



Achievement Rewards for College Scientists

**2020-2021**

**NEW SCHOLARS**

**SAN DIEGO CHAPTER**

[san-diego.arcsfoundation.org](http://san-diego.arcsfoundation.org)

## ARCS® Foundation, Inc. Achievement Rewards for College Scientists

ARCS® Foundation is a nonprofit organization founded and administered by women who carry out the organization's mission of advancing science and technology by providing financial awards and encouragement to outstanding U.S. citizens studying to complete degrees in science, engineering, and medical research.

Since its founding in 1958, ARCS® Foundation has grown to 15 chapters and invested more than \$100 million in the potential of almost 10,000 outstanding American undergraduate and graduate students at 51 of the country's top research universities.

---

The San Diego chapter of ARCS® began in 1985 and has grown from the original four founders to more than 100 members today. We have made more than 1400 awards totaling well over \$10 million. Our academic partners are:

**San Diego State University • Scripps Research**

**University of California San Diego • University of San Diego**

ARCS® Scholars are selected by their institutions in recognition of their achievements and exceptional promise to contribute significantly to their fields. The San Diego chapter focuses on supporting students in doctoral programs, and the ARCS® Scholars we have funded have a 98% graduation rate, compared with the national rate of 60% for graduate students in the sciences and engineering. Annual awards to Scholars range from \$5,000 to \$10,000. **For the 2020-2021 academic year, the San Diego ARCS® chapter is awarding \$420,000 to 46 Scholars.**

Member dues and event underwriting cover all operating expenses, and member volunteers provide management and most administrative services. **Virtually 100% of contributions to the Scholar Award Fund goes directly to our Scholars.** The Scholar Award Fund is supported by individuals, foundations, academic institutions, and industry. The chapter also accepts memorial and honorary gifts, legacy bequests, and contributions to our endowment fund.

To give online, go to the San Diego ARCS® website at:

**[san-diego.arcsfoundation.org](http://san-diego.arcsfoundation.org)**



## SAN DIEGO STATE UNIVERSITY



### **Amanda Therese Alker**

San Diego State University / University of California San Diego

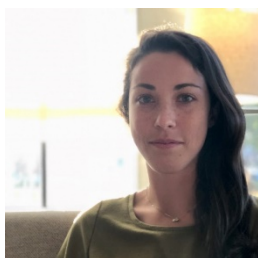
College of Sciences

Concentration: Cell and Molecular Biology

Specialization: Environmental Microbiology

Donor: [Reuben H. Fleet Foundation](#)

Many bottom-dwelling marine animals, like corals and tubeworms, release their babies into the water column, where they swim in search of an environmental cue that indicates a suitable place to settle onto the seafloor and develop. Certain bacteria coating submerged surfaces can serve as this environmental cue. Amanda's research investigates a single probiotic marine bacterium and demonstrates that it can produce multiple different cues that influence the babies to settle down. Harnessing these bacteria as "environmental probiotics" may allow scientists to restore threatened ecosystems (like coral reefs) in the future.



### **Theresa Leigh Ute Burnham**

San Diego State University / University of California Davis

College of Sciences

Concentration: Ecology

Specialization: Marine Fisheries Ecology and Management

Donor: [Reuben H. Fleet Foundation](#)

Around the world, marine fisheries are threatened by increasing demand for seafood and warming oceans. Theresa's research focuses on improving management of the lucrative, but vulnerable, spiny lobster fishery in Southern California and Mexico. By gathering fishing data, biological characteristics, and genetic signatures from lobsters along the Pacific coast, Theresa aims to create modern, climate-ready solutions for the environmental problems faced by small-scale fisheries and the coastal communities that rely on them.



### **Roslynn Beatrice King**

San Diego State University / University of California San Diego

College of Sciences

Concentration: Geophysics

Specialization: Controlled-Source Electromagnetism

Donor: [Legler Benbough Foundation](#)

Roslynn is interested in the design, fabrication, and use of controlled-source electromagnetic instruments to study hazards and potential resources located on the continental shelf that have direct implications for human life. More specifically, she is interested in identifying and analyzing marine hydrocarbon seeps, fluid pathways, freshwater resources, and archaeological sites so as to reduce ambiguity in current climate models, manage groundwater resources in coastal communities, and aid in the current understanding of human migration pathways.



### **Tiffany Luong**

San Diego State University / University of California San Diego

College of Sciences

Concentration: Cell and Molecular Biology

Specialization: Phage Immunology

Donor: [Hervey Family Fund](#)

Bacteriophage (viruses that infect and kill bacteria) treatment currently lacks approval in the US, but when antibiotics fail to eradicate drug-resistant bacterial infections, the FDA can approve emergency phage treatment. During Tiffany's PhD research, she developed a phage production and purification method to produce high-quality clinically safe phage preparations for personalized patient treatment. This method addresses the current production bottleneck hampering access to phage therapy and standardizes the production of therapeutic phages to ensure patient safety. Her ongoing research will study the immunological interactions between phages and mammalian cells to ensure the safety of phage therapy.



### **Kyle Evan Malter**

San Diego State University / University of California San Diego

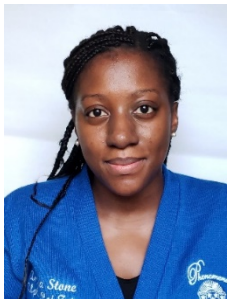
College of Sciences

Concentration: Biological Sciences

Specialization: Host-Microbe Biology

Donor: [Hervey Family Fund](#)

Kyle's research aims to understand how bacteria directly affect animal development. Identifying the mechanisms that bacteria use to influence animal development could have a wide range of impacts on the scientific community, such as understanding more complex systems, including the human gut microbiome. To study this, Kyle uses a marine tubeworm which requires bacteria for growth and development. This required interaction has allowed him to find key bacterial proteins which control the tubeworm's development. Kyle's future work aims to understand how human gut bacteria contribute to health and development.



### **Amelia Odine Stone-Johnstone**

San Diego State University / University of California San Diego

Center for Research in Mathematics and Science Education

Concentration: Mathematics Education

Specialization: Undergraduate Mathematics Education

Donor: [Ingrid Benirschke-Perkins and Gordon Perkins](#)

Amelia's research project aims to identify the impact that corequisite mathematics courses have on students intending to pursue majors in science, technology, engineering, and mathematics. A corequisite course is an instructional intervention where students are enrolled in a college-level course while simultaneously receiving academic support. The results from this research will help instructors and program coordinators design impactful support courses that will increase student retention, foster greater interest in the sciences, support students' educational growth, and prepare students for subsequent courses.



### **Nathalia Romanio Gazaniga**

Scripps Research

Skaggs Graduate School of Chemical and Biological Sciences

Concentration: Biomedical Sciences

Specialization: Immunology

Donor: [Paul Bechtner Foundation / ARCS Foundation – San Diego](#)

Nathalia utilizes high throughput drug screening methods to identify small molecule immunomodulators in the context of tumors. By being a part of both a chemical biology and an immunology lab, she can screen for small molecules and subsequently work to understand their mechanism in vitro and in vivo. Her project focuses on applying these small molecules to alter the balance of immune cell populations in the tumor microenvironment.



### **Tucker Ryan Huffman**

Scripps Research

Skaggs Graduate School of Chemical and Biological Sciences

Concentration: Chemistry

Specialization: Organic Synthesis

Donor: [Reuben H. Fleet Foundation](#)

Tucker's research is currently focused on the chemical synthesis of a biologically active fungal natural product that has exhibited anticancer activity. Access to this material will allow both investigations into its use as a therapeutic agent and studies into how this molecule kills cancer cells. Because of the complexity of the target molecule, Tucker is exploring new reactions that allow the natural product to be made quickly from much simpler, less expensive starting materials.



## Nelson Ren Wu

Scripps Research

Skaggs Graduate School of Chemical and Biological Sciences

Concentration: Immunology

Specialization: Vaccine Design

Donor: Laurie and Michael Roeder

Malaria is an ancient tropical disease caused by parasites carried by mosquitoes. While insecticide-treated nets and anti-malarial drugs have largely contributed to a decline in malaria cases, increasing drug resistance by malaria parasites necessitates the development of an effective vaccine. The most advanced vaccine for malaria is the RTS,S/AS01 vaccine approved for use in select African countries, but that is only partially effective. Nelson's research seeks to apply computational modeling to design and screen more effective vaccine candidates.

# UC San Diego



## **Channing Joseph Prend**

University of California San Diego

Scripps Institution of Oceanography

Concentration: Physical Oceanography

Specialization: Air-sea Interaction

Donor: [ARCS Foundation - San Diego / Toby Eisenberg](#)

Channing studies the exchange of heat and carbon dioxide between the ocean and atmosphere, which regulates the global climate system. He uses measurements from autonomous robotic floats, as well as satellite data and numerical models, to research how ocean circulation contributes to patterns of biological productivity and carbon uptake in the Southern Ocean, which surrounds Antarctica. This region plays an outsized role in the global ocean circulation and carbon cycle, and thus, studying these processes is crucial to improving climate models and future climate projections.



## **Samantha Lylah Sison**

University of California San Diego

School of Medicine

Specialization: Neurobiology and Stem Cell Biology

Donor: [Dottie Georgens](#)

Sammi's research project aims to understand the molecular mechanisms underlying Huntington's disease, a progressive neurodegenerative disorder that leads to motor and cognitive problems and eventually death. With a background in stem cell biology and neuroscience, Sammi uses induced pluripotent stem cells from people with Huntington's disease to study the genetic pathways that may be contributing to neurodegeneration in the brain. By using this system, she hopes to identify therapeutic targets for the potential treatment of those with Huntington's disease.





**Pedro Alonso Colio**

University of San Diego  
Hahn School of Nursing and Health Science  
Concentration: Nursing  
Specialization: Cardiology & Emergency Medicine  
Donor: [Beyster Family Foundation](#)

Pedro Colio's research project is geared towards identifying the incidence and prevalence of hypertrophic cardiomyopathy in one of the most underserved counties in Southern California. A research project like this will be highly beneficial for science and members of this community. Pedro hopes to identify any particular trends or determinants of health associated with this condition. If any trends are found, they could potentially be used for early screening and management among certain individuals.



**Ann Ozaze Lawani**

University of San Diego  
Hahn School of Nursing and Health Science  
Concentration: Nursing  
Specialization: Cardiopulmonary Nursing and Palliative Care  
Donor: [Beyster Family Foundation](#)

This research stresses the critical need to include Palliative Care in the nursing curriculum in order to lay a more solid foundation for nurses from every background to meet the basic needs for Palliative Care education. This will help provide the basic tenets needed to communicate with patients with co-morbid chronic illnesses, not if, but when the need arises. This reduces the feeling of hopelessness and sorrow evoked in patients at the thought of Palliative Care, as well as the confusion about what Palliative Care represents.