

**2019 STARS PROGRAM MENTOR SELECTION LIST**

**BIOLOGICAL SCIENCE**

**Dr. Aimee Dunlap --** [**http://www.cognitiononthewing.com/**](http://www.cognitiononthewing.com/): We study the evolution of information use (learning, memory, and decision making) using bumblebees and fruit flies as model systems. We test how bumblebees incorporate different aspects of their environment, like floral information and social information, to determine how they forage on flowers efficiently and track changes across the season. We use the same economic theory to test predictions about decision making in fruit flies, within lifetimes and across generations. The focus in each system is how animals balance multiple sources of information.

**Dr. Uthayashanker Ezekiel** -- [**http://www.slu.edu/doisy/faculty/ezekiel-uthayashanker.php**](http://www.slu.edu/doisy/faculty/ezekiel-uthayashanker.php): My laboratory research focus is to identify phytochemicals derived from plant sources that have anti-cancer properties and subject them to systematic study to define their effect on cancer cells. The proposed work focuses on elucidating: (1) effects of phytochemicals on colon cancer cell proliferation; (2) molecular mechanisms of phytochemicals that inhibit colon cancer cell proliferation; and (3) effects of phytochemicals as they inhibit or reverse mesenchymal transition of chemoresistant metastatic cells.

**Dr. Jonathan Fisher –** [**http://sites.google.com/a/slu.edu/fisher-lab/**](http://sites.google.com/a/slu.edu/fisher-lab/)**:** Diabetes mellitus or diabetes for short, occurs when blood sugar, or glucose levels become too high. Nearly a tenth of adults in the US have diabetes, which carries great economic and human costs. Our lab is interested in novel means for causing glucose to be taken up and stored by muscle, a fundamental approach to preventing or treating diabetes.

**Dr. Blythe Janowiak --** [**https://sites.google.com/a/slu.edu/janowiak-lab/**](https://sites.google.com/a/slu.edu/janowiak-lab/)**:** The student will help my graduate student with part of his PhD project. Specifically, the student will be comparing glutathione levels and gene expression levels of particular glutathione-related genes in Group B Streptococcus, under a variety of environmental conditions that stimulate an infection. Group B Streptococcus is most known for causing neonatal meningitis. Therefore, by better understanding how the bacteria responds to different conditions, we can develop new treatments.

**Dr. Joseph Jez –** <http://pages.wustl.edu/jezlab>: We explore a variety of regulatory networks in plants and microbes.  Experimentally, we use a combination of biochemistry, protein engineering, x-ray crystallography, and cell biology to investigate the molecular basis of biological processes.

**Dr. Elizabeth Kellogg –** [**http://kellogglab.weebly.com/**](http://kellogglab.weebly.com/)**:** Investigate genes controlling grain production in crops. Work will involve genetic analysis using molecular biology techniques and statistical methods.

**Dr. Zhenguo Lin –** [www.zlinlab.org](http://www.zlinlab.org): My lab studies the evolution of gnome and gene regulation through generating and analyzing high-throughput sequencing data (**students with Linux experience preferred**).

**Dr. Allison Miller –** [**http://www.perennialplantdiversity.org/**](http://www.perennialplantdiversity.org/)**:** Can perennial crops advance food and ecosystem security? Perennials grow for multiple years and have long growing seasons and deep root systems that reduce soil erosion risk. We are studying how perennial plants evolve in nature and under domestication, and how they withstand dynamic environmental stresses over the course of multiple years.

**Dr. Wendy Olivas --** [**http://openwetware.org/wiki/Olivas\_Lab**](http://openwetware.org/wiki/Olivas_Lab)**:** The Olivas lab studies how members of the Puf family of eukaryotic RNA-binding proteins stimulate the degradation of specific mRNAs, thus controlling protein production from those mRNAs. We use both the yeast Saccharomyces cerevisiae model system as well as human cell lines to perform experiments investigating the mechanisms by which Puf proteins stimulate mRNA degradation and the pathways by which Puf protein activity is altered by varying environmental conditions, and the roles of Puf proteins in Parkinson’s disease.

**Dr. Laurie Shornick --** [**http://www.slu.edu/department-of-biology-home/faculty-and-staff/dr-laurie-shornick**](http://www.slu.edu/department-of-biology-home/faculty-and-staff/dr-laurie-shornick)**:** Infants are very susceptible to infection.  My laboratory is interested in understanding the differences between the neonatal and adult immune response to respiratory viral infections.

**Dr. James Umen –** [**www.umenlab.org**](http://www.umenlab.org)**:** Evolution of multicellularity and sex chromosomes in volvocine algae; Cell size and cell cycle control in Chlamydomonas; Growth control and carbon partitioning in green algae.

**Dr. Xuemin (Sam) Wang --** [**http://www.danforthcenter.org/scientists-research/principal-investigators/Sam-Wang**](http://www.danforthcenter.org/scientists-research/principal-investigators/Sam-Wang)**; http://www.umsl.edu/~biology/About%20the%20Department/Faculty/wang.html:** My research centers on Lipid signaling and metabolism in plant response to stress. We investigate 1) how lipids function as mediators in plant response to drought, salinity, and N and P availability, and 2) how lipid synthesis and accumulation are regulated to enhance lipid production for biofuel, industrial feedstock, and nutritional applications.

**Dr. Wenyan Xiao --** [**http://www.slu.edu/department-of-biology-home/dr-wenyan-xiao**](http://www.slu.edu/department-of-biology-home/dr-wenyan-xiao)**:** Genetics and plant biology. His laboratory studies the mechanisms underlying DNA methylation and demethylation in regulating reproductions and imprinting in plants.

**Dr. Fenglian Xu – https://sites.google.com/a/slu.edu/xu-lab/:** Our lab studies the cellular and molecular mechanisms that control neuronal growth, synapse formation, neurodegeneration and regeneration processes. These are critical processes that are involved in normal brain development and function, as well as in repairing neural damage after a stroke or trauma. We conduct our research using primary cell cultures of rat or snail neurons in combination with several modern neuroscience techniques including electrophysiology, immunohistochemistry, confocal microscopy and molecular biology. Results from our research contribute to our fundamental understanding of neurodevelopmental and neurodegenerative disorders.

**Dr. Ru Zhang --** [**https://www.danforthcenter.org/scientists-research/principal-investigators/ru-zhang**](https://www.danforthcenter.org/scientists-research/principal-investigators/ru-zhang)**:** The Zhang laboratory employs cutting-edge technologies in green algae and land plants to study how photosynthetic organisms respond to environment, especially high temperatures.

**CHEMISTRY**

**Dr. Eike Bauer –** [**www.eike-bauer.net**](http://www.eike-bauer.net)**:** Our research is directed towards the development of new catalyst systems based on iron. Catalysts speed up chemical reactions and iron catalysts may find applications in pharmaceutical production, because iron is non-toxic. For our research, we use instrumentation that is also used in industrial and pharmaceutical research and production.

**Dr. Benjamin Bythell --** [**http://www.umsl.edu/chemistry/Faculty/bythell.html**](http://www.umsl.edu/chemistry/Faculty/bythell.html)**:** My research is half computational chemistry and half mass spectrometry. I am interested in the molecular shape, structure and ways to determine this by smashing ions into pieces and then looking at the fragments.

**Dr. James (Jim) Chicos --** [**www.umsl.edu/~chickosj**](http://www.umsl.edu/~chickosj)**:** Using of gas chromatography to measure vapor pressures and vaporization enthalpies of plant sesquiterpines currently inaccessible by other means. Interest in sesquiterpines range from being precursors of photochemical smog to their use as potential drugs resulting from their ability to cross the blood brain barrier.

**Dr. Alexei Demchenko --** <https://www.umsl.edu/chemistry/faculty/demchenko.html>: Our research interests are in the area of synthetic carbohydrate chemistry that include: novel reactions; synthetic vaccines; human milk oligosaccharides; and solid phase automated synthesis.

**Dr. Bruce Hamper --** [**http://www.umsl.edu/chemistry/Faculty/Hamper.html**](http://www.umsl.edu/chemistry/Faculty/Hamper.html)**:** The Hamper lab investigates continuous flow of chemistry for the preparation of biologically relevant target molecules. Chemical reactions in continuous flow processes are inherently more efficient than batch processes, and lead to advantages based on green chemistry principles. Monoliths and functionalized polymeric beads incorporating specifically designed organic molecules will be prepared and evaluated for catalysis of reactions and selective absorption of solute molecules in flow devices. Using ion chromatography, we have applied selective resins for analysis/treatment of environmental samples, biological fluids, potable water and evaluation of articles of antiquity. (1)

**Dr. Stephen Holmes** -- <https://www.umsl.edu/chemistry/Faculty/holmes.html>: Magnetism and light-responsive materials; chemical synthesis and spectroscopy.

**Dr. Istvan Kiss --** [**http://www.slu.edu/~izkiss/**](http://www.slu.edu/~izkiss/)**:** The overall goal in our group is the development of a nanoscale chemical computing device that can process information and incorporate battery and sensors to perform higher level functions such as memory and adaptation. To achieve this goal, we investigate collective dynamics (e.g., synchronization and chaos) of networks of current generating chemical reactions with electrochemical cells.

**Dr. Piotr Mak** -- [**www.pjmak.com**](file:///C:\Users\GolidayE\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\OZ7W33W1\www.pjmak.com)**:** Spectroscopic studies of proteins that play a crucial role in human physiology.

**Dr. James O’Brien and Dr. Leah O’Brien** [**https://www.siue.edu/artsandsciences/chemistry/faculty/obrien/LeahOBrien\_Curriluam\_Vitae.shtml#**](https://www.siue.edu/artsandsciences/chemistry/faculty/obrien/LeahOBrien_Curriluam_Vitae.shtml%23%20) **:** High Resolution Molecular Spectroscopy conducted in Absorption by Intracavity Laser Spectroscopy (ILS) and in Emission by Fourier Transform Spectroscopy (FTS). Diatomic Free Radicals such as Platinum Fluoride, Germanium Hydride and Copper Dimers are created for spectral observations in RF and DC plasma discharges. Such species can be important in catalysis or in the semiconductor industry. Over the past several summers, STARS students engaged in such work have been co-authors of papers that are published in top journals such as the *Journal of Molecular Spectroscopy*. In the summer of 2016, Hollow Cathode plasmas were used to generate the absorbing or emitting species; Dye and Ti:Sapphire lasers were used for ILS studies and we used a state of the art Bruker 125M FTS instrument to obtain both absorption and emission spectra.

**Dr. Vijay Sharma -- http://sharmalab.wustl.edu:** My research interests are at the interface of radiopharmaceutical chemistry, medicinal chemistry, and biology, to discover and develop molecular probes, for addressing important biological questions across multiple disciplines. Specific emphasis is towards the design of small organic molecules, peptides, and metalloprobes, including their radiolabeled counterparts for diagnosis of diseases, such as Alzheimer’s disease and coronary artery disease (Myocardial Perfusion Imaging), tumor imaging, to understand protein-protein interactions via imaging of reporter gene expression *in vivo*, and to investigate biological mechanism(s), using agents designed and developed within the group for rapidly emerging fields of molecular imaging.

**Dr. Keith Stine --** [**http://www.umsl.edu/chemistry/Faculty/stine.html**](http://www.umsl.edu/chemistry/Faculty/stine.html)**:** The project will involve the use of electrochemical methods to create gold nanostructures for potential use in controlled release of drug molecules.

**Dr. Chung Wong –** [**www.umsl.edu/~wongch**](http://www.umsl.edu/~wongch)**:** Computer-aided design of anti-cancer drugs targeting protein kinases.

**ENGINEERING / EARTH & ATMOSPHERIC SCIENCE / COMPUTER SCIENCE/ PHYSICS**

Dr. Badri Adhikari --<https://badriadhikari.github.io/>: Dr. Badri Adhikari’s research group studies how artificial intelligence and machine learning can be used to improve human health. Artificial intelligence is currently used for many tasks such as face recognition, crime prediction, and playing chess. Our interest is to develop similar methods for biological data sets. Currently, we are developing methods for predicting the three-dimensional models of protein molecules. High school students working with our group will have the opportunity to a) learn Python programming, b) learn how artificial intelligence and machine learning methods can mine patterns hidden in data, and c) build a machine learning method using existing examples. Learn more at his website.

**Dr. Ramesh Agarwal --** [**http://www.mems.wustl.edu**](http://www.mems.wustl.edu)**:** Problems in the areas of Energy and Environment.

**Dr. Jeffrey G. Catalano --** [**http://aqgeochem.wustl.edu/**](http://aqgeochem.wustl.edu/)**:** Two projects possible: (1) Investigating how heavy metals in wetlands affect the production of greenhouse gases. (2) Investigating the formation of clay minerals and their possible role as energy sources for life on the early Earth and elsewhere in the Solar System.

**Dr. Natasha Case --** [**https://www.slu.edu/parks/faculty/case-natasha.php**](https://www.slu.edu/parks/faculty/case-natasha.php) **:** Our lab investigates strategies to improve growth and maturation of collagen-rich tissues, such as cartilage and ligaments, that can be used for transplantation into damaged joints.

**Dr. David Fike** -- [**http://biogeochem.wustl.edu/**](http://biogeochem.wustl.edu/) (Click on the Sulfate-Methane Seeps tab): In the Stable Isotope Biogeochemistry lab, we study geochemical signatures of sulfur cycling to understand how environmental conditions are preserved. By studying modern environments (such as methane seeps), we can look for causal relationships between the instantaneous record captured from the water in the sediments and the more permanent archive that is the mineral record.

**Dr. Young-Shin Jun --** [**http://encl.engineering.wustl.edu/**](http://encl.engineering.wustl.edu/)**:** The group develops new treatment techniques and new catalysts for purifying drinking water and remediating contaminated water and soil, benefiting water reuse, managing aquifer recharge, and membrane processes (reverse osmosis membrane and ultrafiltration). In addition, her group investigates biomineralization and bio-inspired chemistry for novel materials development for the sustainable environment.

**Dr. Henry Kang –** [**www.cs.umsl.edu/~kang/**](http://www.cs.umsl.edu/~kang/)**:** Computer graphics and computer game development.

**Dr. Jianfeng (Jeff) Ma –** [**http://parks.slu.edu/faculty-staff/parks-faculty/jeff-ma-phd/**](http://parks.slu.edu/faculty-staff/parks-faculty/jeff-ma-phd/): Research areas include computational solid mechanics, design and optimize of tires (NASA lunar tires), investigation of advanced manufacturing processes, mechanics/robotics, and micro- and nano-manufacturing of brittle materials.

**Dr. Allison Miller –** [**http://www.perennialplantdiversity.org/**](http://www.perennialplantdiversity.org/)**:** Can perennial crops advance food and ecosystem security? Perennials grow for multiple years and have long growing seasons and deep root systems that reduce soil erosion risk. We are studying how perennial plants evolve in nature and under domestication, and how they withstand dynamic environmental stresses over the course of multiple years.

**Mark McQuilling –** [**https://sites.google.com/a/slu.edu/mmcquil2/**](https://sites.google.com/a/slu.edu/mmcquil2/)**:** Student(s) will have the opportunity to work with data regarding shock wave boundary layer interactions which occur in modern supersonic military aircraft engine inlets, in collaboration with personnel from The Boeing Company here in St. Louis and the US Air Force Research Labs at Wright-Patterson Air Force Base in Ohio. We are looking for trends in acquired data using dimensional analysis and curve-fitting techniques with the goal of developing predictive relationships that can be used to design more efficient supersonic engine inlets. Due to the nature of this work, ONLY US CITIZENS ARE ALLOWEF YO PARTICIPATE.

**Dr. Jean Potvin -- https://sites.google.com/a/slu.edu/jeanpotvin/:** We study the propulsive and resistive forces generated by humpback and blue whales during swimming in order to find out how much energy they use to survive with the food available in today’s oceans. These forces are revealed through computational and mathematical studies of the flows moving about realistic models of the whales. Come and join us to learn how the laws of physics, engineering and biology have allowed these animals to become the largest organisms to have ever lived on Earth! (Yes, larger than dinosaurs!)

**Dr. Ramesh Raliya –** [**https://sites.wustl.edu/rameshraliya/**](https://sites.wustl.edu/rameshraliya/)**:** Dr. Raylia developed methods for synthesizing novel inorganic and organic nanomaterials with independently controlled properties. These nanomaterials have been used to study their impact on plant nutrition , plant protection, biomedical uses including drug delivery, therapeutics, and imaging, water chemistry, energy storage materials, sensors and environmental interactions.

**Dr. Vasit Sagan** **–** **www.remotesensing.org:** This summer we will be working on several STEM research projects including 1) Unmanned Aerial Systems, agricultural robots, and imaging, 2) biofuels and machine learning, 3) understanding regional crop responses to climate change induced water and ozone stress, and 4) monitoring and predicting toxic algae outbreaks in surface waters in Missouri. We use hyperspectral imaging systems deployed on drone, satellites, and field-based investigations to carry out the research.

**Dr. Scott Sell -- https://scholar.google.com/citations?user=o0skvW0AAAAJ&hl=en&oi=ao :** The focus of our lab is the fabrication and evaluation of tissue engineering scaffolds capable of replicating both the form and function of the native extracellular matrix (ECM). Through the creation of idealized tissue engineering structures, we hope to harness the body’s own reparative potential and accelerate regeneration. We are primarily interested in the utilization of the electrospinning process to create nanofibrous polymeric structures that can be applied to a wide range of applications. Of principal interest to our laboratory is the fabrication of scaffolds capable of promoting wound healing and the filling of large tissue defects, as well as orthopedic applications such as bone and ligament repair.

**Dr. Lori Setton** -- [**https://settonlab.wustl.edu/**](https://settonlab.wustl.edu/)**:** Studying drug transport in model systems for application to joint arthritis.

**Dr. Srikanth Singamaneni** --: **http://softnano.wustl.edu:** Organic materials with responsive and self-assembling properties combined with functional plasmonic nanostructures that exhibit unique optical properties form a powerful materials platform for a wide variety of applications including plasmonic photovoltaics, chemical and biological sensors, adaptive materials, non- or minimally-invasive bioimaging and therapy.

**Dr. Grigoriy Yablonsky** --[**https://en.wikipedia.org/wiki/Grigoriy\_Yablonsky**](https://en.wikipedia.org/wiki/Grigoriy_Yablonsky)**;** [**https://scholar.google.co.uk/citations?user=z4bORCYAAAAJ**](https://scholar.google.co.uk/citations?user=z4bORCYAAAAJ) **:** The project will be devoted to mathematical modelling of the advanced environmental process at the frontiers of the environmental technology (oxy-combustion). It will be an application of concepts of mathematical chemistry.

**Dr. Lan Yang**-- <https://engineering.wustl.edu/Profiles/Pages/Lan-Yang.aspx> : My research focuses on exploiting significantly enhanced light-matter interactions in high-quality optical resonators to achieve a new class of optical sensors for medical applications.

**Dr. Fuzhong Zhang –** <http://zhang.eece.wustl.edu/>: Synthetic biology, engineering microbes to produce chemicals and materials.

**Dr. Silviya Zustiak --** [**http://www.slu.edu/~szustiak/**](http://www.slu.edu/~szustiak/): We develop hydrogel biomaterials to use as in vitro cancer models such as drug delivery vehicles. The broader name for our research is soft tissue engineering.

**MEDICINE / PSYCHOLOGY / ALLIED HEALTH**

**Dr. John M. Beale, PhD--** [www.stlcop.edu](http://www.stlcop.edu): My research program centers on developing small molecules for neurodegenerative diseases. I use computational methods to identify compounds for testing, then test them in cell culture and mice. The students will be involved in the computational drug discovery program.

**Dr. Mikhail Berezin –** [**https://www.berezinlab.com**](https://www.berezinlab.com)**:** Chemotherapy-induced peripheral neuropathy in animal models.

**Dr. Julie Bugg** – <https://pages.wustl.edu/ccalab> : Our research examines how cognitive processes (attention, memory) are affected by normal aging and the early stages of Alzheimer’s disease.

**Dr. Patricia Cavazos-Rehg, Associate Professor, Dept. of Psychiatry, WASHU,** [**https://healthbehaviorcenter.wustl.edu/who-we-are/patricia-cavazos-ph-d/**](https://healthbehaviorcenter.wustl.edu/who-we-are/patricia-cavazos-ph-d/)**:** Research interests include using various social media platforms (Twitter, Instagram, YouTube) to examine substance use and mental health issues, including new or emerging methods of substance use (e.g. vaping, dabbing), depression and self-harm

**Dr. Robert Fleming –** <https://biochem.slu.edu/people/fleming>: Our research is focused on mechanisms of iron homeostasis in health and human disease.

**Dr. Farshid Guilak** -- The Guilak laboratory studies the use of stem cells in regenerative medicine. Projects this year will focus on creating complex tissues using stem cells to grow cartilage and bone on biomaterials made using 3D weaving and 3D printing.

**Dr. Angela Hirbe –** [**http://oncology.wustl.edu/people/faculty/Hirbe/Hirbe\_Res.html**](http://oncology.wustl.edu/people/faculty/Hirbe/Hirbe_Res.html)**:** As a practicing medical oncologist who treats sarcoma, my research focuses on utilization of genomic information from sarcomas to better understand the pathogenesis of these tumors and to identify biomarkers and therapeutic targets for these aggressive cancers.

**Dr. Ajay K. Jain** -- Our research evaluates ameliorative and preventative strategies for Parenteral Nutrition associated injury. This is a critical therapy in pediatric medicine, but unfortunately, it is associated with multisystem injury, especially affecting premature babies. We are NIH funded to conduct basic science studies; we also have internal and extramural foundation support for clinical studies.

**Dr. Sara McBride-Gagyi –** Twitter handle @McBride\_Gagyi: Our lab researches surgical procedures to regenerate amounts of bone too large for the body to do on its own.

**Dr. Adriana Montano, PhD –** [**http://www.slu.edu/medicine/pediatrics/divisions-and-faculty/medical-genetics/adriana-m-monta%C3%B1o-phd**](http://www.slu.edu/medicine/pediatrics/divisions-and-faculty/medical-genetics/adriana-m-monta%C3%B1o-phd): We are focused on the research of lysosomal storage disorders. We have been studying the basic biology of the Mucopolysaccharidoses in order to develop novel treatments. In addition, we are conducting a pilot study to establish newborn screening of Mucopolysaccharidoses.

**Dr. Dana Morrone –** [**https://www/stlcop.edu/directory/employee/dana-morrone**](https://www/stlcop.edu/directory/employee/dana-morrone): This is a biotech and molecular engineering project in the area known as synthetic biology. We will be designing, producing, and testing enzymes called cytochromes and reductases. These engineered enzymes will potentially be used as parts to make new pharmaceuticals in microbes or used as parts in microbial fuels cells.

**Dr. Steve Mumm –** <https://bonehealth.wustl.edu/research/laboratories/mumm-lab/>**:** We study molecular genetics of rare inherited bone diseases, such as hypophosphatasia, juvenile Paget’s disease, X-linked hypophosphatemic rickets, and many others. The major goal is to identify specific gene mutations in patients’ DNA as the cause of their bone disease.

**Dr. Rachel Wamser Nanney --** [**https://www.mimh.edu/people/wamser-nanney-rachel/**](https://www.mimh.edu/people/wamser-nanney-rachel/)**:** Studies the brain and its reactions to physical and chemical stimuli, specifically what physically happens in the brain during and following traumatic stress. They will explore not only the physical, but the behavioral and emotional reactions to traumatic stress through the lens of groundbreaking new research. Most importantly, they will offer a fresh perspective on care and treatment.

**Dr. Bobbi Pineda –** [**http://www.ot.wustl.edu/about/our-people/faculty/bobbi-pineda-270**](http://www.ot.wustl.edu/about/our-people/faculty/bobbi-pineda-270)**:** I do research on infants born very preterm who are hospitalized in the neonatal intensive care unit. Areas of inquiry can involve infant development, infant feeding, the neonatal intensive care unit environment, pain in the newborn or the effects of early therapy/enrichment. Students have the opportunity to observe medical rounds in the NICU, learn about infant behavioral assessment, and engage in a project using existing data.

**Dr. Terri Rebmann –** [**https://www.slu.edu/public-health-social-justice/research/centers\_institutes/institute\_bsdp.php**](https://www.slu.edu/public-health-social-justice/research/centers_institutes/institute_bsdp.php)**:** The research project will not involve any laboratory work as I do not work in a lab. There are multiple studies occurring through the Institute for Biosecurity and students can decide between the project options. The most likely projects available will be related to one of the following topics: 1) assessing community resilience as it relates to the integrity of existing local hospital and regional stockpiles regarding supply integrity and existing policies and procedures, and 2) assessing changes in preparedness over time (from 2012 – 2016) in the St. Louis County closed POD (points of dispensing) network in preparation for distributing medical countermeasures during a pandemic or bioterrorism attack. Other disaster-related research projects may also be available this summer, depending on data availability.

**Drs. Deborah Salvo and Stephanie Mazzucca –** [**https://prcstl.wustl.edu/**](https://prcstl.wustl.edu/)**:** Drs. Salvo and Mazzucca’s interests lie in generating, transplanting and scaling up evidence for improving public health and reducing health and social disparities, with a particular emphasis on chronic disease prevention (e.g., diabetes, cancer). They work to understand how aspects of the environment (e.g., built environment) and of organizations (e.g., child care settings, health departments) influence health and health behaviors, including nutrition, physical activity, and sedentary behavior.

**Dr. Phyllis Stein --** [**www.hrv.wustl.edu**](http://www.hrv.wustl.edu)**:** Our laboratory analyzes information on heart rate patterns on long-term continuous electrocardiograms, usually 24-hour ambulatory recordings or overnight sleep studies. These patterns can be quantified mathematically as heart rate variability measures or analyzed graphically in different ways. What I have in mind for this summer is the performance of graphical heart rate pattern analysis from a set of 24-hour recordings on people who do and do not have chronic multi-symptom illness (fibromyalgia or chronic fatigue syndrome). These recordings have already been analyzed enough so that heart rate patterns can be plotted by using software that we already have. We expect that heart rate patterns, especially during sleep, will be different in those who are healthy than in those who are not. Thus, the student will be working on finding and quantifying any differences in heart rate patterns between these two groups. The student will be using an existing dataset to create a matched set of people to compare, matching cases and controls on both age and gender.

**Dr. Kim Werner** – <https://www.mimh.edu/people/werner-kimberly/>: Dr. Werner’s research focuses on two major areas: 1) the psychophysiological and clinical assessment of PTSD and trauma-related psychopathology in women and 2) the operationalization of stress exposure integrating multiple levels of stress at the individual (i.e. trauma exposure, discrimination, early substance use), family (i.e. parental psychopathology and parental-offspring relationship), and community (i.e. socioeconomic and neighborhood disadvantage) levels to better understand how acute traumatic and chronic stressors impact psychopathology differentially across race and gender. Research experience in Dr. Werner’s lab will be to assist with research on the Posttraumatic Stress Disorder and Traumatic Brain Injury in Women Survivors of Intimate Partner Violence project.