Virtua Health College of Medicine & Life Sciences of Rowan University

Research Opportunities
2026 SMRF Program

College of Science and Math

Below is a listing of research opportunities that are available for Rowan-Virtua SOM Medical Students who have an interest in submitting applications for approval to participate in the 2026 Summer Medical Research Fellowship Program.

Contact Name/Department	Contact Information	Project Title/Information
Dr. Mary Alpaugh Biological & Biomedical Sciences & Research Joint Health Science Center	Email: alpaugh@rowan.edu	**Project 1:** Molecular mechanism of an alternate means of metastasis. Students will assist in developing microfluidic biomimetics of metastasis, perform time lapse analysis of ex vivo IBC metastatic process, ultrastructural analysis of lymph vascular embolus. **Project 2:** Exosomes and metastatic progression in inflammatory breast cancer. Students will isolate and analyze exosome profile as it relates to progression of IBC. **Project 3:** Pharmacological approaches in treatment of inflammatory breast cancer. Students will perform small molecule drug screens on preclinical model of IBC.
Dr. Danielle Arigo Psychology Robinson Hall 116G	Email: arigo@rowan.edu	**Title:** Real-World Assessment of Associations between Daily Experiences and Health Behaviors. This is a line of research that uses intensive ambulatory assessment in people's natural environments to determine (1) within-person associations between predictors and behaviors of interest, and (2) identify novel targets of intervention, and (3) evaluate new interventions for promoting physical activity, healthy eating, and good sleep quality. Specific projects include investigation of menstrual cycle symptoms/physical activity, social experiences/physical activity, and social experiences/weight control. Populations of interest are those with elevated risk for cardiovascular disease.
Dr. Zachary Boles Geology 319 Discovery Hall	Email: bolesz@rowan.edu	**Title:** Paleopathology in fossil reptiles from NJ. Describing and attempting to identify cause(s) of pathologic bone seen in a few sea turtle specimens collected from the Edelman Fossil Park. Project may expand to include specimens at the New Jersey State Museum. The study will involve gross macroscopic description of the pathologies, identifying cause(s)/type of disease, histologic thin-sectioning, 3D scanning and possibly uCT scanning of specimens.

Dr. Gregory Caputo Chemistry and Biochemistry Science Hall, Room 154A	Email: caputo@rowan.edu	**Title:** Antimicrobial development. The student will be screening novel antimicrobial compounds. There are several ongoing antimicrobial projects including structure-activity relationships in antimicrobial peptides, evaluating metal-based thin-film coatings as antimicrobial agents for biomedical devices, and combinatorial application of FDA approved drugs with ionic liquids.
Dr. James Grinias Chemistry and Biochemistry Science Hall. Room 301	Email: grinias@rowan.edu	**Project 1:** Development of point-of-need measurement platform for PTSD biomarkers in blood. Students will help develop a miniaturized liquid chromatography-mass spectrometry assay to detect biomarkers in blood that indicate PTSD susceptibility. **Project 2:** Development of point-of-need measurement platform for urinary metabolites of substance use disorder. Students will help develop a miniaturized liquid chromatography-mass spectrometry assay to measure potential use of illicit substances in urine. This is being developed for a tool to be implemented in drug treatment and rehabilitation facilities. **Project 3:** Analytical methodology for the characterization of neurotransmitters. Students will work on automated derivatization techniques to characterize neurotransmitter profiles from animal model samples and bacterial cultures.
Dr. Jim Haugh Clinical Psychology Robinson Hall, Room 116N	Email: haugh@rowan.edu	**Title:** Use of Mobile apps for depression/distress within a primary care setting. I am broadly interested in the use of mobile applications to help people with depression, anxiety and other mood disorders. Potential projects can include application studies, feasibility, opinions of providers and/or patients.
Dr. Qian He Geography, Planning, and Sustainability Discovery Hall, Room 124	Email: he@rowan.edu	**Title:** Climate Strain on Healthcare Access: A Multi-County Assessment of Healthcare Infrastructure Vulnerability in South Jersey. This pilot project examines how climate-exacerbated infrastructure risks, including recurrent roadway flooding, limited transportation network redundancy, and geographic isolation, impact access to essential healthcare services in Cape May, Cumberland, Atlantic, and Salem Counties. This would be a fit for students with interests in Social Determinants of Health (SDOH) and community resilience.
Dr. Maxi Heitmayer Psychology Robinson Hall, Room 115H	Email: heitmayer@rowan.edu	**Title:** Healthcare experiences with technology in situ. Using first-person wearable video cameras to capture patients/doctors/nurses/... behavior in naturally occurring settings. I am generally interested in the use of personal technologies (e.g., smartphones, tablets, health trackers), but also other medical devices/ technologies or healthcare/ medical practice in general could be of relevance. Here is a link to a paper that outlines the method with examples from a nursing training project: https://eprints.lse.ac.uk/60763/1/Lahlou_LeBellu_Boesen-Mariani_Subjective-evidence-based-ethnography_2015.pdf

Dr. Subash Jonnalagadda Chemistry and Biochemistry Science Hall, 130C	Email: jonnalagadda@rowan.edu	**Title:** Design of Novel Therapeutics for the Treatment of Triple Negative Breast Cancer. Students will assist with synthesis, purification, characterization of novel small molecules as potential therapeutics for TNBC. Additional opportunities also available for testing the anti-cancer efficacy of these compounds in vitro.
Dr. JiaBei Lin Chemistry and Biochemistry Science Hall, 301F	Email: linjia@rowan.edu	**Project 1:** ALS and FTD TDP-43 diseases variants Screening. Student will use a yeast model to screen TDP-43 variants connected to ALS and FTD to verify their RNA binding and aggregation propensity. **Project 2:** Screen for therapeutic peptides that identify or reverse TDP-43 pathological aggregates. Student will perform in vitro screening for small peptides that specifically recognize or reverse TDP-43 pathological aggregates. **Project 3:** Study AAA+ motor protein and co-factors. Investigate the molecular mechanism of VCP/P97, and develop a yeast model (Damp CDC48) that could evaluate its disaggregation activity for future screening experiments.
Dr. Ping Lu Chemistry and Biochemistry Science Hall 301I	Email: lup@rowan.edu	**Title:** Smart Drug Delivery Systems. This research centers on the development of advanced smart drug delivery platforms aimed at optimizing therapeutic efficacy and improving patient compliance. Specifically, my group has pioneered the creation of multi-stimuli-responsive delivery systems, leveraging cutting-edge nanomaterials to achieve precision-targeted and controlled drug release. These innovative systems address significant limitations of conventional drug delivery approaches by responding dynamically to environmental triggers, thereby offering enhanced therapeutic outcomes with minimized side effects.
Dr. Gustavo Moura-Letts Chemistry and Biochemistry Science Hall 301F	Email: moura-letts@rowan.edu	**Project 1:** Novel Diazepines and Benzodiazepines. This project aims at developing novel synthetic strategies for the production of pharmacologically relevant benzodiazepines and benzodiazepine-like molecules. **Project 2:** Building Taxanes and Morphinans. This project aims at developing systematic strategies for the synthesis of Taxanes and Morphinans molecular architectures as means to access unexplored regions of chemical space.
Dr. Maggie Panning Pearce Biological & Biomedical Sciences & Research Science Hall 256E	Email: pearcem@rowan.edu	**Project 1:** Molecular mechanisms for neurodegeneration. Forward genetic screen to identify modifiers of spread of protein aggregate pathology in Drosophila and mammalian cell models of neurodegenerative diseases (e.g., Alzheimer's disease, Huntington's disease). **Project 2:** Molecular mechanisms for neurodegeneration. Single-cell RNAseq analysis of Drosophila brains containing neurodegenerative disease pathologies. **Project 3:** Molecular mechanisms for neurodegeneration. Proximity labeling coupled with proteomics to identify new protein-protein interactions underlying neurodegenerative disease.

Dr. Natasha Shylo Biological & Biomedical Sciences & Research Science Hall 201H	Email: shylohyson@rowan.edu	**Project 1:** Genome editing with Adeno Associated Viruses (AAVs). Use a panel of AAVs to determine which infect veiled chameleon embryos most efficiently. Once the best serotype is identified, the project will move onto using AAVs to knock out in chameleon embryos genes associated with left-right patterning and congenital heart defects in humans. **Project 2:** Evolution of gastrulation in amniotes. Determine the unique functions of genes Nodal1 and Nodal2 in gastrulation in veiled chameleons. The project will involve cell and embryo culture and cloning of expression vectors for genes of interest.
Dr. Nicolas Whiting P&A and BBS Science Hall 101I	Email: whitingn@rowan.edu	**Project 1:** Carbon dots as multimodal contrast agents. Develop carbon quantum dots as optical and magnetic resonance reporters for targeted molecular imaging. **Project 2:** Parahydrogen enhanced magnetic resonance. Generate parahydrogen gas and use to enhance magnetic resonance signals for biologically-relevant small molecules.
Dr. Chun Wu Chemistry & Biochemistry Molecular & Molecular & Cellular Biosciences, and Research Science Hall 340B	Email: wuc@rowan.edu	**Project 1:** Enhanced Detection and Molecular Modeling of Adaptive Mutations in deadly viruses (HIV, Zika, Ebola etc). Students will run in-house bioinformatics programs to analyze the public sequence dataset to probe the evolution dynamics of these deadly viruses. **Project 2:** Antivirus drug development. Students will carry out virtual screening to identify lead compounds and design experiments to test the compounds. **Project 3:** Vaccine development. Students will carry out virtual screening to identify potential epitopes from the viruses' genome, and design experiments to test the epitopes.

If you have an interest in any of the above projects, please reach out right away to the contact person for that department.

NOTE: The **deadline for application submissions** is **(Monday) February 9, 2026.**
The **2026 SMRF Program Instructions/Guidelines and the Application Cover Page are available at** http://som.rowan.edu/oursom/pipeline/research/smrf.html

If you have any questions, or difficulty accessing the hyperlink above, please contact the Rowan-Virtua SOM Research Office at somresearch@rowan.edu.