Building a Strong Foundation for Success: A Look at STEM Research and Education at Cal State LA

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Overview

Cal State LA (California State University, Los Angeles) offers a range of STEM programs that provide students with valuable opportunities to engage in research, gain practical experience, and develop their skills in various fields. The REU program in chemistry and biochemistry and the PREC computational workshop provide students with opportunities to work on cutting-edge research projects and learn from experienced instructors. The LAunchPad program offers high school girls mentorship and hands-on experiences to explore their interests in STEM. The SPROUT program provides students with opportunities to work on interdisciplinary projects and collaborate with peers from different disciplines. The Urban Hydrology program offers students the chance to learn about water management and environmental science. Together, these programs showcase the breadth and depth of STEM opportunities available at Cal State LA.

Eco-STEM

The overarching goal of the Eco-STEM project is to create a supportive and culturally responsive learning and working environment for all members of our community that utilizes their assets to enhance motivation, excellence, and success, thus making teaching and learning rewarding and fulfilling experiences.

CREST Center for Advancement Toward Sustainable Urban Systems (CATSUS)

The new NSF CREST Center for Advancement Toward Sustainable Urban Systems (CATSUS) will aim to advance research in environmentally sustainable energy and water resources for urban areas. The center will also train and mentor underrepresented students in the STEM fields to help meet the high demand for skilled diverse professionals and the need for more pathways to doctoral and postdoctoral research programs. The CREST-CATSUS faculty and student fellows will conduct research focusing on creating sustainable urban hubs.

Summer Research Programs: REU and SPROUT

Summer research programs at Cal State LA offer students a unique opportunity to dive into the world of research and innovation. These programs allow students to work closely with faculty mentors, collaborate with peers, and gain practical experience in their field of interest. From civil engineering to computational science, these programs provide students with diverse research opportunities to explore.

Partnerships for Research and Education in Chemistry (PREC)

Cal State LA and the Molecular Software Sciences Institute (MoISSI) at Virginia Tech collaborate to incorporate machine learning techniques in molecular simulation research and develop innovative pedagogical materials to train early-stage undergraduate students in computational science.

LAunchPad

The Cal State LA and MoISSI Partnership for Research and Education in Chemistry Pathway to Diversity Program aims to significantly contribute to the recruitment and training of the next generation of molecular simulation scientists, who will require a deep understanding of physical and chemical principles and computational techniques.

The NSF REU: Response of Hydrological Systems in Urban Areas Due to Human Disturbance and Climate Change program provides students with a research and cultural experience under the guidance and mentorship of the NSF REU program director. The students work alongside faculty and attend several workshops throughout the summer that include Dealing with Imposter Syndrome, Critical Reading of the Literature, and Ethics and the Responsible Conduct of Research.

The PREC program computational workshop students represent the diversity and innovation of the future of computational research.

The LAUNCHPAD program Summer Program is a two-week immersion (IP) and virtual (LPX) summer program at Cal State LA, where middle school and high school students explore the fields civil engineering, computer and electrical engineering, computer science, materials science, mechanical engineering, technology and discover how choosing to study in these majors looks like in a career after college.