
**Email:** dodds@musc.edu  
**Seeking # of students:** 1-2  
**Desired start date:** January 2017  
**Time period of the project:** 6-12 months  
**Research Summary/Student Expectations:**  
Review video-records and correlate with heart rate variability data

**PI(s):** Je-Hyun Yoon, Biochemistry and Molecular Biology, Medical University of South Carolina  
**Email:** yoonje@musc.edu  
**Seeking # of students:**  
**Desired start date:**  
**Time period of the project:**  
**Research Summary/Student Expectations:**  
http://academicdepartments.musc.edu/biochemistry/faculty/yoon.htm
PI(s): Titus A. Reaves, Ph.D., Regenerative Medicine and Cell Biology, MUSC
Email: reaves@musc.edu
Seeking # of students: 2
Desired start date: As soon as possible
Time period of the project: 1-2 years
Research Summary/Student Expectations: No experience is necessary, however, my lab is involved in the understanding how inflammation is modulated in the large intestine. In particular, we are interested in intestinal fibroblasts; how they become activated and how all of this leads to a hyperfibrotic proliferative phenotype of fibroblasts and intestinal fibrosis.

PI(s): U. Joseph Schoepf, Department of Radiology & Radiological Science, MUSC
Email: schoepf@musc.edu; duguay@musc.edu
Seeking # of students: Several
Desired start date: ASAP
Time period of the project: Ongoing
Research Summary/Student Expectations: We are in need of undergraduate research volunteers looking to gain valuable experience in clinical research. Volunteers will assist in data collection for various retrospective chart review studies that Dr. U. Joseph Schoepf is running in the radiology department. All studies focus on advancing non-invasive imaging techniques used to predict and diagnose heart disease (mainly CT and MRI). Students may have the opportunity to be an author of a peer-reviewed publication. Students will work independently with the support of three full-time research coordinators. We strongly believe undergraduate students interested in medical school or other related postgraduate work would benefit from this clinical research experience. Schedule and hours are flexible.

Preference will be given to those who can commit 10-15 hours per week (between the hours of 8:30AM and 5PM, Monday – Friday).
http://academicdepartments.musc.edu/radiology/divisions/cardiovascular/research.htm

PI(s): Cynthia Wright, College of Graduate Studies, MUSC
Email: wrightcf@musc.edu
Seeking # of students: many
Desired start date: June 2017
Time period of the project: summer program
Research Summary/Student Expectations: many different projects in biomedical disciplines
http://academicdepartments.musc.edu/grad/summer_research_program/undergraduate/general_info.htm

PI(s): Kate Mullaugh, Department of Chemistry & Biochemistry, College of Charleston
Email: mullaughkm@cofc.edu
Seeking # of students: 1 - 2
Desired start date: January 2017
Time period of the project: 1 - 2 years
Research Summary/Student Expectations: Our lab carried out laboratory studies to understand the behavior of nanoparticles in the environment, an area of increasing concern with the rise of nanotechnology.
http://chemistry.cofc.edu/documents/faculty-research-interest/Kate%20Mullaugh%20Faculty%20Profile.pdf

PI(s): Allison Welch, Biology, College of Charleston
Email: welcha@cofc.edu
Seeking # of students: 1-2
Desired start date: flexible
PI(s): Dr. Colleen Hanlon, PhD, Psychiatry and Behavioral Sciences, Medical University of South Carolina  
Email: hanlon@musc.edu  
Seeking # of students: 2  
Desired start date: January 2017  
Time period of the project: 6-12 months  
Research Summary/Student Expectations: Through the use of brain imaging and non-invasive brain stimulation our lab aims to investigate and modulate fronto-striatal circuitry in individuals with neurologic and psychiatric disease. Dr. Hanlon’s primary area of research is addiction. Current projects study substances of abuse including cocaine, alcohol, opiates, and cigarettes. Secondary areas of research include stroke rehabilitation, Tourette syndrome, and methods development. The primary methods used include Transcranial Magnetic Stimulation (TMS), Interleaved TMS/BOLD Imaging, Functional MRI (BOLD), Arterial Spin Labeling, and Diffusion Tensor Imaging. Students will be expected to assist in data collection and data analysis under the direct supervision of the PhD students, Post Doc, Research Assistants, and Dr. Hanlon herself. They will receive training in respective tasks.  
hanlonlab.com

PI(s): Yukiko Sugi, Ph.D, Regenerative Medicine and Cell Biology, MUSC  
Email: sugiy@musc.edu  
Seeking # of students: 2  
Desired start date: As soon as possible  
Time period of the project: 3-4 semesters  
Research Summary/Student Expectations: We study the role of BMP signaling in cardiovascular development using genetically engineered mouse models. Preferably
sophomores interested in an research opportunity of independent study and/or Bachelor’s Essay
http://regmed.musc.edu/Faculty/SugiY.htm

**PI(s):** Xenia Mountrouidou, Computer Science, College of Charleston
**Email:** mountrouidoux@cofc.edu
**Seeking # of students:** 2
**Desired start date:** January, 11 2017
**Time period of the project:** 2 years

**Research Summary/Student Expectations:** My research is on cybersecurity, specifically computer network attacks and defense. I am seeking motivated students to participate in the following projects: 1. NSF Project Cyberpaths: This is an NSF funded project. Student research assistants will test and optimize existing technical cybersecurity labs and devise new labs on malware analysis, financial models and ethical issues of cybersecurity, 2. Machine Learning for Cybersecurity: Students will setup a generalized testbed on the cloud infrastructure GENI, emulate computer network attacks, and gather data. Students will need to perform exploratory data analysis with goal to create accurate attack classifiers and predictive models of attack behavior, 3. Distributed Denial of Service: Students will develop custom intrusion detection and mitigation techniques for Distributed Denial of Service (DDoS) attacks. Furthermore, they will study the weaponization of the Internet of Things by using the search engine Shodan and develop innovative solutions to this problem.

**Research Lab:**
[https://blogs.cofc.edu/mountrouidoux/cybersecurity-x-lab/](https://blogs.cofc.edu/mountrouidoux/cybersecurity-x-lab/), NSF project:
[http://blogs.cofc.edu/cyberpaths/](http://blogs.cofc.edu/cyberpaths/)

**PI(s):** Art Riegel, Ph.D., Department of Neurosciences, Medical University of South Carolina
**Email:** riegel@musc.edu
**Seeking # of students:** 1-2
**Desired start date:** February 2017
**Time period of the project:** One year

**Research Summary/Student Expectations:** Looking for undergraduate students interested in research of cocaine abuse and/or stress.
[http://academicdepartments.musc.edu/neuro-research/research/lab/riegel/index.html](http://academicdepartments.musc.edu/neuro-research/research/lab/riegel/index.html)

**PI(s):** Steven Jaume, Geology & Environmental Geosciences, College of Charleston
**Email:** jaumes@cofc.edu
**Seeking # of students:** 2
**Desired start date:** Jan 2017
**Time period of the project:** Jan-Dec 2017

**Research Summary/Student Expectations:** Charleston Area Earthquake Hazard Mapping Project

**PI(s):** Kristin D. Krantzman, Chemistry and Biochemistry, College of Charleston
**Email:** krantzmank@cofc.edu
**Seeking # of students:** 2
**Desired start date:** Flexible
**Time period of the project:** Flexible

**Research Summary/Student Expectations:** Two semesters of chemistry, good at math, feel comfortable working with computers

**PI(s):** Jay G. Forsythe, Chemistry & Biochemistry, College of Charleston
**Email:** forsythejg@cofc.edu
**Seeking # of students:** 2
**Desired start date:** January 2017
**Time period of the project:** Ongoing
Research Mixer Participating Labs
Tuesday, November 15, 2016
4:00 p.m. – 5:30 p.m.

Research Summary/Student Expectations: How did the molecules of life (DNA, protein, etc.) form before the first cells existed? The goal of my research is to help answer this question. Specifically, I study how peptides, a.k.a. little chunks of protein, could have formed on the early Earth and evolved to the molecules we see in life today. In the lab, we will use an analytical technique called mass spectrometry to analyze the sequence and structure of the molecules. I am looking for two students (ideally Chem or Biochem majors) who plan to stay over the summer to do research.

http://chemistry.cofc.edu/about/faculty-staff-listing/jay-g.-forsythe.php

PI(s): Courtney Murren, Matt Rutter, Allan Strand, Biology, College of Charleston
Email: murrenc@cofc.edu; stranda@cofc.edu, rutterm@cofc.edu
Seeking # of students: 2-3
Desired start date: Spring 2017
Time period of the project: spring semester, summer

Research Summary/Student Expectations: Our research project is aimed at examining mutational effects on evolutionary and ecological important characters across the entire genome. We employ the model plant system Arabidopsis thaliana and examine fruit production of plants grown across ecologically informed environments. Research includes screening lines using PCR (Strand lab) and growing and phenotyping plants (Murren & Rutter labs) and data management, data display and data interpretation (all three labs). Students have the opportunity for interaction with undergraduate researchers across >10 institutions. We look forward to meeting you!

arabidopsisunpak.org

PI(s): Emily Gottfried, Ph.D. and Gregg Dwyer, M.D., Community & Public Safety Psychiatry, MUSC
Email: gottfrem@musc.edu
Seeking # of students:
Desired start date: Flexible
Time period of the project:
Research Summary/Student Expectations: The CPSPD conducts consultations on forensic, sexual behavior, fitness for duty of licensed and certified medical and public safety professionals, and mental health aspects of public safety agencies’ operational activities. In addition, it includes mental health treatment clinics in the community, correctional institutions, and juvenile justice facilities. Research is conducted across these areas with opportunities for a student to participate as a data collection, coding and entry Research Assistant (RA). An RA could also assist with literature reviews and in turn be included in presentations and publications as a co-author. At any given time, there are multiple studies in progress with a variety if CPSPD faculty as primary and co-investigators.

http://academicdepartments.musc.edu/psychiatry/cpspd/

PI(s): Jacqueline F. McGinty, Dept. of Neuroscience, MUSC
Email: giannott@musc.edu
Seeking # of students: 1
Desired start date: 1 december
Time period of the project: 1 Year
Research Summary/Student Expectations: We are currently Investigating if and how the chemogenetic inactivation of the pathway from mPFC to the Nucleus accumbens core prevents the BDNF effect to reduce cocaine seeking in animal models of drug addiction. To do so, we
are using a double viral approach in the rat brain infusing the CAV2 virus into NAcc core that expresses Cre recombinase in combination with the DIO-Gi DREADD AAVs infused in the mPFC. After infection, the CAV2-Cre viral particles are retrogradely transported back along the axon to the soma of the infected neurons. In the soma, the Cre recombinase flips the DREADD into the correct orientation, allowing for the selective expression and control of neurons that project to NAcc core.

PI(s): Neal Tonks, Chemistry and Biochemistry, College of Charleston
Email: tonksn@cofc.edu
Seeking # of students: 1
Desired start date: After spring semester exams
Time period of the project: Summer 2017
Research Summary/Student Expectations: Our group's research projects focus on polymer chemistry for industrial and biomedical applications. We also do a considerable amount of work with industrial firms to develop new synthetic methods following green chemistry principles to update older technologies. We are looking for a student interested in developing drug infused polymers for use in medical devices.

PI(s): Adem Ali, Geology, College of Charleston
Email: alika@cofc.edu
Seeking # of students: 2
Desired start date: May 2017
Time period of the project: summer 1 and 2
Research Summary/Student Expectations: Water quality studies in coastal environments using Satellites. Conducting Field and lab work as well as data analysis using image processing softwares
http://blogs.cofc.edu/alika/

PI(s): Erin Beutel, Geology, College of Charleston
Email: beutele@cofc.edu
Seeking # of students: 3-4
Desired start date: December 2016/January 2017
Time period of the project: Ongoing
Research Summary/Student Expectations: This is a multi-part study to examine why Florida is still attached to North America despite apparently optimally oriented extension, the South Georgia Rift, during the break-up of the super-continent Pangea. In order to understand why the extension between North America and Africa became an oceanic basin but the rifting between Florida and North America failed, a complete dataset of all known rifts and tectonic features needs to be compiled from the literature. This will involve culling the literature and geologic maps for Triassic aged tectonic features, determining their details, and then entering that information into a database and Google Earth. Simultaneously, elastic finite element models (models used to look at how stress is distributed in the lithosphere) will be constructed to examine how these tectonic features would have responded/formed. To work on this project students need to have completed the introductory sequence in geology and have a basic understanding of plate tectonics. Students can receive 1-3 credits of independent study depending on the level of work they are interested in. The goal is to have a presentation at the international meeting of the American Geophysical Union in the Fall of 2017. I am in lab until 4:45 and will be at my table from 4:50 to 5:30

PI(s): Daniel McGlinn, Biology, College of Charleston
Email: mcglinndj@cofc.edu
Seeking # of students: 1
Desired start date: now
Time period of the project: 1 to 2 years
Research Summary/Student Expectations: I’m a landscape ecologist interested in the development and application of theory that improves our understanding of biological diversity
http://mcglinn.web.unc.edu

PI(s): Mark T. Hamann, Drug Discovery and Biomedical Science, Medical University of South Carolina
Email: hamannm@musc.edu
Seeking # of students: 2-4
Desired start date: Flexible
Time period of the project: Flexible
Research Summary/Student Expectations: Natural Products Discovery and Characterization. Drugs from marine sources, plants and the human microbiome
https://academicdepartments.musc.edu/facultydirectory/FacultyDetails.aspx?facultyId=7546

PI(s): Antony S. Harold, Biology, College of Charleston
Email: harolda@cofc.edu
Seeking # of students: 2
Desired start date: August 2017
Time period of the project: 2 semesters
Research Summary/Student Expectations: A comparative field and laboratory study of ontogeny and relative growth of dentition in gobiid fish species. Laboratory work will emphasize histology and microscopic study of tissue preparations. Allometric analysis will be used to compare relative growth of various tooth types in Gobiosoma bosc, and to draw comparisons to other species. Students may obtain academic credit (e.g., BIOL 450, 451 or 499), and co-author a poster presentation and published paper. Students are welcome to contact me any time to discuss research opportunities involving evolution and ecology of fishes (harolda@cofc.edu; office phone 843-953-9180).
http://biology.cofc.edu/about-the-department/faculty-staff-listing/harold-antony.php

PI(s): Caroline Westwater, Oral Health Sciences / Microbiology & Immunology, Medical University of South Carolina
Email: westwatc@musc.edu
Seeking # of students: 1-2
Desired start date: Spring 2017
Time period of the project: Variable; Summer and/or during academic term
Research Summary/Student Expectations: The Westwater lab primarily studies the human fungal pathogen Candida, which is responsible for an array of infections in both immunocompetent and immunocompromised hosts. This opportunistic pathogen can cause an array of clinical disorders ranging from infections of the mucosa to life-threatening systemic disease. Our research focus is centered on the investigation of Candida pathogenicity at its most fundamental level - the point where the host and fungus interacts. Students will have an opportunity to participate in a research project that utilizes microbiology, cell biology, and molecular biology techniques.

PI(s): Lisa M. McTeague, Ph.D., Psychiatry & Behavioral Sciences, Medical University of South Carolina
Email: mcteague@musc.edu
Seeking # of students: 1-2
Desired start date: flexible
Time period of the project: ongoing
Research Summary/Student Expectations: We are running a series of studies on emotional processing in patients with posttraumatic stress disorder (PTSD) and related anxiety and depressive disorders as well as healthy control participants. We use neuroimaging, EEG, psychophysiological, behavioral, and brain stimulation techniques. This position would be productive for someone interested in exposure to cognitive neuroscience tools, experimental design, and data analysis and their application to disorders of emotion regulation.

PI(s): Richard Lavrich, Chemistry and Biochemistry, College of Charleston
Email: lavrichr@cofc.edu
Seeking # of students: 2
Desired start date: Flexible
Time period of the project: Spring/Summer
Research Summary/Student Expectations: There are many opportunities available. Depending on interest/ability students may work on projects involving synthetic organic chemistry, computational modeling, and/or high resolution gas phase spectroscopy.

PI(s): Colleen Halliday-Boykins, Ph.D., Psychiatry and Behavioral Sciences, Medical University of South Carolina
Email: hallidca@musc.edu
Seeking # of students:
Desired start date:
Time period of the project:
Research Summary/Student Expectations: This exciting opportunity enables students to gain hands on mentoring and training in a broad array of aspects of school- and community-based psychological research. Hands on experiences include conducting research assessments in schools; meeting with adolescents and their parents, either online, in their homes, and elsewhere in the community for research recruitment and data collection; and performing other related duties. Opportunities exist for students to to conduct their own research projects connected to several studies, including:
  • GEMS, a study of self-regulation, disruptive behavior, and substance use among middle school girls
  • PASS, a study of school mental health, climate, and behavior among elementary school students
  • Healthy Children, a study of school climate, bullying victimization and perpetration, disruptive behavior, and substance use among urban middle school students Students not wanting to their own research projects but with interest in volunteering are welcome.

PI(s): Tim Barker, Chemistry and Biochemistry, CofC
Email: barkertj@cofc.edu
Seeking # of students: 2
Desired start date: Spring 2017
Time period of the project: varies
Research Summary/Student Expectations: My research lab develops new organic reactions. A current focus is new C-N bond forming reactions.

Students are expected to spend 2 afternoons in lab a week (6 hr/wk) for a credit bearing course.

PI(s): Christopher Cowan, Neurosciences, MUSC
Email: cowanc@musc.edu
Seeking # of students: 1-3
Desired start date: 01/2017
**Time period of the project:** Ongoing

**Research Summary/Student Expectations:** Our laboratory uses a number of cellular, molecular, and behavioral techniques to study drug addiction. We are interested in undergraduates willing to help with microscopy, immunohistochemistry, and other general lab support tasks. Our lab has three post-docs, one research assistant professor, and a lab technician. We also expect to have 1-2 graduate students this year.

**PI(s):** Jane Joseph, PhD, Neuroscience, MUSC

**Email:** josep@musc.edu

**Seeking # of students:** up to 2

**Desired start date:** anytime

**Time period of the project:** ongoing

**Research Summary/Student Expectations:**
Much of the work in our lab involves analysis of brain imaging (fMRI) data and applying network analysis and machine learning approaches. An ideal candidate would have some experience with coding or programming in matlab (or a similar package) and familiarity with LINUX. However, we have other opportunities in the lab to help with ongoing brain imaging and brain stimulation projects with individuals with autism. Students in many different disciplines are welcome to contact me (e.g., physics, computer science, biology, psychology)

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