Table: 1
**PI(s):** David Clark, Neurology/Cognitive Science/Artificial Intelligence, MUSC  
**Email:** clarkda@musc.edu  
**Seeking # of students:** 1 or 2  
**Desired start date:** Anytime  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** My research focuses on prediction of outcomes in patients with suspected neurodegenerative disease. The predictions are generated by means of machine learning methods. Most of the work has roots in natural language processing, but projects involving image analysis are also possible. Interested students will need some ability to program in R, Julia, or Python— or at least willingness to learn.

Table: 2
**PI(s):** Michelle Nichols, Nursing, MUSC  
**Email:** nicholmg@musc.edu  
**Seeking # of students:** 1 or 2  
**Desired start date:** Spring 2016  
**Time period of the project:** flexible  
**Research Summary/Student Expectations:** We are looking for 1-2 students interested in collecting data for a mixed-method study on high risk health behaviors for Lowcountry youth. Student(s) will have the opportunity to collect quantitative and qualitative data. No prior experience is necessary. Opportunities exist for motivated student(s) to participate in data analysis and publication opportunities. Student(s) must have the ability to drive to study sites within the Lowcountry region for data collection.

Table: 1
**PI(s):** Steve Ornstein, Family Medicine, MUSC  
**Email:** ornstesm@musc.edu  
**Seeking # of students:** 1 or 2  
**Desired start date:** ASAP  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** Addiction animal models. No prior experience required.

Table: 3
**PI(s):** Courtney Murren, Matt Rutter, Allan Strand (UNPAK), Biology, College of Charleston  
**Email:** murrenc@cofc.edu  
**Seeking # of students:** 1or2  
**Desired start date:** spring/summer  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** phenotyping natural variation and mutational variation of Arabidopsis thaliana, greenhouse, growth chamber, data analysis and interpretation.

Table: 3
**PI(s):** Bob Podolsky, Biology/Grice Marine Lab, College of Charleston  
**Email:** podolskyr@cofc.edu  
**Seeking # of students:** 2-3  
**Desired start date:** asap/spring  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** My lab focuses on the ecology and functional
Research Match Making Session  
Tuesday, November 17, 2015 
Participating Labs

biology of marine invertebrates. I am looking for 2-3 students to work on different projects: 1) effects of ocean acidification on the development of marine snails, 2) effects of ocean acidification on sea urchin sperm metabolism, 3) comparative body form of sea spiders, 4) invasion biology of the green porcelain crab.

Table: 4  
PI(s): Tatyana Gudz, Neuroscience, MUSC  
Email: gudz@musc.edu  
Seeking # of students: 1 or 2  
Desired start date: ASAP  
Time period of the project: continuous  
Research Summary/Student Expectations: Cellular mechanisms of traumatic brain injury. Baseline understanding of cell biology concepts and general computer skills are helpful.

Table: 5  
PI(s): Angie Cason, Neuroscience, MUSC  
Email: casona@musc.edu  
Seeking # of students: 1-3  
Desired start date: ASAP  
Time period of the project: continuous  
Research Summary/Student Expectations: Neural networks in motivated behavior and food reward.

Table: 6  
PI(s): Sorienel Oprisan, Physics & Astronomy, College of Charleston  
Email: oprisans@cofc.edu  
Seeking # of students: 1 or 2  
Desired start date: Spring/summer  
Time period of the project: continuous  
Research Summary/Student Expectations: We are looking for motivated students interested in applying mathematics and programming to following bio(medical) problems: (1) Implement computational models of biological neural networks (models of interval timing). (2) Analyze experimental data to extract patterns of electrical activity (optogenetics). (3) Implement computer models for brain-computer interfaces.

Table: 5  
PI(s): Alexander V. Alekseyenko, Biomedical Informatics, Human Microbiome Research, MUSC  
Email: alekseye@musc.edu  
Seeking # of students: 1 or 2  
Desired start date: anytime  
Time period of the project: flexible  
Research Summary/Student Expectations: Our grand challenge is to build actionable predictive models from electronic health records and microbiome data to predict patient outcomes. We apply quantitative skills in mathematics, statistics, data science, and computer science to decipher the role of microbes in human health. We have a range of projects in data analysis, software development, mathematical modeling, statistical method development, method benchmarking and bioinformatics for students to apply their knowledge and to learn the problem domain.

Table: 6  
PI(s): Jason Howell, Mathematics, College of Charleston  
Email: howelljs@cofc.edu  
Seeking # of students: 1 or 2  
Desired start date: Spring/summer  
Time period of the project: continuous  
Research Summary/Student Expectations: Projects in computational mathematics including solving large sparse linear systems of
equations, continuation methods, and computation of solubility parameters. Students need to have taken multivariable calculus and linear algebra.

**Table: 6**

**PI(s):** Dave Boucher, Chemistry, College of Charleston  
**Email:** boucherds@cofc.edu  
**Seeking # of students:** 2  
**Desired start date:** Spring/summer  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:**  
Projects in polymer physics focusing on (1) a molecular level description of solvent-induced polymer self-assembly and (2) the calculation and interpretation of solubility parameters within the context of intermolecular polymer-solvent interactions. NO EXPERIENCE NECESSARY.

**Table: 7**

**PI(s):** Justin Webster, Mathematics, College of Charleston  
**Email:** websterj@cofc.edu  
**Seeking # of students:** 1  
**Desired start date:** 42491  
**Time period of the project:** Continuous; Two Consecutive Summers  
**Research Summary/Student Expectations:**  
Numerical and analytical study of mathematical models of fluttering beams. Junior or sophomore mathematics students (or physics) with a baseline understanding of differential equations and some experience with computational tools.

**Table: 8**

**PI(s):** Paul Anderson, Computer Science, College of Charleston  
**Email:** andersonpe2@cofc.edu  
**Seeking # of students:** 3  
**Desired start date:** Spring  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** Data Science, Machine Learning, Bioinformatics, and Computational Genomics Research

**Table: 9**

**PI(s):** Edith Williams, Public Health Sciences, MUSC  
**Email:** wiled@musc.edu
Research Match Making Session
Tuesday, November 17, 2015
Participating Labs

**Table: 9**
*Pl(s):* Donna Roberts, Neuroradiology, MUSC  
*Email:* robertrdr@musc.edu  
*Seeking # of students:* 1 or 2  
*Desired start date:* anytime  
*Time period of the project:* continuous  
**Research Summary/Student Expectations:** I am developing a peer mentoring intervention for African American women with lupus

**Table: 10**
*Pl(s):* William Bares, Computer Science, College of Charleston  
*Email:* bareswh@cofc.edu  
*Seeking # of students:* 1 or 2  
*Desired start date:* spring/summer  
*Time period of the project:* continuous  
**Research Summary/Student Expectations:** Seeking any combination of skills in animation, graphics, web programming, virtual reality, or 3d modeling

**Table: 11**
*Pl(s):* Jim Bowring, Computer Science, College of Charleston  
*Email:* bowlingj@cofc.edu  
*Seeking # of students:* 2  
*Desired start date:* Spring  
*Time period of the project:* continuous  
**Research Summary/Student Expectations:** Software Engineering for Geo - Science and Informatics; motivated and inquisitive

**Table: 12**
*Pl(s):* Dan McGlinn, Biology, College of Charleston  
*Email:* mcglinndj@cofc.edu  
*Seeking # of students:* 1
Research Match Making Session  
Tuesday, November 17, 2015  
Participating Labs

**Desired start date:** Spring/summer  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** Why are tropical plant communites more diverse than temperate communites? Students should have an interest in ecology, statistics, and programming

**Table: 12**  
**PI(s):** Andrew Clark, Biology, College of Charleston  
**Email:** clarkaj@cofc.edu  
**Seeking # of students:** 1 or 2  
**Desired start date:** Spring 2016  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** NSF-funded research on the biomechanics of jawless biting in hagfishes. Research activities will include but are not limited to: animal husbandry, gross anatomical dissections, biomaterial testing, high-speed video and motion analysis. Student(s) should be interested in subjects like zoology, physics, anatomy and physiology. Student(s) must able to drive to SCRA.

**Table: 13**  
**PI(s):** Cynthia Wright, Grad Studies, MUSC  
**Email:** wrightcf@musc.edu  
**Seeking # of students:** many  
**Desired start date:** summer 2016  
**Time period of the project:** summer  
**Research Summary/Student Expectations:** students will spend 10 week internship doing research as part of summer research program - application required

**Table: 14**  
**PI(s):** Andy Shih, Neuroscience, MUSC  
**Email:** shiha@musc.edu  
**Seeking # of students:** 2  
**Desired start date:** ASAP  
**Time period of the project:** continuous  
**Research Summary/Student Expectations:** Our lab visualizes neuronal and vascular activity in the live mouse brain using two-photon fluorescence imaging. We are seeking students to aid in analysis of rich imaging data sets. Opportunities to perform imaging experiments are also available, based on experience. We
ensure work performed by students leads to authorship on resulting publications. Our work bears relevance to human stroke, Alzheimer’s disease and other forms of dementia.

Table: 15
Pl(s): Jasper Heinsbroek, Neuroscience, MUSC
Email: heinsbro@musc.edu
Seeking # of students: 1 or 2
Desired start date: ASAP
Time period of the project: continuous
Research Summary/Student Expectations: Neural networks in motivated behavior and cocaine addiction. Prior experience helpful, but not necessary.

Table: 15
Pl(s): Michael Smith, Neuroscience/Neurosurgery, MUSC
Email: smitmic@musc.edu
Seeking # of students: 1 or 2
Desired start date: ASAP
Time period of the project: continuous
Research Summary/Student Expectations: Our lab focuses on understanding the cellular mechanism of brain injury that underlie blast-induced traumatic brain injury (bTBI) and neonatal hydrocephalus. Although the initial injury process differs, secondary cellular injury mechanisms are critical in both brain-injured patient populations. Understanding the signaling cascades of the unknown secondary injury mechanisms should provide a means to develop therapeutic interventions for both disease processes.

Table: 16
Pl(s): Adem Ali, Geology and Environmental Geosciences, College of Charleston
Email: alika@cofc.edu
Seeking # of students: 1 or 2
Desired start date: spring/summer
Time period of the project: Continuous
Research Summary/Student Expectations: Water quality assessment using Satellite and insitu methods in the US. Virgin Islands. Preferable marine science and geoscience students

Table: 16
Pl(s): Steven Jaume, Geology and Environmental Geosciences, College of Charleston
Email: jaumes@cofc.edu
Seeking # of students: 1-3
Desired start date: Spring 2016
Time period of the project: continuous
Research Summary/Student Expectations: We (Norman Levine and Steven Jaume) have a Charleston Area Earthquake Hazard Mapping Project associated with the Lowcountry Hazard Center in the Department of Geology and Environmental Geosciences. Together with academic engineering (The Citadel, Clemson) and seismology (Virginia Tech, University of Memphis) colleagues plus local geotechnical firms, we are working on improving earthquake hazard and damage potential assessment in the greater Charleston (i.e., Berkeley, Charleston & Dorchester counties) area. In addition, I (Steven Jaume) am also looking for someone interested in science/seismology education, for work associated with Education and Public Outreach for the Incorporated Reserach Institutions for Seismology.

Table: 17
Pl(s): Carmela Reichel, Neuroscience, MUSC
Email: reichel@musc.edu
Seeking # of students: 2
Research mechanisms
PI(s): Table: lab
Desired
isogeometric
linear
differential
cocaine
projects
Research investigating of
students:
Email:
Charleston
Problems,
reduced
and
numerical
writing
with
students:
looking
in
and
results,
number
of
students:
the
interest
of
examining
and
or
in
with
interesting
and
topics
the
project:
work
in
organic
electronics,
specifically
materials
and
devices
including
light-emitting
diodes
(OLEDs),
photovoltaics
(OPVs),
feld-effect
transistors
(OfETs),
and
thermoelectrics.
My
work
focusing
the
incorporation
of
nanomaterials
with
polymer
and
small
molecule
organic
materials
to
improve
device
performance.

Table: 17
PI(s): Mukesh Kumar, Mathematics, College of Charleston
Email: kumarm@cofc.edu
Seeking # of students: 1 or 2
Desired start date: ASAP
Time period of the project: Continuous
Research Summary/Student Expectations: Numerical analysis and Matrix computation: I am looking for some interested mathematics/computer science/physics students with background in linear algebra, differential equations, and elementary numerical analysis. The topics for the project could be designing a new numerical method for solving differential equations, Mixed isogeometric collocation methods, Selective and reduced numerical integration rules for isogeometric analysis, Matrix factorization for linear systems in solving singular perturbation problems, etc.

Table: 18
PI(s): Ana Oprisan, Physics & Astronomy, College of Charleston
Email: oprisana@cofc.edu
Seeking # of students: 1
Desired start date: Spring 2016
Time period of the project: Continuous
Research Summary/Student Expectations: I work on image and signal processing and experimental study of fluctuations and phase separation in soft condensed matter. The data was recording on microgravity condition aboard international space station.

Table: 19
PI(s): Lisa McTeague, Psychiatry & Behavioral Sciences, MUSC
Email: mcteague@musc.edu
Seeking # of students: 1 or 2
Desired start date: flexible
Time period of the project: Continuous
Research Summary/Student Expectations: We are running a series of studies on emotional
processing in patients with posttraumatic stress disorder and related anxiety and depressive disorders as well as healthy control participants. We use neuroimaging, behavioral, and brain stimulation techniques. This position would be productive for someone interested in exposure to neuroimaging, brain stimulation, experimental design, and data analysis and their application to disorders of emotion regulation.

Table: 19
PI(s): Leonard Egede/Joni Strom Williams, Medicine, MUSC
Email:stromjl@musc.edu
Seeking # of students: 1 or 2
Desired start date: 42370
Time period of the project: Continuous
Research Summary/Student Expectations: We will be conducting clinical research to assess health inequities across various chronic disease conditions. The student will be expected to work with an interdisciplinary team and assist with study recruitment, survey administration, and data entry.

Table: 20
PI(s): Dieter Haemmerich/Davud Asemani, Pediatrics, MUSC
Email: haemmer@musc.edu,Asemani@musc.edu
Seeking # of students: 1 or 2
Desired start date: flexible
Time period of the project: Continuous
Research Summary/Student Expectations: We are looking for students with interest in biophysics, mathematics and electrical engineering or computer science for two projects: (1) Development and testing of a miniature circuit to control a heated microprobe, to be implanted into brain regions for rodent studies. The goal is modulation of the body temperature of rodents via this circuit (2) We are working on nanoparticles filled with chemotherapy agents, to be administered into the blood stream. The particles release the drug once heated, and thus allow delivery of chemotherapy to a targeted region (i.e. tumor). We will build experimental setups to test the particle properties, and develop computer simulations where tissue heating and drug kinetics are simulated.

Table: 20
PI(s): Antonieta Lavin, Neuroscience, MUSC
Email:lavina@musc.edu
Seeking # of students: one
Desired start date: ASAP
Time period of the project: Continuous
Research Summary/Student Expectations: Addiction research/cognitive dysfunction: Looking for a student to take charge of a project assessing locomotor activity, stereotypy and stoical interaction in male and female rats sensitized with methamphetamine. Prior experience not necessary. Student will get authorship in manuscripts produced by this research. Lab will provide training.

Table: 21
PI(s): Neal Tonks, Chemistry, College of Charleston
Email:tonksn@cofc.edu
Seeking # of students: 2
Desired start date: Spring 2016
Time period of the project: continuous
Research Summary/Student Expectations: The primary goal of our research is to develop polymeric materials based on biologically derived raw materials for use in drug delivery, materials science and industrial foams.
Table: 21
PI(s): Marcello Forconi, Chemistry, College of Charleston
Email: forconim@cofc.edu
Seeking # of students: 1 or 2
Desired start date: Spring 2016
Time period of the project: continuous
Research Summary/Student Expectations:
Enzyme catalysis

Table: 22
PI(s): Richard Lavrich, Chemistry, College of Charleston
Email: lavrichr@cofc.edu
Seeking # of students: 2
Desired start date: Spring 2016
Time period of the project: continuous
Research Summary/Student Expectations:
Synthesis, Spectroscopy and Computational Studies of Biomolecules

Table: 22
PI(s): Kate Mullaugh, Chemistry, College of Charleston
Email: mullaughkm@cofc.edu
Seeking # of students: 1 or 2
Desired start date: Spring 2016
Time period of the project: continuous
Research Summary/Student Expectations:
My research seeks to better understand the environmental implications of the use of silver nanoparticles in consumer goods. Laboratory based studies are carried out the understand transformation like silver oxidation and reactions with sulfide and organic material.

Table: 23
PI(s): Timothy Barker, Chemistry, College of Charleston
Email: barkertj@cofc.edu
Seeking # of students: 42006
Desired start date: Spring 2016
Time period of the project: continuous
Research Summary/Student Expectations: My research centers on developing new organic reactions using transition metal catalysts.

Table: 23
PI(s): Brooke Van Horn, Chemistry, College of Charleston
Email: vanhornba@cofc.edu
Seeking # of students: 1 or 2
Desired start date: Summer 2016
Time period of the project: continuous
Research Summary/Student Expectations: One major focus of our group centers around creating polymeric materials for biomedical applications using post-polymerization reactions to add on functionality. Recently we have been creating x-ray opaque biodegradable polymers by coupling iodine-containing small molecules. We are also branching into some fundamental studies of how functional monomers polymerize (the same or differently) under various polymerization conditions.

Table: 24
PI(s): Michael Giuliano, Chemistry and Biochemistry, College of Charleston
Email: giulianomw@cofc.edu
Seeking # of students: 1 or 2
Desired start date: Spring-Summer 2016
Time period of the project: continuous
Research Summary/Student Expectations: In my lab we carry out research in bioorganic chemistry; an area in the space between organic and biochemistry. As a new laboratory here at CofC we are starting up in two main thrusts of research. In the first, we are studying...
the relationship between amino acid sequence and structure in a class of molecules important for neurological signaling - mood, appetite, sleep cycles, pain perception and anxiety are only a few of the processes affected by these so called ‘neuropeptides’ and we believe that their structure and sequence are intimately tied to their function. In the second thrust we are utilizing visible light and atmospheric oxygen as chemical reagents to synthesize useful organic molecules such as amino acids and hydroxy acids, both of which can be found in a wide array of natural products in addition to proteins, such as nonribosomal peptide antibiotics. Students will be primary investigators in their area of choice and will work with me to design their project during their tenure in my research group, with long term goals of presenting at a conference and contributing substantially to a scientific publication.

Table: 24
PI(s): Wendy Cory, Chemistry and Biochemistry, College of Charleston
Email: cory@cofc.edu
Seeking # of students: 2 to 4
Desired start date: 42155
Time period of the project: 10 weeks between May 31 - Aug 12, exact dates TBD
Research Summary/Student Expectations: The purpose of this research is to analyze medications previously stored on the International Space Station to determine both potency of the drug and the presence of degradation products that may have been formed as a result of long term storage in conditions more extreme than those recommended by manufacturers. In this way, the safety and efficacy of these medications for astronauts can be determined. Students will be expected to conduct laboratory research and attend group meetings for forty hours a week, ten weeks. Students will give a short oral presentation at the chemistry department group meeting and a poster on convocation day at the Celebration of Summer Scholars. Students will attend a day of safety training in May (to be scheduled by chemistry department, prior to start of research.)

Table: 25
PI(s): Agnes Southgate, Biology, College of Charleston
Email: southgatea@cofc.edu
Seeking # of students: 1
Desired start date: Fall 2016 or later
Time period of the project: minimum 1 year
Research Summary/Student Expectations: Protein plasticity in response to evolution, tissue and envirnomentlal factors in insect flight muscles

Table: 25
PI(s): Stephanie Zeigler, Ralph H. Johnson VA Medical Center, MUSC
Email: zeigls@musc.edu
Seeking # of students:
Desired start date:
Time period of the project:
Research Summary/Student Expectations:

Table: N/A
PI(s): Dinesh Sarvate, Mathematics, College of Charleston
Email: sarvated@cofc.edu
Seeking # of students: 0-2
Desired start date: ASAP
Time period of the project: Continuous
Research Match Making Session
Tuesday, November 17, 2015
Participating Labs

Research Summary/Student Expectations:
Combinatorial Mathematics/Discrete Mathematics: MUST be ready to work everyday and meet in person at least three times a week. Dr. Sarvate is unable to attend the Session on Tuesday, November 17. Interested students should contact him directly.