MSRIP 2019 FACULTY RESEARCH PROJECTS

The following faculty research projects are organized by colleges, and then alphabetically by department. Students are encouraged to look at related fields, as well as within their major departments for research projects, which might be interesting to them. For example, the research project in the theater department might also be interesting to sociology or education majors.

BOURNS COLLEGE OF ENGINEERING

Bioengineering

Faculty Mentor: **Elena Kokkoni**
Research Project: The PRT lab examines novel neurorehabilitation environments that aim to improve physical function and promote the development of children with motor disorders. These environments involve the use of assistive devices (body weight support systems, socially assistive robots, exoskeletons/wearables, etc.) to provide motor training designed upon principles from the field of neuroscience (e.g., environmental enrichment). The students will be working on the assessment of the motor training with these technologies on the children's motor learning, control, and/or behavior.

Faculty Mentor: **Megan Peters**
Research Project: Neuroimaging (fMRI, EEG), perception, statistical & computational modeling of cognition.

Chemical and Environmental Engineering

Faculty Mentor: **Kandis Leslie Abdul-Aziz**
Research Project: Converting waste plastics into renewable fuel. Developing nanoparticle catalysts for the conversion of agricultural waste into fine chemicals.

Faculty Mentor: **Nosang Myung**
Research Project: Nanoscience and Engineering, Internet of Sensor, Environmental Engineering, Chemical Engineering, Materials Science and Engineering.

Chemical & Environmental Engineering; Materials Science & Engineering; Physics & Astronomy

Faculty Mentor: **Bryan Wong**
Research Project: computational chemistry
computational materials science
computational physics. Please see my group webpage at http://www.bmwong-group.com for a summary of my group's interests.

Computer Science

Faculty Mentor: **Mariam Salloum**
Research: Data Integration; Leveraging deep learning to classify Lung MRI Images.

Faculty Mentor: **Craig Schroeder**
Research: Accelerating numerical computations of fluids through microfluidic devices.

Electrical and Computer Engineering

Faculty Mentor: **Salman Asif**
Research: Computational imaging and machine learning.

Faculty Mentor: **Elaine Haberer**
Research: Optical biosensors; viral-based nanomaterial assembly.

Material Sciences Engineering; Mechanical Engineering; Physics

Faculty Mentor: **Sinisa Coh**
Research: Computational materials science, physics of materials.

Mechanical Engineering

Faculty Mentor: **Giorgio Nava**
Research: Nanocrystals and Nanomaterials, Non-thermal plasmas, Lithium-ion batteries.

Faculty Mentor: **Marko Princevac**
Research: Fire, water channel modeling, dispersion.

Faculty Mentor: Luat Vuong
Research: Optical behavior nanoparticles in liquids. Sensing applications. Fundamental studies of thermophoresis. Particle tracking velocimetry.

COLLEGE OF HUMANITIES, ARTS AND SOCIAL SCIENCES

English

Faculty Mentor: **Armando Garcia**
Research: Latino and Latin American literature; theatre and performance studies; gender and sexuality; immigration and illegality; race and ethnicity.

Hispanic Studies

Faculty Mentor: **Ivan Aguirre**
Research: Mexican film studies, Mexican cultural studies, Mexican literary studies.

Faculty Mentor: **Covadonga Lamar Prieto**
Research: Spanish in California; Digital Humanities
Note- I'll be on a UCR Summer Abroad in Spain. I'd love to have the student travel within my program, conduct research within the travel program (built-in) for summer credit and then return to campus for the second part of the MSRIP.

History

Faculty Mentor: **Philipp Lehmann**
Research: History of science and environmental history in colonial contexts.

Political Science

Faculty Mentor: **Kim Dionne**
Research: African voters and elections; USAID-funded health project in Democratic Republic of Congo (DRC); use of social media (e.g., Twitter and WhatsApp) in Malawi's 2019 elections.

Faculty Mentor: **Georgia Warnke**
Research: Gender theory, race theory, political theory, hermeneutics, critical theory.

Psychology

Faculty Mentor: **Brent Hughes**
Research: social psychology, brain imaging, decision making.

Faculty Mentor: **Rebekah Richert**
Research: Child development; development of religious thinking; learning from media.

Faculty Mentor: **Megan Robbins**
Research: LGBT couples' social interactions and health behaviors, conversation and well-being.

Faculty Mentor: **Rachel Wu**
Research: Cognitive aging with older adults, cognitive development with kids.

Faculty Mentor: **Weiwei Zhang**
Research: Attention and emotion, emotional memory, visual perception and racial stereotype.

Sociology

Faculty Mentor: **Adalberto Aguirre, Jr**.
Research: Mexican/Latino Immigration, Racial/Ethnic Issues in Higher Education, Social Inequality.

Faculty Mentor: **Victoria Reyes**
Research: Will assist in coding data for project focusing on the reputation of Subic Bay, Philippines, and the ways in which reputation is racialized and gendered. Subic Bay, Philippines was home to the former U.S. Subic Bay Naval Base and is currently home of the Subic Bay Freeport Zone, and the purpose of this project is to compare Subic Bay's reputation across different audiences.

Theatre, Film and Digital Production

Faculty Mentor: **Erith Jaffe-Berg**
Research: Theatre & Performance, Cultural Studies.

Faculty Mentor: **Keun-Pyo Park**
Research: Narrative and documentary production.

University Writing Program/Political Science (CSULA)

Faculty Mentor: **Debito Beamer**
Research: International Relations, Comparative Public Policy, East Asian Government, and Research Writing.

COLLEGE OF NATURAL AND AGRICULTURAL SCIENCES

Biochemistry

Faculty Mentor: **Gregor Blaha**
Research: transcription-translation coupling in prokaryotes.

Faculty Mentor: **Li Fan**
Research: Structural biology of DNA repair, bacteria-host interactions, and amino acid metabolism.

Faculty Mentor: **Paul Larsen**
Research: Students would be able to work on projects focusing on cell signaling in plants, photosynthesis or DNA damage depending on their interests.

Faculty Mentor: **Jeff Perry**
Research: Discovering novel therapeutics to treat breast cancer.

Botany and Plant Sciences

Faculty Mentor: **Jaime Barros da Silva Filho**
Research; Plant nutrition; drought stress; nitrogen; soil conservation.

Chemistry

Faculty Mentor: **Joseph Genereux**
Research: Optimizing proximity labeling probes to quantify modulated intracellular trafficking under chemical stress.

Faculty Mentor: **Kevin Kou**
Research: methods development (organic synthesis) and applications to natural products synthesis.

Faculty Mentor: **Dave Martin**
Research: Organic synthesis, catalysis, natural product synthesis.

Faculty Mentor: **Hari Pandey**
Research: Molecular dynamic simulation; Vibrational energy flow; Boundary conductance.

Faculty Mentor: **Yadong Yin**
Research: Synthesis of nanostructured smart materials.

Faculty Mentor: **Wenwan Zhong**
Research: analysis of extracellular vesicles.

Evolution, Ecology and Organismal Biology

Faculty Mentor: **Alan Brelsford**
Research: Population genomics of ants & birds.

Faculty Mentor: **Chris Clark**
Research: bird flight.

Faculty Mentor: **Tim Higham**
Research: 1) Biomechanics of gecko adhesion and locomotion; 2) The biomechanics of fish locomotion and feeding.

Faculty Mentor: **Leonard Nunney**
Research: Genomics of Southern California kangaroo rats. Evolution of genes that suppress cancer in large, long-lived mammals.

Faculty Mentor: **David Reznick**
Research: Evolutionary biology.

Faculty Mentor: **Wendy Saltzman**
Research: Parental behavior, behavioral neuroscience.

Faculty Mentor: **Marko Spasojevic**
Research: Ecology, Biodiversity, Forests, Deserts, Chaparral, Community Ecology, Plant Traits, Global Change, Climate Change, Plants.

Entomology

Faculty Mentor: **Kerry Mauck**
Research: Insect behavior & chemical ecology, plant-pathogen interactions, parasite manipulation of hosts and vectors, viruses in wild plants.

Faculty Mentor: **Quinn McFrederick**
Research: Bee/pathogen/microbiome interactions; Bee/toxin/microbiome interactions; Microbe diversity/transmission.

Faculty Mentor: **Claudineia Pereira Costa**
Research: Developmental Biology; Bees.

Faculty Mentor: **Erin Rankin**
Research: (1) Invasive species research; (2) pollination ecology of native California plants; (3) competition between hummingbirds and bees for floral resources (4) transmission mechanisms of pollinator pathogens between native and introduced pollinators.

Faculty Mentor: **Sarah Woodard**
Research: Bumble bee research.

Environmental Sciences

Faculty Mentor: **Peter Homyak**
Research: Soil science, soil biogeochemistry, cycling of C, N, and P in soils, greenhouse gas emissions from soils, N cycling in agroecosystems.

Faculty Mentor: **Huanhuan Jiang**
Research: The formation mechanisms of organic aerosols. The health effects of e-cigarette smoke and secondary organic aerosols.

Faculty Mentor: **Elia Scudiero**
Research: Involvement in the project: "“Decision Support Tools for Spatiotemporal Integration of Citrus Virtual Orchard and Soil Sensing” Topics: Soil science, precision agriculture, GIS, remote sensing, spatial data analysis, plant and soil field and laboratory analyses.

Faculty Mentor: **Ting Yang**
Research: Soil salinity leaching, solute transport, erosion, HYDRUS model simulation.

Mathematics

Faculty Mentor: **Weitao Chen**
Research: numerical methods for PDEs, mathematical modeling for biological systems.

Faculty Mentor: **Qixuan Wang**
Research: Mathematical biology.

Molecular, Cell and Systems Biology

Faculty Mentor: **Weifeng Gu**
Research: Cap-snatching of influenza virus.

Faculty Mentor: **Fedor Karginov**
Research: Cellular function and molecular mechanism of a novel RNA endonuclease; Investigating the role of the RNA-binding protein PUM in cell migration and adhesion.

Physics and Astronomy

Faculty Mentor: **John Ellison**
Research: Cosmology – large scale structure of galaxies.

Faculty Mentor: **Allen Mills**
Research: Specific heat effects in heat engines.

Faculty Mentor: **Brian Siana**
Research: Studying rapid changes in the star formation rates of galaxies.

SCHOOL OF MEDICINE
Population and Public Health

Faculty Mentor: **Brandon Brown**
Research: HIV, STDs, LGBT health, research ethics, research with the deaf community, participant payment.

DIVISION OF BIOMEDICAL SCIENCES

Faculty Mentor: **Declan McCole**
Research: Intestinal epithelial barrier function and gut microbiome changes in inflammatory bowel disease (IBD). Work in our lab studies how a loss-of-function mutation in an IBD risk gene promotes increased intestinal permeability (leakiness) and how this can cause changes in gut bacteria leading to expansion of an IBD-associated pathobiont bacterium. Additional studies are investigating how beneficial bacteria can correct gut barrier defects.

Faculty Mentor: **Sika Zheng**
Research: RNA regulation in the brain.

Biomedical Sciences – School of Medicine

Faculty Mentor: **Adam Godzik**
Research: bioinformatics of cancer, innate immunity, plant immunity, phylogenetic analyses.

GRADUATE SCHOOL OF EDUCATION

Faculty Mentor: **Austin Johnson**
Research: Student behavior, social justice and schools.

Faculty Mentor: **Katherine Stavropoulos**
Research: Brain activity in autism, cultural issues in autism, clinical work in autism.

SCHOOL OF BUSINESS ADMINISTRATION

Faculty Mentor: **Ali Deghan**
Research: Anything related to marketing and information systems.

Faculty Mentor: **Mike Dong**
Research: international stock markets, stock analysts, return predictability.

Faculty Mentor: **Haibo Liu**
Research:

1. The impact of collaboration on team innovation performance
2. How to apply Design Thinking in product innovation
3. Internalization of firm, global strategies

Faculty Mentor: **Ashutosh Prasad**
Research: Marketing – Retailing, Pricing.

Faculty Mentor: **Ashish Sood**
Research: Topics related to business - new product development, launch, emerging markets.