CALIFORNIA STATE UNIVERSITY LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

October 2019 | Vol. 6

P R O U D

Program Recognizing Outstanding Undergraduate Distinction

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INTRODUCTION

Welcome to the sixth edition of CSU-LSAMP PROUD, the annual publication of the California State University Louis Stokes Alliance for Minority Participation. CSU-LSAMP PROUD recognizes the outstanding academic, research, and service achievements of students and alumni from throughout our alliance. Each year, the CSU-LSAMP coordinators at each of our alliance campuses nominate students to be recognized through our Program Recognizing Outstanding Undergraduate Distinction (PROUD). Our PROUD scholars have distinguished themselves in so many ways - in the classroom, in the laboratory, and in the community - and the success of CSU-LSAMP is truly written in their stories, which are featured in this publication.

In this issue we look at the new CSU-LSAMP STEM Pathways and Research Alliance, which was funded in 2018 for another five years of serving students. In this new phase in the development of CSU-LSAMP, we introduce a stronger emphasis on broadening participation research. On pages 4 and 5 of this publication, we describe our research efforts and report out on the first phase of that work. Also in this year's publication we present reports on our two signature international research programs in Uzbekistan and Costa Rica.

Lisa Hammersley, Ph.D.

Lead Project Director, CSU-LSAMP

Interim Dean, College of Natural Sciences & Mathematics, California State University, Sacramento

CSU-LSAMP STATEWIDE OFFICE

PRINCIPAL INVESTIGATOR
Robert Nelsen, Ph.D.
President, California State University, Sacramento

Co-PI, LEAD PROJECT DIRECTOR
Lisa Hammersley, Ph.D.
Interim Dean, College of NSM

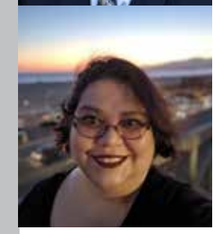
Co-PI, ASSOCIATE PROJECT DIRECTOR
Semarhy Quiñones-Soto, Ph.D.
Lecturer, Biology

Co-PIs
David Barker, Ph.D.
Professor, Government
Director, Center for Congressional and Presidental Studies
American University

Shannon Williams, Ph.D.
Executive Director, Institute for Social Research,
Sacramento State

PROJECT MANAGER
Nicole Campos

ADMINISTATIVE ASSISTANT
Felicia Forte



LEAD AUTHORs & EDITORs
Lisa Hammersley, Ph.D.
Semarhy Quiñones-Soto, Ph.D.

AUTHOR & DESIGN EDITOR
Nicole Campos

ADDITIONAL CONTRIBUTORS
CSU-LSAMP Campus Coordinators
Sacramento State Institute for Social Research

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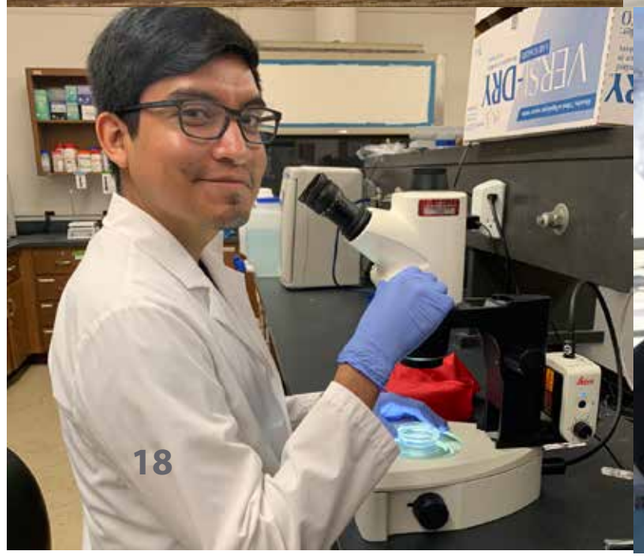
PROUD SCHOLARS BY CAMPUS



SPARA UPDATE

CSU-LSAMP STEM PATHWAYS AND RESEARCH ALLIANCE: BASELINE STUDENT SURVEY

Funded by the National Science Foundation and the Chancellor's Office of the California State University, the CSU-LSAMP Alliance is a coordinated and comprehensive program dedicated to broadening participation in STEM. Over its 25-year history, the CSU-LSAMP Alliance has grown to include all 23 campuses of the CSU, has served 26,896 students, with 22,497 (84%) of these students were from underrepresented minority (URM) groups, and the annual number of participants has increased from 641in 1994 to 2,997 in 2018. The primary goal of CSU-LSAMP is to enhance the academic and professional preparation of CSU-LSAMP participants for careers in STEM. Currently, our project is on its second year of our sixth five-year cycle of funding, known to us as the STEM Pathways and Research Alliance (SPaRA). The educational research component is well underway, such as:

- We have formed a Research and Evaluation Advisory Committee, an oversight group that is new to CSU-LSAMP. The committee consists of campus coordinators from 6 of the 23 CSU-LSAMP campuses, two CSU-LSAMP participants, and one education researcher who is not directly involved with CSU-LSAMP. The role of the Committee will be to ensure that evaluation/research questions align with the community and institutional contexts in which the Alliance is operating, and to provide actionable information to the CSU Alliance and other LSAMP grantees.

- Annual Student Survey: One of the first objectives in the research plan was to administer surveys to LSAMP participants. The survey was developed and administered to students across CSU-LSAMP in May. 467 students completed the survey, a response rate of approximately 20%. The results of this survey will be used to more directly tie student outcomes to specific activities and levels of engagement in the program.

- Campus Coordinator Interviews: We have developed an interview script for campus coordinators and as of this date, have interviewed campus coordinators from approximately half of our campuses. The results of these interviews will be used to develop a rubric for CSU-LSAMP implementation modalities.

- Institutional change research: As noted in our proposal, the CSU is undergoing rapid change as a result of the Graduation Initiative 2025. Research Focus #3 of our project is to explore the impact of some of these changes. We have made significant progress with the first project we identified as having potential for this kind of rapid turnaround project. In 2017, the CSU Chancellors Office released Executive Order 1110, which, among other things, disallowed the use of remedial math courses. Sacramento State collected data on student performance following implementation of these changes and we have identified a math education specialist in the math department faculty who will analyze these data and prepare a manuscript for publication during the Fall 2020 semester.

CSU-LSAMP excerpt: Baseline Student Survey Report || September 2019

This report presents the results of the first CSU-LSAMP Statewide Student Survey, which was administered in Spring 2019 as a part of the external evaluation of CSU-LSAMP Alliance. The purpose of this survey is to measure students' perceptions of the program activities and their baccalaureate experience, in addition to short-term outcomes of participating in the CSU-LSAMP program. The short-term outcomes measured by the survey include career aspirations, ease of transition into the academic role, scientific self-efficacy and identity, sense of belonging and racial climate, along with two evaluation measures (evaluation of program effectiveness, and evaluation of campus interaction). A total of 467 students completed the survey which represents 18 percent of the CSU-LSAMP students enrolled during the Spring 2019 semester.

Overall students who participated in CSU-LSAMP activities showed growth in the outcomes identified in this survey. Of the four CSU-LSAMP activities selected for inclusion in the survey, participation in research produced the most statistically significant differences in outcomes (13 outcomes), closely followed by participation in graduate school preparation activities (10 outcomes). These findings align with perceptions by the Campus Coordinators that these activities are high impact activities that provide value to CSU-LSAMP students. Differences in specific outcomes between students participating in four specific CSU-LSAMP activities (e.g., a) research; b) presented or published research; c) facilitators, mentors, or trainers; and d) graduate school preparation) include the following:

Students' Perceptions of the CSU-LSAMP Program | Students who participated in all four selected CSU-LSAMP activities had higher average scores on the Evaluation of Campus Interaction scale than students who did not participate in these activities, and these differences were statistically significant. This difference suggests that students who participated in these activities had better campus interaction experiences than students who did not participate in these activities.
Likewise, students who participated in three of the four of these selected activities (research; presented or published research; and facilitators, mentors or trainers) rated the overall effectiveness of CSU-LSAMP program higher than students who did not participate in these activities, and these differences were statistically significant.
Students' Career Aspirations | There were statistically significant differences between students who did and did not participate in selected CSU-LSAMP activities. Students who participated in research had more interest in teaching at a university, conducting research at a university, and becoming a STEM research in the private sector than students who did not participate in research. Also, students who participated in research had less interest in teaching at a high school than students who did not participate in research.

Students who participated in graduate school preparation activities had more interest in conducting research at a university and less interest in teaching at a high school than students who did not participate in graduate school preparation activities.

2019 CSU-LSAMP NSF NATIONAL GRADUATE RESEARCH FELLOWSHIP AWARDEES

David Cagan (CSULA)
Chemistry—Chemical Structure, Dynamics, and Mechanics
California Institute of Technology

Andrea Coto (SJSU)
Engineering—Civil Engineering
San Jose State University

Eliovardo Gonzalez (CSUSB)
Materials Research—Materials, Inorganic Materials
University of California, Santa Barbara

Sara Torres Robles (SDSU)
Life Sciences - Biochemistry
San Diego State University

Cristian Sarabia (FSU)
Chemistry—Macromolecular, Supramolecular, and Nanochemistry
California State University, Los Angeles

Parker Smith (CSUMB)
Chemistry —Macromolecular, Supramolecular, and Nanochemistry
California State University, Monterey Bay

Cassandra Villicana (SJSU)
Engineering — Biomedical Engineering
Stanford University

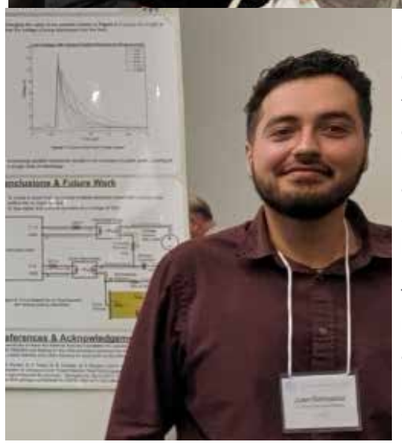
CSU-LSAMP : OUT AND ABOUT

2019 Louis Stokes STEM Pathways and Research Alliance Planning Meeting
May 31, 2019
Las Cruces, NM

In May 2019, the New Mexico State University reached out to other LSAMP alliances who have been funded for 10 or more years, the newly created 'STEM Pathways and Research Alliances." Both LSAMP Directors and a member of the research team were invited to talk with other SPaRA colleagues to form a strong SPaRA Networking Group and to collect ideas for a proposal for a conference for all the 2016-19 SPaRAs.

CSU-LSAMP submitted an abstract titled, "Quanitifying Implementation Difference: Identifying LSAMP Program Modalities across 23 California State University Campuses and Examination of the Impact of Undergraduate Research Experience on CSU-LSAMP Student Outcomes."

4th Annual Grad Fair and CSU Summer Symposium at UCLA
August 12, 2019
Los Angeles, CA



Hosted by the Graduate Programs in Bioscience at UCLA, this one day recruitment event featured a Graduate Fair and CSU Poster Session. During the event, STEM PhD Programs, Faculty and campus resource centers had a chance to advertise their programs and services to local CSU students and UCLA Summer Program participants who are considering applying to graduate programs at UCLA. Following the Grad Fair, the CSU Symposium poster session highlighted research being conducted by Cal State Students who participate in capstone research programs.

The CSU-LSAMP Statewide Office had a table at the event to both recruit current STEM undergraduate students at the CSU to participate in CSU-LSAMP, and served as a resource for current LSAMP students who were looking for information about upcoming opportunities through the systemwide office. Several of the posters were from our very own CSU-LSAMP students.

2019 LSAMP PI/PD and BD Meeting // Emerging Researchers National (ERN) Conference
February 19-21, 2-19 // February 21-23, 2019
Washington, D.C.

Always a way of hearing best practices from across alliances, the LSAMP PI/PD meeting also gives a first hand account of the state of LSAMP directly from the LSAMP program officers. The CSU-LSAMP Statewide Office flew to DC to meet with LSAMP alliance Directors and staff from across the nation.

Staff and students alike endured the snow for one of the most heavily touted conferences for CSU-LSAMP students to attend. Students traveled to ERN both as presenters and attendees to enhance their science communication skills and to better understand how to prepare for science careers in a global workforce.

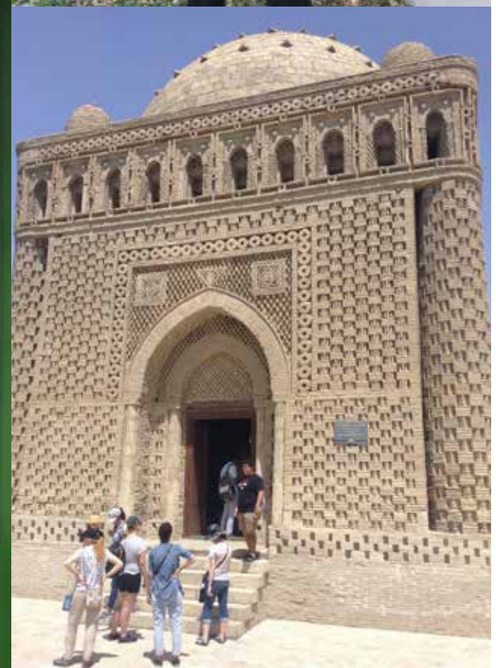
Below: CSU-LSAMP Students from Cal State LA share a meal after day 2.

2019 CSU-LSAMP Annual Meeting
March 15-16, 2019
Sacramento, CA

The CSU-LSAMP Annual Meeting is the opportunity for CSU-LSAMP Campus Coordinators to come together and share best practices, learn about project outcomes and hear about exciting opportunities. This year's meeting had a presentation from the CSU-LSAMP Research Team with the opportunity for Coordinators to speak directly to the educational researchers about the most important activities to focus on, and how best to gather the necessary data for the research. Presentations were also given by the Directors of the two CSU-LSAMP International Programs, Best Practice workshops, and a chance to hear from a representative from Allan Hancock College who was gathering information for a Bridge to the Baccalaureate Planning Grant.

Below: It takes an army! The Faculty and Staff of the CSU-LSAMP STEM Pathways and Research Alliance.

CSU-LSAMP INTERNATIONAL PROGRAMS
IRES IN UZBEKISTAN



With the start of Phase III in 2008, CSU-LSAMP added international research experiences as one of its objectives. Since then, **521 CSU-LSAMP participants (an average of 43 per year)** have had the opportunity to conduct research overseas. We have placed students in research on all continents, including Antarctica.

CSU-LSAMP provides opportunities for students to obtain international research experiences in a number of ways, including participation in international REUs, study abroad programs, and travel with an individual research advisor.

CSU-LSAMP also funds two international experiences per year. Offered by individual campuses, these programs are open to CSU-LSAMP participants from any of our Alliance campuses, providing an opportunity for our students to build a broader network of peers.

CSU-LSAMP RESEARCH EXPERIENCE IN UZBEKISTAN

The IRES in Uzbekistan program is hosted by California State University (CSU), Fullerton in partnership with the Institute of Mathematics of the Uzbekistan Academy of Sciences and supports international research experiences for U.S. students. Funded by the IRES program at the National Science Foundation, the program gives U.S. students a 10-week summer research experience in Uzbekistan, the birthplace of algebra, under the mentorship of top Uzbek mathematicians. During the past three years, the program supported 19 students chosen nationally and representing the following 14 institutions: Fullerton College, Pomona College, CSU Sonoma, CSU Fullerton, University of Oklahoma, St. Olaf College, Florida State University, Vanderbilt University, Tufts University, University of Madison at Wisconsin, Vassar College, Rice University, Georgia Institute of Technology, and Princeton University.

In addition to 19 U.S. students funded by the NSF IRES program, CSU-LSAMP program funded the following 10 students to join the IRES program to conduct research in Uzbekistan:

- 2017 Cohort: Crystal Salas (Sonoma) and Juan Escobar Salsedo (Sonoma)
- 2018 Cohort: Oscar Castanos (Fresno), Drew Horton (Sonoma), Alexandro Luna (Fullerton), and Savanah Yam (Monterey Bay)
- 2019 Cohort: Marcos Figueroa (Bakersfield), Andrea Gomez (Pomona), Monica Inouye (Fullerton), and Jose Sandoval (Bakersfield).

Moreover, starting with the 2019 Cohort, the CSU-LSAMP IRES program includes opportunities to conduct research in Uzbekistan in Physics, Biology and Biochemistry in addition to Mathematics. A very successful program both culturally and academically, each of the 10 CSU-LSAMP students co-authored a paper jointly with their foreign mentors and peers.

Finally, the program participants presented talks on their research and cultural experiences at student clubs and seminars in their home institutions as well as at local and regional conferences such as, SCCUR, Mathematical Association of America (MAA) meetings, and the American Mathematical Society (AMS) meetings:

I was chosen to work with two graduate students from Uzbekistan, Uktamjon Mamadaliyev and Qobiljon Abdurasulov. Uktam and Qobil spoke very little English, just as I spoke very little Russian or Uzbek, and I learned just how universal of a language math is. Together we spent eight weeks researching an open problem in the area of Leibniz Algebra, and by the end of that time we had written a paper.
- Drew Horton, Sonoma State, Uzbekistan '18

- Juan Escobar Salsedo presented at Southern California-Nevada Section Meeting of the MAA and at the Math Club at CSU Los Angeles
- Crystal Salas presented at Math Colloquium at CSU Sonoma
- Oscar Castanos presented at the GAUSS (Graduate and Undergraduate Student Seminar) at CSU Fresno
- Alexandro Luna presented at the AMS Western Regional Meeting at San Francisco State University on October 27, 2018.
- Drew Horton presented at Math Club at CSU Sonoma
- Marcos Figueroa and Andrea Gomez will be presenting at SCCUR held at CSU San Marcos on November 23, 2019.

CSU-LSAMP COSTA RICA RESEARCH EXPEDITION PROGRAM

Launched in 2011, and led by faculty & staff from California State University, Monterey Bay, the CSU-LSAMP Costa Rica Research Expedition program immerses students in the study of tropical environments and biological diversity, statistics and research methods, current issues in conservation, and Costa Rican geography and culture. Students receive instruction in the development of research questions, fundamentals of experimental design, sampling, hypothesis testing, and the responsible conduct of research, while engaging in hands-on activities across a wide variety of habitats and landscapes. The course has evolved several times over the several years, most recently providing a 5-week course of study for students with little or no research experience to engage with group and individual research activities in terrestrial and marine/aquatic environments. The course is open to CSU-LSAMP students from across the CSU system; since its inception, the CSU-LSAMP Costa Rica course has welcomed over 90 student participants from CSU Channel Islands, Chico, Dominiguez Hills, East Bay, Fresno, Fullerton, Humboldt, Los Angeles, Monterey Bay, Pomona, Sacramento, San Bernardino, San Diego, San Jose, San Luis Obispo, Sonoma, and Stanislaus. All student participants present their research at the end of the program before they leave Costa Rica, and over the years many have gone on to present their independent research at national conferences. Furthermore, many students often go on to conduct other research projects – not necessarily related to the work they did in the course. For example, since her return this past summer from the Costa Rica expedition, Ada Tadeo from Cal Poly San Luis Obispo has been working in a campus lab researching the effects of peripheral arterial occlusive disease on vascular function in an effort to discover alternative methods for treatment. Also at Cal Poly SLO, Briana Milstead is working with a herpetologist in the Biological Sciences department on a project that explores trends in the participation of female herpetologists and other females conducting research on "scary" animals such as sharks and spiders over the past several decades. Another Summer 2019 participant, Janet Gonzalez from CSU Monterey Bay, has been doing NSF-funded research in a faculty member's electrochemistry lab testing reversible redox active liquids.

The Costa Rica program is designed to facilitate precisely these types of continuing opportunities, as students use this introductory research experience as a spring board to engagement in more high-impact research experiences.

The course takes place in a wide variety of habitats, including the cloud forest of Monteverde, the coffee highlands of Tarrazú, the rural village of Mastatal adjacent to La Cangreja National Park, and the coastal environments of Quepos/Manuel Antonio and the Cabo Blanco Absolute Reserve on the Nicoya peninsula. Students work on individual as well as group research projects in several habitats. Student independent research projects over the years have ranged widely according to their interests and curiosity.

Group Project Example: Biological diversity in the rainforest

In the past three years of the program, student participants have also had the opportunity to contribute to group research project comparing arthropod and forest diversity in the rural agrarian village of Mastatal. Working with Drs. John E. Banks (CSUMB) and Dr. David Macfarlane (Michigan State University), students have collected data on spider body size along with forest and canopy structure, learning methodologies and relevant ecological background as they contribute to developing pilot data for a larger study planned with local Costa Rican collaborators at CATIE and the University of Costa Rica. They also get a chance to collect data on working coffee farms, comparing coffee yields in plants close to forest (commonly known to be a good source of pollinators) vs. coffee plants isolated from forest/natural vegetation.

Individual Project Examples:

Each year, student participants design and implement their own research projects under the guidance and supervision of Drs. Diana and Milton Lieberman and other CSU-LSAMP staff. This year, students conducted 11 different research projects in and around the Cabo Blanco Absolute Reserve:

Hermit crab size, speed, and circadian activity patterns in a protected coastal
habitat in Costa Rica. Emma Barrett & Susana Contreras

Plankton surveys in San Miguel Lagoon, Cabo Blanco Absolute Reserve,
Costa Rica: after the storm. Denise Drachenberg-Mora

Orb-weaving spiders in a late secondary forest in Costa Rica: prey capture
with respect to web size and height. Epifanio Estrada

Spatial pattern and experimental behavior studies of the Black Spiny Brittle Star, Ophiocoma aethiops. Brittany Frankfort & Jennifer Juarez Yoc

Feeding habits of an assemblage of caterpillars in Cabo Blanco Absolute Reserve,
Costa Rica: does leaf age matter? Ashley Genasci & Nathalie Solorzano

Density, diversity, and composition of bird faunas in a Pacific coastal forest in
Costa Rica: variation with forest type and time of day. Janet Gonzalez

California State University, Bakersfield

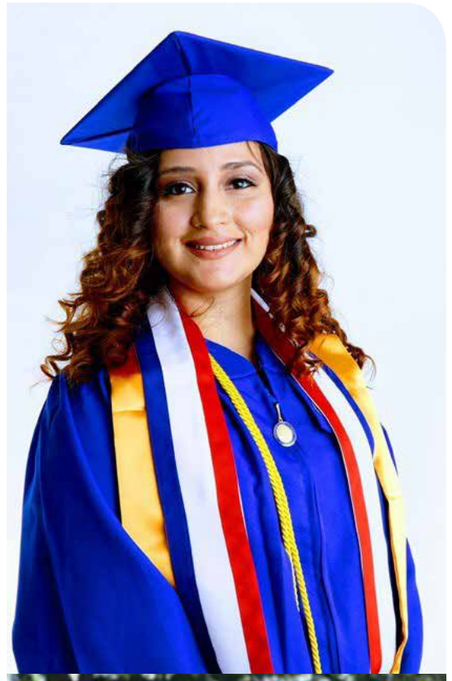
OUTSTANDING RESEARCH IN STEM
JACQUELINE SOTO · BIOCHEMISTRY

Jacqueline graduated from CSU Bakersfield with a BS degree in biochemistry in December 2018. She has been involved in research with Physics professor, Dr. Yize Li, since January 2017, where she helped initiate biosensing research from scratch. Jacqueline's research has been focused on glucose sensing with novel home-made silicon-based working electrodes. In collaboration with her co-worker Tyler Hughes and her mentor Dr. Li, Jacqueline successfully immobilized glucose oxidase (GOx) on the surface of silicon-on-insulator (SOI) and created SOI-GOx working electrodes for glucose sensing. These sensors displayed good sensitivity for glucose concentrations from 1 mM to 15 mM and showed promise for long term operation. Jacqueline was the first and presenting author of a poster presentation at the 2018 American Chemical Society (ACS) Western Regional Meeting and is the first author of a journal article that is currently under review. Jacqueline is continuing her research with Dr. Li after completing her bachelor's degree and works as a tutor for K-12 students. She joined the graduate credential program at CSU Bakersfield in fall 2019 to teach high school chemistry.

OUTSTANDING ACADEMICS
CARLOS MONTEJO· GEOLOGY & MATHEMATICS

Carlos Montejo is a dual major in geology and mathematics and has maintained a high GPA while actively participating in a multi-year research project with Dr. David Miller investigating the petrography and stratigraphic provenance of sedimentary units within the southern San Joaquin Basin. He is co-author on several published abstracts and presentations related to this research from 2016-2019, including as first author of a research poster presented at the 2019 Geological Society of America Conference in Portland, Oregon. Carlos is a quiet and reserved person who asks thoughtful questions in the classroom and in the field. As a result of his interest, maturity and competency in geology, Carlos was chosen for the rare opportunity to serve as an undergraduate lab teaching assistant for two courses in mineralogy and petrology. As a summer intern in a new community program with the Tejon Ranch Conservancy, Carlos has also participated in community outreach activities, helping to identify and document geologic resources for future public outreach events. With the goal of becoming a professional geologist, Carlos accepted a prestigious award from Montana Tech for a master's degree.

OUTSTANDING ALUMNA
VIRGINIA RODRIGUEZ · GEOLOGY



Virginia Rodriguez completed her BS degree in geology at CSU Bakersfield in fall 2018. As an American Guatemalan Mexican, first-generation born in the United States of America, and a young mother, Virginia faced a number of obstacles to achieve her goals. She is the first in her family to attend a university, and first to seek a science degree and profession. Virginia maintained a high GPA, graduated Magna Cum Laude, and received several competitive scholarships and awards, including an Africa Array Scholarship (a Penn State geoscience research program) and the Kern County Mineral Society Award. Virginia is co-author of several published abstracts from her 2016-2017 field-based geological research with Dr. David Miller. In 2018, mentored by Dr. Katie O'Sullivan, Virginia designed and implemented a different research project that culminated in a prestigious oral presentation at the annual Geological Society of America National Conference in Indianapolis. With a perpetual positive attitude, a natural inquisitiveness, persistence, a sincere interest in science, and a willingness to learn new skills outside of her comfort zone, Virginia is an inspiration for those around her. She has been active in the Boys and Girls Club of Kern County and the Bakersfield College Child Development Center. She wants to be a role model for other Latina, first-generation students. Virginia has been offered two full scholarships by graduate school programs, and she decided to accept and enter a PhD program at the University of Notre Dame toward her career goal of becoming a professional geologist.

OUTSTANDING RESEARCH IN STEM
TYLER STABILE · ELECTRICAL ENGINEERING

Tyler Stabile is an electrical engineering major, a CSU-LSAMP scholar since summer 2018 and is expected to graduate from CSU Bakersfield in spring 2019. He works in Dr. Yize Li's lab since June 2018 and has been conducting research on semiconductor thin films. Tyler created Tin (Sn) films on Germanium (Ge) substrates, through physical vapor deposition of solid Sn sources, and characterized the morphology of the Sn films using atomic force microscopy (AFM). Tyler also helped analyze the x-ray diffraction (XRD) data obtained by Dr. Li on these samples from an external facility. The XRD results suggested that alpha-Sn, a material that has intrigued intensive scientific interests and promises lossless electrical transport, might have been created. Tyler presented this work in the 2019 CSUB Student Research Competition and won 1st place in the Physical and Mathematical Science session. He is currently preparing a manuscript with Dr. Li. Tyler will be working for the Edwards Air Force Based after graduation.

Campus Coordinator(s):

Dodie Hyatt, M.S.
Student Services Coordinator/Academic Advisor
(661) 654-6026
dhyatt2@csub.edu

Kathleen Szick-Miranda, Ph.D.
Associate Professor of Biology
(661) 654-6165
szick-miranda@csub.edu

Channel Islands
CALIFORNIA STATE UNIVERSITY

OUTSTANDING RESEARCH IN STEM
RACHEL RICHARDSON · BIOLOGY

Rachel Richardson is a senior in biology at the CSU Channel Islands. Growing up in an agricultural county sparked her research interests in agricultural and environmental science. Her ambitions to pursue a career in STEM comes from the excitement of improving the current state of agriculture and the environment and from the hope of improving the lives of people from her community. Rachel has had diverse research experiences. Initially she was a pre-nursing major involved in a public health project interviewing local residents on what they knew about the environmental impact of a proposed water treatment plant on the coast. After the project, she changed her major and worked on a sustainable agricultural research project developing the most optimal method for using crayfish chitin in local fertilizer. Using drone mapping technique, she also contributed to the monitoring of the recent 2017 Thomas fire and 2018 Woolsey fire burn areas. She also interned for the Southern California Coastal Water Research Project collaborating with the Ventura County Stormwater Agency to detect coliphages. Most recently, in summer 2019, she was selected to participate at the Michigan State University - Kellogg Biological Research Station to determine if weed radish have a lower defense to native weeds in plot treatments. Rachel plans to apply to PhD programs in ecology and conservation biology to gain a stronger understanding and experience needed to successfully work in developing future environmental policies on the local and national level.

Campus Coordinator(s):
Caryl Ann Becerra, Ph.D.
Lecturer, Biology
(805) 437-2774
carylann.becerra@csuci.edu

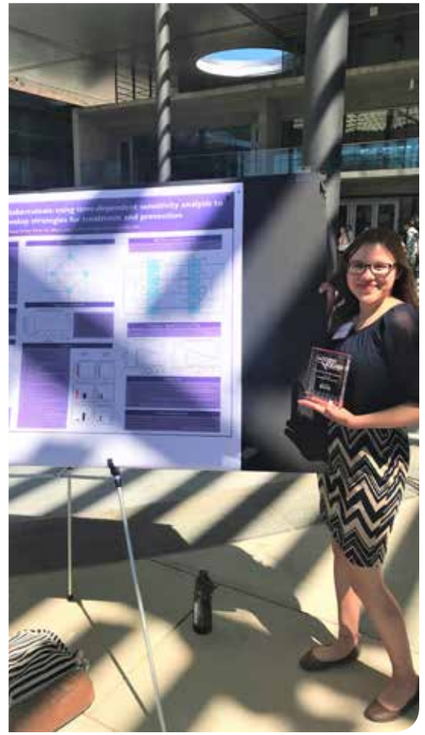
Christine (Chris) Opzeeland
CSU-LSAMP Coordinator
(805) 437-2641
christine.opzeeland627@csuci.edu

OUTSTANDING SERVICE & LEADERSHIP
MELISSA SORIANO · CHEMISTRY

Melissa Soriano graduated in spring 2019 with a degree in chemistry from CSU Channel Islands and was a recognizable leader. As president of the Student Chapter of the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), she organized outreach events and fundraisers for students to attend the National Conference. One of these innovative events was the 2019 annual STEM Social, which included the Art Department, Chemistry Department, and the Supporters of Women for Inclusivity in STEM Education (SoWise). Melissa also worked in a research group, specializing in molecular self-assembly and hybrid organo-electronics. She worked on the surface modification and characterization of metal-oxide nanoparticles. Melissa is also an Outreach STEM Assistant, mentoring K-12 students about the values of STEM education and career opportunities. She is active with the American Association of University Women (AAUW), receiving a scholarship for her work on advancing equity for women pursuing STEM careers. These activities may be time consuming for a student who also did research and worked part-time. However, they showcased not only her ability to organize, manage, and lead student activities, but demonstrated her commitment and ideals. As a woman of color in science, she is already a role model in service and leadership.

OUTSTANDING ACADEMIC
MAYLEEN CORTEZ · MATHEMATICS

Mayleen Cortez is a senior mathematics major at CSU Channel Islands. However, being one of three girls in her high school calculus class, she was initially intimidated. She also believed being a mathematician meant she would be solving meaningless equations all day. Yet, as a first-year student, she noticed that she was enthusiastic about her classes and she saw Latinx and women mathematicians. No longer feeling intimidated, she thought of herself as someone who could "fit in." Upon learning about the applications of mathematics, and with support of friends and family, she continues in mathematics and has a 3.89 GPA. In 2018, she participated in her first summer research experience at St. Mary's College of Maryland, modeling the spread of a tuberculosis epidemic in a population. She researched for the most effective methods for eradicating the disease and submitted her work to an undergraduate mathematical biology journal. She presented her research at several conferences, such as the Joint Math Meetings in Baltimore and the Nebraska Conference for Undergraduate Women in Mathematics. In summer 2019, she researched at the Mathematical Sciences Research Institute Undergraduate Program in Berkeley, CA. Her work focused on the application of combinatorial arguments and techniques to enumerate, examine and investigate the existence of discrete mathematical structures with certain properties. After graduating in 2020, Mayleen will pursue a PhD to develop applications of mathematical biology, specifically disease modeling, in public health. She wants to do research to make a difference in people's lives.



CALIFORNIA STATE UNIVERSITY, CHICO

OUTSTANDING SERVICE & LEADERSHIP
JORGE ROMERO · CIVIL ENGINEERING

Jorge Romero will earn a BS degree in civil engineering from Chico State. Throughout his undergraduate studies, he has participated in several organizations, including the American Society of Civil Engineering, the National Society of Leadership and Success, CSU-LSAMP, MESA Engineering Program, the Latinos in Technical Careers (or LTC, a student chapter of the Society of Hispanic Professional Engineers), and Latinos in Science and Engineering (MAES). Since 2014, LTC has become his Familia away from home and has helped him grow personally, academically, and professionally. He served as LTC secretary (2015-2017) and president (2017-2019). During his first term as president, there was an increase in the number of LTC members attending regional and national conferences. During this second term, he also held the position of Vice Regional Student Representative for Region 1 within SHPE, which is composed of Central and Northern California, Northern Nevada, Oregon, Washington, and Alaska. Jorge brought LTC to new levels. In November 2018, the National Committee awarded Jorge the Regional Outstanding Chapter for Region 1 Award at the SHPE National Convention. He also received the Blue Chip Award at the Regional Leadership Development Conference for Region 1 in April 2019. He is excited about working as a civil engineer and making impactful contributions to the field of engineering as a Latino professional in STEM. He plans on continuing his involvement with the Society of Hispanic Professional Engineers and to someday be part of the National Board of Directors.

OUTSTANDING PERSONAL GROWTH AS A STUDENT
ERIC MONTOYA · APPLIED MATHEMATICS

Eric Montoya graduated in spring 2019 with BS degrees in both applied mathematics and mathematics and a minor in physics. He attributes his personal development, success and passion for learning to his grandmother who passed away in 2018. Eric arrived at Chico State as a first-generation student, lacking confidence and unsure whether he would fit in. He struggled with anxiety and finding a sense of belonging. When his grades started to drop, he knew he had to try something different. He focused on personal growth and development. It was during this time that Eric discovered his passion for mathematics. Whenever he was doing math, he was happy and confident. During summer 2018, Eric participated in the Mathematical Modeling of Stochastic Processes REUT Program at Chico State under the guidance of Dr. Sergei Fomin in the department of Mathematics and Statistics. Eric presented his research on the steady-state spread of radioactive contaminants in fractured aquifers surrounded by subsurface porous rock at several scientific conferences including the Sigma Xi Annual Meeting and Student Research Conference, American Geophysical Union Fall Meeting, Joint Mathematics Meetings, and the 15th Annual College of Natural Sciences Poster Session. Eric developed his leadership skills while working as an Academic Excellence Workshop facilitator for Math 260 (Elementary Differential Equations). His future goals are to travel, improve his classical guitar skills, be a good role model for his little brother, and to enroll in a PhD program in mathematics and make mathematical breakthroughs.

Campus Coordinator:
Lorena Navarro, Ph.D.
Natural Sciences Coordinator, Chico STEM Connections Collaborative
(530) 898-5233
lnavarro16@csuchico.edu

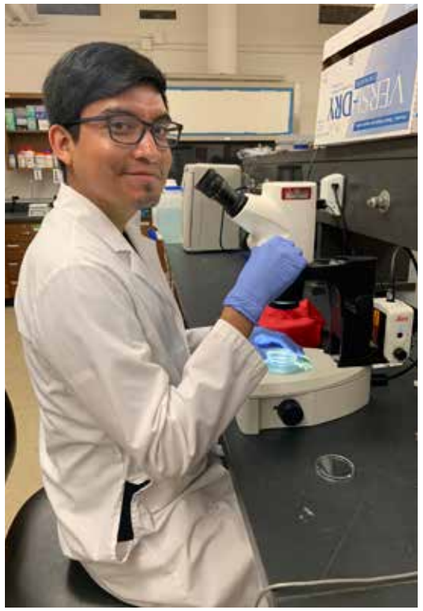
OUTSTANDING ACADEMIC & SERVICE/LEADERSHIP
YOANA GUZMAN · ELECTRICAL ENGINEERING & APPLIED PHYSICS

Yoana Guzman embodies the characteristics of an outstanding well-rounded student. She is inquisitive, a hard worker, involved in extracurricular activities, a leader and extremely motivated to be successful. She pursues two bachelor's degrees in electrical engineering and in applied physics. In addition to having been a Dean's List recipient, she has also received several Louis Stokes Alliance for Minority Participation Merit Awards and a Robert Merton Rawlins Award. During summer 2018, Yoana worked at the Woods Hole Oceanographic Institution in the laboratory of Dr. Anna Michel. She contributed to a research project that was undertaking the modeling of ocean dynamics to understand and fight climate change. This past summer, Yoana was part of the Ultracold Atom Research Team led by Dr. Hyewon Pechkis from the Department of Physics at Chico State. Yoana is involved in a multitude of on-campus programs that aim to spotlight underrepresented populations in STEM majors, such as Latinos in Technical Careers, Society of Hispanic Professional Engineers, and the Society of Women Engineers (SWE). She is employed with Chico STEM Connections Collaborative as a student contact and recruiter for incoming high school students. In addition to her extensive involvement with campus organizations, Yoana has also volunteered as a fundraiser for the Salvation Army and as a lab assistant for Imagineer Day — an on-campus event curated by SWE to expose K–8 students to STEM on Chico State's campus. After graduation, Yoana plans to continue her love for learning as she pursues a doctorate in applied physics.

OUTSTANDING ACADEMIC
BRANDON NEWBURG-CUELLAR· APPLIED MATHEMATICS & COMPUTER SCIENCE

Branden Newberg-Cuellar graduated in spring 2019 as a double major in applied mathematics and computer science from Chico State. He graduated with a 3.6 GPA and was consistently on the Dean's List. He was a member of the International Computer Science Honor Society Upsilon Pi Epsilon and the National Mathematics Honor Society Pi Mu Epsilon. He was the recipient of the Dr. Alva W. and Aimee R. Stamper Mathematics Scholarship and the Floyd L. English Natural Sciences Scholarship. He also received the Lieutenant Robert Merton Rawlins Award, which is one of the most prestigious awards given to a Chico State student for outstanding academic and professional accomplishments. Branden served as an outstanding role model for his peers and for the students he tutored in mathematics. During summer 2017, Branden participated in a REU at Chico State where he joined a research team using mathematical models to study the populations of bark beetles and track their movement throughout California forests. California forests are being decimated by bark beetles at alarming rates. Branden used modeling software and partial differential equations to study the behaviors and trajectories that these beetle populations might take as they disperse through different forests. He attributes his academic success to the AVID program in high school, the love of his friends and family that supported him throughout his education, the support he received at Chico State, and his desire to find happiness in all aspects of his life, including both his personal life and career.

California State University DOMINGUEZ HILLS



OUTSTANDING ESEARCH IN STEM
LEOBARDO CORONA · BIOLOGY

Leo Corona Jr. was born to two immigrant parents from Mexico, and coming from a neighborhood with a very strong gang presence, where school is a not a priority. He was the first in his family to attend college. Having no family with college experience, he initially struggled and had a difficult time adjusting to college life, but that only helped him to become more determined to graduate. Having gone through these difficult times, Leo still managed to succeed and become an outstanding student. He has maintained a very high GPA, which also helped him become a Genetics tutor, a job he's done for the past year and half. For the past two years, Leo worked in Prof. Fang Wang's lab, and presented research talks from the lab work at several conferences. Leo graduated in June and had the delightful dilemma of being accepted to four world-renowned PhD programs in the fall: Cornell University, UC Irvine, UC Davis, and UC Santa Cruz. He decided on UCI where he was also awarded the 2019 UCI Initiative for Maximizing Student Development (IMSD) Graduate Summer Program, which offers a NIH training grant as well as awarded the UCI Minority Serving Institution Enhancement (MISE).

OUTSTANDING ESEARCH IN STEM
STEPHANIE GASTON · MATHEMATICS

Stephanie Gaston entered CSU Dominguez Hills as a Presidential Scholar; these very prestigious merit-based awards are given to a small group of new students each year and provide a full scholarship. She has a 4.0 GPA at Dominguez Hills and is also a McNair Scholar.

In the summer of 2018, Stephanie did her first REU at the Rochester Institute of Technology and this work resulted in a publication: "Graphs with large rank numbers and rank numbers of subdivided stars" (co-authors: Dr. J. Jacob, H. Boynton, E. Burroughs) to appear in AKCE International Journal of Graphs and Combinatorics. Over the past year, she has given invited talks at three national conferences, two of which were organized by the MAA and the AMS, the two main mathematics professional societies in the US. Stephanie was once again accepted to another REU for the past summer, this time at Texas A&M University.

Stephanie plans to graduate in Spring 2020 and then plans to enter into a PhD program in mathematics and eventually become a university professor. Her career trajectory nicely illustrates her outstanding start in getting her to achieve her long-term career goal.

OUTSTANDING RESEARCH IN STEM
MARIAH ROJAS
MOLECULAR & CELLULAR BIOOGY

Mariah Rojas joined Dr. Kram's research lab in Summer 2017. According to Dr. Kram, "Mariah has made tremendous progress on both her research projects and as a scientist in general. She has worked on two difficult projects in the lab and has moved both of them forward with her tenacity, critical thinking, and troubleshooting skills". She attended the SURF REU at Scripps Oceanographic Institute in Summer 2018. At last fall's annual CSU-LSAMP Open House at CSUDH, Mariah gave a talk about her background and research experience. Her outstanding academic performance led Mariah to be hired as a Supplemental Instructor and as an LSAMP tutor.

Mariah gave an oral presentation at the West Coast Bacterial Physiology Meeting in December 2018. She also presented at the National American Society of Microbiology Microbe Conference in June of 2019. Her abstract was chosen as a "poster talk," indicating the impact of her research. She had been accepted into the Ph.D. program in Translational Plant Sciences at Virginia Tech, where she received the prestigious Initiative for Maximizing Student Development Fellowship.

Mariah's long term plans are to continue as a researcher in industry or in academia, and aims to increase diversity in the STEM field.

OUTSTANDING ACADEMIC
VANNAREN LONG · MATHEMATICS

Van is the first generation in his family to go to college. He was brought up in a poor village in Cambodia and the schools he attended had a serious lack of teachers, with classes having a 70:1 student teacher ratio. After coming to the California, Van realized that there was also suffer from a shortage of qualified math and science teachers, with many being scared away by high crimes, limited resources and other problems. Van strongly believes that every student deserves equal access to passionate, caring and dedicated teachers, regardless of their social backgrounds or economic status. This is why he has decided to teach math in an LA Urban area high school after graduation.

Van transferred to CSU Dominguez Hills after attending Cerritos college, and has been honored with an impressive array of awards: He is both a CSUDH STEM Scholar and CSI3 NOYCE Scholar, and has been awarded the following: Phi Theta Kappa Academic Team Award, Jack Kent Cooke Foundation Scholarship, Cerritos College Foundation U.S.S. Pelias Scholarship, NASA National Community College Aerospace Scholars Award. Van currently has a 4.0 Dominguez Hills GPA.

Eventually Van plans on pursuing his Ph.D. in mathematics and becoming a professor.

Campus Coordinator:
Alexander Stanoyevitch
Professor of Mathematics
(310) 243-3905
astanoyevitch@csudh.edu

CALIFORNIA STATE UNIVERSITY
EAST BAY

OUTSTANDING SERVICE & LEADERSHIP
JASMIN ZARAGOZA
BIOLOGICAL SCIENCES

Jasmin Zaragoza is a senior majoring in biological sciences at Cal State East Bay. She grew up in a complicated family situation, spending time back-and-forth between living with her mother and father. Once she arrived at Cal State East Bay, she committed herself to creating a new and satisfying future, and this involved finding a career interest in which she would have the opportunity to help others. She chose medicine. Since then, she has become a leader at school and in her community. Jasmin currently serves as a Campus peer mentor, and also revived and serves as President of the Campus tennis club. This Fall, she will launch a nonprofit, "GRT Tennis Academy", which will offer tennis classes to those who have put their lives on the line to save others. Jasmin also founded, and is President of, the "Letters to Hope" club at East Bay, which sends letters of hope and encouragement to those who are suffering – anywhere in the world. This highly active club continues to grow; Letters to Hope hosted its first summer leadership program at two different sites (Hayward and Fresno), this past summer. Jasmin continues to turn her academics around. This fall, she started in the MS program in Biological Sciences at Cal State East Bay. With the help of Dr. Natalie Ingraham, Jasmin works on a new research project examining the influence of empathy-focused service work on empathy behaviors and attitudes among college students.

Campus Coordinator:
Jenny O Ph.D.
Associate Professor, Kinesiology
(510) 885-2907
jenny.o@csueastbay.edu

OUTSTANDING ACADEMICS
PAULA RODRIGUEZ · BIOLOGICAL SCIENCES

Paula Rodriguez is majoring in biological sciences at Cal State East Bay. She is a first-generation student from Colombia. She is an excellent student, being in both the Dean's and Honors List. She is an active and contributing service member at Cal State East Bay and beyond. Paula serves as a Campus peer tutor and student peer mentor leader, volunteers at a local hospital in the OR, where she earned the Volunteer of the Year award, has won the President's Volunteer Service Award, and also serves as a Board Member for the National Society of Leadership and Success. She is also an outstanding researcher, earning second place for her talk at the Northern California Parasitologists' Annual Meeting this past year. Paula's research examines Toxoplasma gondii, a single-celled parasite that causes toxoplasmosis, a disease of both medical and veterinary importance as it infects humans and other warm-blooded animals. T. gondii is an obligate intracellular protozoan that can invade and replicate inside virtually all nucleated cells within a parasitophorous vacuole (PV). Her project focuses on the unknown rhoptry protein, ROP23. She hypothesizes that ROP23 localizes to the rhoptry organelles of T. gondii and is directly secreted into the host, where it modulates host processes. Her ultimate goal is to visualize the location of ROP23 in the parasite. Paula is an exemplary all-around student, and has successfully managed to balance academics, research, and service work such that she excels and makes meaningful contributions in all areas.

OUTSTANDING ACADEMIC RESILIENCE & RESOURCEFULNESS
ALEX MORENO · BIOLOGICAL SCIENCES

Alex Moreno is a senior majoring in biological sciences with a minor in chemistry at Cal State East Bay. Raised in a single parent household and being a first-generation college student, Alex has not had many role models to assist her with her journey through college. Alex has had to learn 'on the fly', through her own academic success and failures, what learning strategies, resources, and student programs work for her. Alex's resiliency and her willingness to try new experiences are two of her greatest strengths. Alex has participated in several student development and success programs on campus, including STEP (Sophomore Transition Enhancement Program), CSR-SP (the Center for Student Research Scholar's Program), and CSU-LSAMP program. Working alongside her research mentors, Dr. Almeida and Dr. Stone, Alex's research examines whether plants, brainless organisms, can learn by association. This past summer, she was also invited to participate in the MCHC/Rise-Up internship program offered through the Kennedy Krieger Institute, John Hopkins School of Medicine, and the CDC. The program focused on public health leadership training and research in the area of maternal and child health. Alex's internship research work culminated in a research presentation at CDC Headquarters. Moving forward, Alex sets her sights on medical school, but plans to pursue a master's degree, first. Given her commitment and resourcefulness in pursuing her dream, we believe that we will, one day, be calling her Dr. Moreno!

FRESNO STATE

Discovery. Diversity. Distinction.

OUTSTANDING RESEARCH IN STEM

EDWIN RIVAS · GEOLOGY

Edwin Rivas received his BS in geology from Fresno State in May of 2019. His undergraduate career consisted of a multitude of opportunities in lab, field and industry settings. Under the mentorship of Dr. Beth Weinman, Edwin connected with various opportunities including serving as an intern with the USDA-Natural Resource Conservation Service, where he conducted soil surveys in Tuolumne, Calaveras, and Solano Counties along with an experiment relating soil drainage properties and hillslope positions to soil color. Edwin was also employed by the Regional Water Quality Control Board in Fresno, where he was tasked with assisting in complaint and compliance inspections and other software-based work in an effort to preserve, enhance, and restore the waters of California. In his final year, Edwin conducted research at Fresno State with Dr. Beth Weinman and Dr. John Wakabayashi, where they tracked the mobility of Rare Earth Elements and assessed their viability as tracers for geologic provenance. Edwin had the opportunity to present his undergraduate research at several events, such as the GSA Cordilleran Section Meeting. Edwin also participated in numerous outreach events and mentorship programs including serving as a Peer Mentor for CSU-LSAMP at Fresno State. The summer following his graduation, Edwin conducted research studying the effectiveness of a solid phase amendment in soils to prevent the methylation of mercury prior to joining the University of California, Merced to pursue a PhD in environmental systems. Edwin plans to become a professor in an effort to encourage students to pursue a STEM field.

OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERSHIP

RAVINDER KANG · CHEMISTRY

Ravinder Kang completed her BS degree in chemistry with a minor in mathematics from Fresno State in May 2018. As a first-generation college student and daughter of immigrant parents, she received a scholarship to attend Fresno State through the Smittcamp Family Honors College. With the support of CSU-LSAMP at Fresno State, Ravinder was able to secure a position in a research lab with Dr. Kalyani Maitra and was supported by the CSU-LSAMP at Fresno State Summer and Academic Year Research Program. Her project had a two-pronged approach to using algae as a way to improve wastewater quality and explore its potential as biofuel. She has presented her research at the CSU Program for Education and Research in Biotechnology (CSUPERB) Symposium, the Central California Research Symposium (CCRS) and the International Conference on Algal Biomass, Biofuels, and Bioproducts. Ravinder also participated in an internship with Food Safety Net Services, where she learned to run chemical and microbiological tests on food samples. Ravinder also served as a CSU-LSAMP at Fresno State Peer Mentor for first-year and transfer chemistry majors. In addition to her research, Ravinder remained connected to her community service roots through leadership roles on the S.E.R.V.E Committee and Reflection Facilitator team through the Jan and Bud Richter Center for Community Engagement and Service-Learning at Fresno State. Ravinder is pursuing her PhD in agricultural and environmental chemistry at the University of California, Davis. She hopes to serve as a mentor for young women of underrepresented groups and encourage them to pursue higher education in STEM fields.

OUTSTANDING ACADEMIC & RESEARCH IN STEM

MARINA FLORES · BIOCHEMISTRY

Marina Flores earned her BS degree in biochemistry from Fresno State in May 2019 graduating with an impressive 4.0 GPA and dual honors from the Smittcamp Family Honors College and the Chemistry Honors Program. She was selected as the Chemistry department nominee for the Dean's Medalist award and served as a standard bearer for the College of Science and Mathematics at graduation. Early in her career, Marina began conducting independent research with Dr. Joy Goto on neurodegenerative diseases including Alzheimer's, Parkinson's, and dementia. Marina participated in the CSU-LSAMP at Fresno State Academic Year Research Program and during summer 2018 conducted research at Harvard through the Amgen Scholars program. Marina presented her research at numerous symposia, including the Central California Research Symposium (CCRS). She also served a CSU-LSAMP at Fresno State Peer Mentor for two years providing support for incoming biochemistry students and specifically other underrepresented minority women. Through her research experience as a member of the CSU-LSAMP at Fresno State Research Program and the Harvard-Amgen Scholars Program, Marina decided to pursue her PhD at Yale University in the Molecular, Cell, Genetics and Developmental Biology (MCGD) track. She hopes to ultimately manage her own laboratory conducting research on immediate medical problems that face our community at the National Institutes of Health or the Center for Disease Control and Prevention.

Campus Coordinator:
Lilia De La Cerda, M.P.H.
Coordinator/Director, CSU-LSAMP Fresno State
(559) 278-4748
liliad@csufresno.edu

OUTSTANDING RESEARCH IN STEM

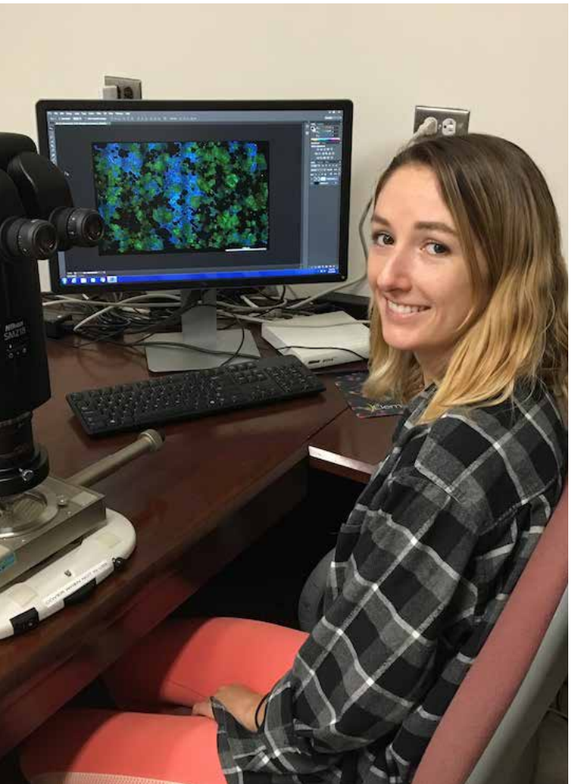
MELISSA SANCHEZ · CHEMISTRY

Melissa Sanchez completed her BS degree in chemistry from Fresno State in December 2018. Melissa began her research in organic chemistry with Dr. Hubert Muchalski. Her first research project focused on the stabilization of sulfenic acids. Her research progressed to the synthesis of benzothiophenes from alkynes. Melissa presented her work at the CSU-LSAMP Summer Research Program at Fresno State and then went on to present at the 38th Annual Central California Research (CCRS) and the American Chemical Society (ACS) National Meeting. In summer 2018, Melissa participated in undergraduate research at the University of Louisville with Dr. Gerald Hammond under the Jean Dreyfus Lectureship. Throughout her time in college, Melissa also served as a positive role model for transfer and first-year chemistry students as a CSU-LSAMP Peer Mentor and served in a leadership position in the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) Fresno State chapter. As a first-generation college student, Melissa is proud to be pursuing her PhD in organic chemistry at the University of California, Santa Barbara. Melissa not only has a passion for discovery but is also looking forward to continuing to serve as a role model and helping build a larger community of women of color in STEM.

CALIFORNIA STATE UNIVERSITY
FULLERTON™

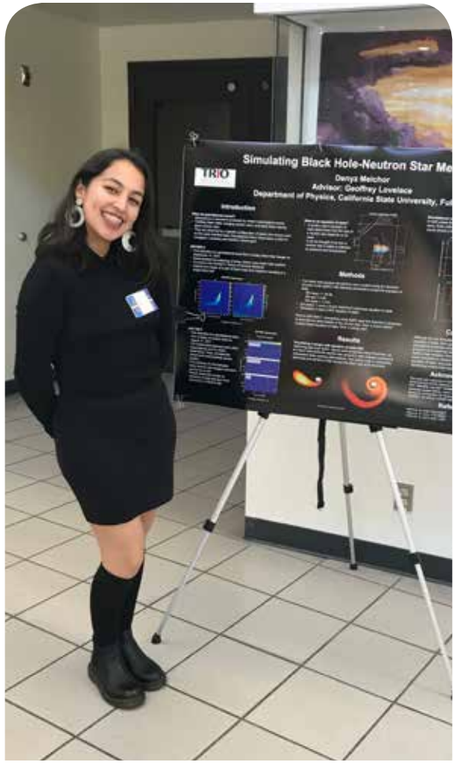
OUTSTANDING RESEARCH IN STEM
ALEJANDRA ANGULO · GEOLOGY

Alejandra Angulo graduated with a degree in geology major from CSU Fullerton. As a CSU-LSAMP Research Scholar for three semesters, Alejandra worked with Dr. Valbone Memeti's research group studying enclaves of the Jack Main Canyon intrusive complex (JMCIS) in the Yosemite National Park. Her research focused on the nature of magma recharge in the crust by examining the enclaves that preserve direct evidence of these recharge events. For her research project, Alejandra spent eight weeks in the JMCIS collecting field data and a total of 30 enclave samples on which she conducted petrographic and geochemical analyses. She presented her findings at the Geological Society of America's (GSA) annual meeting and at the GSA Cordilleran Section meeting. Alejandra found her passion for igneous petrology through working in Dr. Memeti's lab. She is continuing her work on igneous petrology though a master's degree at Texas Tech University. Her long-term goal is to become a university professor and to provide research opportunities to underrepresented students.



OUTSTANDING ACADEMIC
JAMIE HAYWARD · GEOLOGY

Jamie Hayward graduated Summa Cum Laude from CSU Fullerton in May 2019 with a BS degree in Geology with a GPA of 3.92. She was recognized for her achievement by her department, receiving the Outstanding Academic Achievement Award. She went above and beyond the academic requirements, completing a thesis project and an independent research project with Dr. Joe Carlin and Dr. Valbone Memeti. Her research focused on tracking chemical and mineralogical changes across cooled magma chambers to learn about how magma chambers evolve through time and space. During summer 2018, Jamie collected rock samples in Yosemite National Park in a two-week adventured filled backpacking trip. She analyzed those samples at the CSU Fullerton lab in the fall and presented her findings at the 2019 Geological Society of America's Cordilleran Section conference. In doing this project, Jamie contributed to the broader knowledge of how magma chambers form and evolve, which helps predict and inform the public on potential volcanic eruptions. She anticipates applying to graduate school for the 2021 academic year, with the higher career goal of working for the United State Geological Survey as a research scientist.



OUTSTANDING SCHOLAR
DENYZ MELCHOR · PHYSICS

Denyz Melchor is a senior majoring in physics at California State University, Fullerton. During her time at CSU Fullerton, she has maintained a 3.98 overall GPA, and a 4.0 GPA in her upper division physics courses. She has been participating in research at the Gravitational Wave Physics and Astronomy Center with Professor Geoffrey Lovelace for the past two years. Her work focuses on simulating computer generated binaries of black holes and neutron stars. The Laser Interferometer Gravitational Wave Observatory (LIGO) has yet to observe these types of binaries and these simulations that model the gravitational waves produced by the binaries and the behavior of the nuclear matter can help give LIGO insight into what characteristics they should hope to see. In summer 2018, she visited Germany and Australia participating in the University of Florida's International Research Experience for Undergraduates (REU) for Gravitational Wave Physics. She was awarded the prestigious Barry Goldwater Scholarship, the first of two students at CSU Fullerton to receive this award. In summer 2019, she participated in the Astronomy and Astrophysics REU at Cornell University. After presenting her research at several conferences, she was selected to be part of the Education and Public Outreach for the LIGO-VIRGO collaboration. Continuing in this path, she hopes to further assist LIGO in these observations. Denyz plans to attend graduate school after completing her physics degree in the spring of 2020.

OUTSTANDING RESEARCH IN STEM
ALEXANDRO LUNA · MATHEMATICS

Alex is a junior Mathematics major at California State University, Fullerton. He has been doing research with Dr. Ibragimov in Analysis and Metric Geometry since Spring 2017. The result of this joint work is currently being prepared for publication in "Invole, a Journal of Mathematics", which is a prestigious, peer-reviewed journal published by the University of California at Berkeley. A few of his accomplishments during the past two years: (1) Presented over 6 talks at various venues including a national conference; (2) International Summer Research Experience in Uzbekistan; (3) One of 6 students selected to participate in Graduate Readiness and Access in Mathematics (GRAM) program at CSUF; (4) National REU program at CSU San Bernardino. Upon graduation in May 2020, Alex plans to attend a Ph.D. program in Mathematics and hopes to become a university professor.

Campus Coordinator:
Zair Ibragimov, Ph.D.
Professor of Mathematics
657-278-2741
zibragimov@fullerton.edu

HUMBOLDT STATE UNIVERSITY

OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP
AMANDA AGOSTO RAMOS · CELLULAR & MOLECULAR BIOLOGY

Amanda Agosto Ramos graduated from the Cellular and Molecular Biology program at Humboldt State University with a 4.00 GPA. She is mainly interested in the study of plants that produce specialized metabolites and how synthetic biology can be applied to the study of plant sciences. She was born and raised in Puerto Rico by her dad and Dominican mother. She first attended University of Puerto Rico, Rio Piedras. After Hurricane Maria she made the decision of moving to California. Amanda's research is diverse and explores different aspects of plant biology. She dabbled in chemical engineering and cancer research but always kept in mind her goal of pursuing plant biology. Amanda devoted her summers to navigating different REUs which took her to North Carolina State University and Michigan State University, 2016 and 2017 respectively. Most recently she joined the Amgen Scholars Program at University of California, Berkeley working at The Joint BioEnergy Institute. In these internships she explored different aspects of plant biology and networked with other plant biologist, with whom she remains friends. Her undergraduate research was presented at ABRCMS, SACNAS, and the American Society for Plant Biologist Conference. Her time has also been devoted to her work as a Hispanic Serving Institution (HSI) STEM student representative and peer mentor for CSU-LSAMP at Humboldt State University.

OUTSTANDING RESEARCH IN STEM, & SERVICE/LEADERSHIP
NICHOLAS HERNÁNDEZ · PHYSICS

Nicholas Hernández came from two immigrant parents, both his mom and dad came from Mexico at a young age in search of a better life. Once here, they laid down a solid basis for their five children to go to school. Nick is not only First-Generation American but also the youngest of the five, the first to go to a four-year university and the first in his extended family to major in physics. Once at Humboldt State University, he started to work with Dr. C.D. Hoyle testing short range gravity in search of deviations from Newton's predictions. This research allotted him opportunities to present at regional and national conferences for the American Physical Society. He then pursed research with Dr. Ruth Saunders in physics education. In pursuit of creating a department that was equitable, he set out to quantify where the department currently stands and how it can improve. This research was presented at the American Association for Physics Teachers conference. Since his arrival to the Physics & Astronomy Department, he has been working to ensure it is a safe space for all students, and more diversity, equity, and inclusion conversations have begun between students and faculty. Nick is also working to encourage his two young nephews to pursue an interest in STEM. Nick recently won the departmental award for Academic Excellence. He will be pursuing a master's program in applied physics, photo-voltaics and semi-conductors, at the University of Oregon.

OUTSTANDING ACADEMIC, RESEARCH IN STEM & SERVICE/LEADERSHIP
MERISSA COELLO
ENVIRONMENTAL RESSOURCES ENGINEERING

Merissa Coello completed her undergraduate degree in environmental resources engineering, with a minor in geospatial analysis, at Humboldt State University. During her time at HSU she interned at the NASA Goddard Space Flight Center, tutored in engineering, held leadership roles in the campus chapter of the Society for Hispanic Professional Engineers (SHPE) and received multiple awards. Merissa and Dr. Liza Boyle used CSU-LSAMP funding to conduct research on photovoltaic efficiency losses due to soiling, when dust settles on systems rendering them less effective at capturing the suns energy. She wrote a simulation model in R to simulate these losses. Merissa has also grown at HSU to find her love for crafting with soft materials like yarn and fabric, as well as hard materials like metal to make jewelry. She also enjoys agate hunting at the local beaches. Merissa will be pursuing a Masters/PhD in geography at UC Santa Barbara. She will be studying fire weather, the local effects of fire on weather and weather on fire. Merissa's ultimate goal is to help the world and her community understand climate change and its impacts so we can all be better prepared. Merissa has immense support from her family to pursue her passions. She is the first to go to college in her nuclear family and the first to attend graduate school in her extended family.

OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP
FERNANDO FLORES · ENVIRONMENTAL RESOURCES ENGINEERING

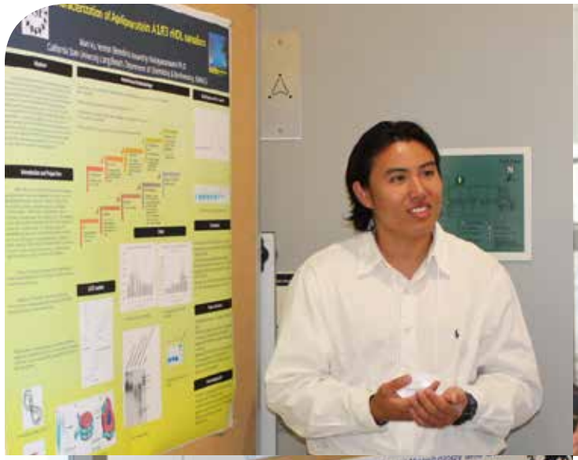
Fernando Flores is a senior majoring in environmental resources engineering at Humboldt State University (HSU). After transferring from Mt. San Antonio College, Fernando has been involved as a community leader, a Hispanic Serving Institution Ambassador ,and a researcher at Humboldt State University (HSU). As a CSU-LSAMP at HSU Summer Research Experience Scholar, he developed as an environmental resources engineering student, both academically and professionally. Through his research, Fernando characterized greenhouse gas (GHG) emissions of small-scale composting systems, demonstration GHG emissions are varied by factors such as moisture content, density, aeration and waste material (carbon to nitrogen ratio). This experience aided with research practice and insight of the science behind composting and also prepared him for a solid waste management design project in which he assessed the in-vessel composting system and recommended additional equipment and improvements of operation practices. He presented his work at the 2018 CNRS/INRSEP Undergraduate Scientific Research Symposium and the 2018 Society of Hispanic Professional Engineers (SHPE) National Convention. Fernando has secured a position as a project engineer with GSE Construction in Temecula, California. After gaining real world experience, he plans to apply to a graduate program. Fernando appreciates the support of his parents, sister and brother-in-law, advisors/mentors, SHPE familia, INRSEP, CSU-LSAMP Program, professors, and the rest of the HSU and Arcata community.

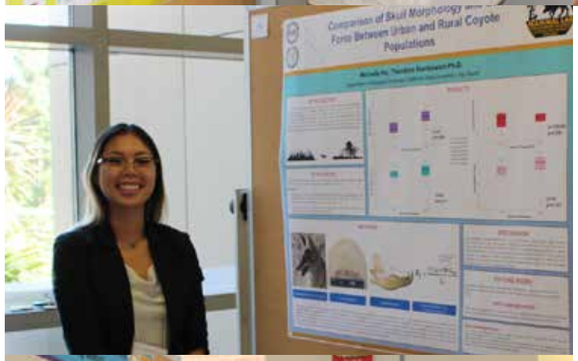
Campus Coordinator:
Nievita Bueno Watts, Ph.D.
Director, INRSEP & Diversity in STEM Program
(707) 826-5641
nievita.bueno.watts@humboldt.edu

CALIFORNIA STATE UNIVERSITY **LONG BEACH**

ACTIVITY SPOTLIGHT: CSU-LSAMP AND BRIDGES SUMMER RESEARCH SYMPOSIUM

Mani Vu, Junior, Biochemistry
Mary Usufzy, Senior, Physics
Michelle Ho, Senior, Biology
Christine Uy, Senior, Organismal Biology
Sierra Noguera, Senior, Biology
John Arcilles, Senior, Biology





The CSU-LSAMP and BRIDGES Summer Research Symposium at CSULB was held on August 2, 2019. It was designed to give CSU-LSAMP Summer Research Fellows an opportunity to present the research they conducted during the summer. For many LSAMP students, this was the their first scientific presentation. A total of 7 CSU-LSAMP Summer Research Fellows participated in the event. It was attended by 117 people.

Campus Coordinators:
Lora Stevens, Ph.D.
Associate Professor,
Geology
(562) 985-4817
lora.stevens@csulb.edu

Cynthia Alarcon
Student Support Coordinator, CNSM
(562) 985-4682
valerie.bagley@csulb.edu

CAL STATE LA

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

OUTSTANDING ACADEMIC, RESEARCH IN STEM, SERVICE/LEADERSHIP & ALUMNUS
SALVADOR ROJAS · MECHANICAL ENGINEERING

Salvador Rojas is a first-generation college student, who spent his childhood in the foster system. With very little support, Salvador first attended Cerritos College, with no future career goal in mind. He later transferred to Cal State LA to pursue a BS in mechanical engineering, where he maintained a 3.13 GPA, participated in research and worked part time. He worked 20 hours/week at Absolute Technologies Inc. as a manufacturing engineer intern. For research, he was involved with Formula SAE building a prototype formula 1 race car for various performance competitions. Salvador led his senior design team and received the Beryllium Award for Exceptional Design and Leadership in the Professional Practice Program. During his master's program, Salvador continued his academic excellence by maintaining a 3.61 GPA. Salvador's master's thesis centered on building a wheeled humanoid prototype. His research led to two publications and multiple awards. Salvador also promoted STEM education at various outreach events in an effort to improve equity and access to engineering. Using his own funds, Salvador provided project materials, covered conference related expenses, and gave software tutorials for other students. Furthermore, Salvador mentored and gave robotics lectures/lab tours and collaborated with Great Minds in STEM in monthly outreach events inspiring and motivating underserved K-12 students to pursue careers in STEM fields. After graduating from Cal State LA with both his BS and MS in mechanical engineering, Salvador entered a PhD program in mechanical engineering at Purdue University as a George Washington Carver Fellow to continue robotics research.

Campus Coordinator(s):

Katrina Yamazaki, Ph.D.
Assistant Professor, Biological Sciences
(323) 343-2086
kyamaza@calstatela.edu

Andre Ellis, Ph.D.
Professor, Geosciences
(323) 343-2411
aellis3@calstatela.edu

OUTSTANDING ACADEMICS, RESEARCH IN STEM, & SERVICE/LEADERSHIP
DAVID CAGAN · CHEMISTRY

David Cagan is a chemistry major at Cal State LA. David excelled academically as evident by his overall GPA of 3.908 and Cal State LA GPA of 4.000, which resulted in the placement on the Dean's list every semester. Aside from academic excellence, David performed research with Dr. Matthias Selke focusing on the excited state of molecular oxygen called "singlet oxygen." David's research has examined the production of singlet oxygen by pollutants produced through fossil fuel burning. It has also investigated a possible photoprotective effect in biochemistry that might prevent singlet oxygen from reacting with our proteins. Additionally, David has also looked at the effect singlet oxygen has on nanomaterials used in solar cells. This last project has been published in the Journal of the American Chemical Society. Despite his heavy academic and research load, David continued to serve the community on our campus as a tutor and student mentor through the Chemistry and Biochemistry Club. He conceptualized and implemented a department-wide tutoring program, where they employed one-on-one and group tutoring, at no cost to the students. David's excellence in academic, research and service led to admission into the Department of Chemistry and Chemical Engineering at California Institute of Technology to pursue his PhD in chemistry. Additionally, David won the prestigious NSF Graduate Research Fellowship to fund his PhD program

OUTSTANDING RESEARCH IN STEM
ERNESTO CASTELLANOS · BIOCHEMISTRY

Ernesto Castellanos entered Cal State LA in fall 2012. In fall 2016, Ernesto's first research experience was with Dr. Nathan Lanning. Ernesto joined the CSU-LSAMP program shortly after in summer 2017. Over the next three years, Ernesto investigated the effects of adenylate kinase 4 expression on the energy-regulating AMPK and proliferative mTOR pathways. After completion of his organic chemistry coursework, Ernesto's interests shifted to chemistry and he therefore joined Dr. Alison McCurdy's team of computational and synthetic organic chemists. Practicing both wet and dry chemistry, Ernesto focused on synthesizing and improving the calcium ion selectivity and binding affinity of a previously published photochromic naphthopyran-derivative calcium cage. Ernesto presented his work at various conferences, including the 2018 Experimental Biology annual meeting. In spring 2018, Ernesto was nominated into the Departmental Honors in Chemistry and Biochemistry Program, and his undergraduate research culminated in a departmental honors thesis entitled "Theoretical and experimental characterization of a photo-reversible naphthopyran derivative for oscillatory calcium signaling." Ernesto also received Dean's List recognition in the same semester, which showcased his academic excellence in his graduate and senior level chemistry courses. In June 2018, Ernesto was awarded an NIH Minority Access to Research Careers (MARC-U*STAR) fellowship. Ernesto is pursuing his PhD in chemistry at the Michigan State University, becoming the first graduate student in his family.

CAL MARITIME

OUTSTANDING SERVICE & LEADERSHIP
JENNIFER BOSWELL
MARINE ENGINEERING TECHNOLOGY

Jennifer Boswell completed her BS degree in marine engineering echnology as well as her US Coast Guard Third Engineer's License and minor in maritime law at CSU Maritime Academy. Growing up in many cities due to her father's military service, Jennifer has a passion for traveling and helping people. This led her to an institution and professional track that would fulfill her dream of seeing the rest of the world. As a first-generation college student, Jennifer credits the CSU-LSAMP program, which she joined in her freshmen year, on helping her focus on achieving her degree. Demonstrating high leadership skills and a passion for community engagement, she has been driven to contribute to campus and local communities through volunteering. Jennifer has served as a CSU-LSAMP Peer Mentor, guiding students and providing valuable encouragement to help them navigate rigorous coursework. Jennifer also has served as Resident Advisor for the Housing Office. Her most memorable achievements include designing and building an electric motor that would be used to generate power from a wind tunnel. Jennifer plans to sail with the Marine Engineers' Beneficial Association to gain the necessary skills and experience as a mariner and work towards becoming a Chief Engineer.

OUTSTANDING ACADEMIC, & SERVICE/LEADERSHIP
REAGAN LOGIER
FACILITIES ENGINEERING TECHNOLOGY

Reagan Logier completed his BS degree in facilities engineering technology at CSU Maritime Academy. Part of the academic engagements that Reagan is most proud of is his design and construction of an electronic burner management system. In his senior year, Reagan was an active member of the campus' Collegiate Wind Competition team, working heavily on the design and prototyping of the power electronics for the turbine output. Reagan has been a STEM tutor and a pilot for Cal Maritime's Supplemental Instruction Workshops in chemistry and physics. As a student leader on campus, Reagan has served as a Residence Hall Officer and Engine Company Commander. In these roles, Reagan has contributed to the success of many students in STEM programs, particularly for CSU-LSAMP classmates. In his three summer experiences, Reagan has worked in the engine room of the Training Ship Golden Bear, been an intern working in data center operations, and been an intern at a fiber optics facility. Recently, he successfully completed the Fundamentals of Engineering (FE) exam to become an Engineer in Training and is on track to become a licensed Professional Engineer.

OUTSTANDING ACADEMIC, RESEARCH IN STEM & SERVICE/LEADERHIP
DONOVAN SHACKELFORD · MECHANICAL ENGINEERING

Donovan Shackelford graduated with a BS in mechanical engineering and a US Coast Guard Third Assistant engineering license. Donovan's work ethic has allowed him to thrive in his endeavors. In his four years, Donovan was able to graduate with the highest distinction. In conjunction with his degree plan, he also completed multiple internships and gained valuable technical experience in these applied opportunities. In his senior year, Donovan also served as CSU Maritime Academy's lead tutor (specializing in math, science and engineering courses) and as Deck Engineer for a Maritime Service company where he contributed to the local maritime industry. Donovan helped anchor tutoring services to fellow CSU-LSAMP students. In Donovan's senior capstone project, he worked with fellow classmates to design and build a solar powered racing catamaran from scratch. His efforts helped the team compete in the Sacramento Municipal Utilities District Solar Regatta. Donovan will begin his professional life as part of the project management team at ExxonMobil and wishes to purse a dual master's in mechanical engineering and business administration

OUTSTANDING ACADEMIC, & SERVICE/LEADERHIP
SAMUEL RODRIGUEZ · MECHANICAL ENGINEERING

Samuel Rodriguez is a junior pursuing a BS in mechanical engineering with minors in business administration and mathematics. For several year, Sam has served his fellow student as a campus tutor, providing assistance with their introductory and advanced STEM courses. Sam's work in the tutoring center has significantly benefited CSU-LSAMP students navigating their foundational STEM coursework. Sam has anchored the Chemistry Targeted Learning Sessions (TLS) for the past few semesters. He is also the vice president of the American Society of Mechanical Engineers (ASME) chapter at Cal Maritime. This past summer, Sam worked as a facilities engineer assistant for Uber and Square Headquarters in San Francisco. Sam also interned as a design engineer for Southland Industries, a construction engineering company. Sam has also joined the Cal Maritime team that will defend their title at the 2019 Collegiate Wind Competition sponsored by the Department of Energy. Within the team, Sam is responsible for researching and implementing a novel motor startup design which will become an integral part of the turbine system. Sam's hard work and academic success has earned him a nomination for California State University Trustees' Award for Outstanding Achievement, one of the most prestigious awards for public education in California. Upon graduation, Sam is hoping to gain industry experience before returning to school and pursuing a graduate degree.

Campus Coordinator:
Frank Yip, Ph.D.
Assistant Professor of Chemistry
(707) 654-1723
fyip@csum.edu

California State University MONTEREY BAY
Extraordinary Opportunity

OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERSHIP
DOMINIC DISILVA · MOLECULAR BIOLOGY

Dominic DiSilva describes themself as "a queer, scientist, philosopher, and activist who aspires to be a physician and researcher combating public health inequities." The skillsets that Dominic has mastered and the accomplishments they have accumulated over the course of their undergraduate career truly reflect these diverse perspectives and values. Dominic is a molecular biology and Spanish double major, peace studies minor, and McNair & UROC Scholar. During their time at CSUMB, Dominic has conducted research with Associate Professor Aparna Sreenivasan, and presented this research at multiple conferences, including the Annual Biomedical Research Conference for Minority Students, the California State University Annual Biotechnology Symposium, and the TriBeta Western District-2 Convention. Dominic has also been an active leader in several influential student groups on the CSUMB campus and surrounding community. Dominic served as social media coordinator and historian for the Associated Medical Students of America (AMSA) student group, volunteers with the local chapter of the American Red Cross and the local branch of Planned Parenthood, served on the board of the Friends of the Marina Library (FOML), and was also historian and Inter Club Council (ICC) Representative for CSUMB's Pride club. Upon graduation, Dominic is leaving CSUMB with a strong legacy of activism and academic excellence and also leaves the campus a more inclusive and supportive environment than before. Dominic will no doubt continue to have deep impacts on all the communities they interact with as they joined San Diego State University's Masters of Public Health in Epidemiology program this fall.

Campus Coordinator(s):

John Banks, Ph.D.
Director, UROC
(831) 582-3576
jebanks@csumb.edu

OUTSTANDING RESEARCH IN STEM
ELIZABETH REYES GALLEGOS · BIOLOGY

One of Elizabeth Reyes Gallegos' first research experiences was as a participant in the CSU-LSAMP Costa Rica Summer Research Training Expedition in summer 2017. This experience had a deep impact on Liz and transformed her into a fantastic example of how CSU-LSAMP and undergraduate research can help STEM students achieve success. Sharing the experience she had on the Costa Rica Expedition with her peers led to several CSUMB undergraduates joining CSU-LSAMP and getting involved in undergraduate research! Liz credits her experience in Costa Rica with giving her a passion for field work and giving her skills she needed to be selected for a competitive research program at the University of Colorado, Boulder studying the behavioral ecology of barn swallows with Dr. Rebecca Safran and Dr. Angela Medina-García. She presented this research at the 2018 SACNAS Conference, where she was one of the elite few to receive an award for outstanding research presentation! Liz's passion for research led to further experiences, including one examining arthropod diversity in oak woodlands with CSUMB faculty Dr. Gerick Bergsma and an additional research project with Dr. John Banks. This latter opportunity has led to her first online dataset publication on the Global Biodiversity Information Facility (GBIF) network on the biodiversity of coleoptera and other arthropods in the Arabuko-Sokoke Forest in Kenya. Liz, now conferred with a BS degree in biology, continues to apply and develop her field research skills through a position with Big Sur Land Trust conducting dune habitat mapping and data collection.

OUTSTANDING RESEARCH IN STEM
BRYAN SIERRA-RIVERA· BIOLOGY

Bryan Sierra-Rivera graduated from CSUMB in spring 2019 with a bachelor's in biology and an ecology, evolution, and organismal biology concentration. Bryan's undergraduate career has been characterized by his pursuit of research opportunities, even ones outside of his interests! This willingness to explore beyond his comfort zone has led to a diverse set of skills and a variety of awards along the way. When Bryan first joined CSU-LSAMP and became part of the Undergraduate Research Opportunities Center Scholars program, Bryan was confident he wanted to pursue immunology. However, his innate curiosity and eagerness to get started right away with research led him to an opportunity conducting electrochemistry research with Dr. John Goeltz. Even though this research project was well outside of his major, he demonstrated a focus and willingness to learn that led to his recommendation for a research program at the University of Texas at Austin in summer 2017 investigating the role of antibiotics in modulating secondary metabolite production in Streptomyces. The following year, Bryan was selected for the University of Oregon's Summer Program for Undergraduate Research (SPUR) investigating microbial community structure with Dr. Krista McGuire. Along the way, Bryan was also selected as a Ronald E. McNair Scholar, awarded the prestigious CSU Trustees' Award for Outstanding Achievement, and made Dean's list multiple times. Bryan now pursues a graduate degree at Illinois State University in the Behavioral Ecology, Evolution, and Systematics (BEES) Program where he will work with Dr. Ben Sadd investigating the microbiome of bumblebee populations.

California State University
Northridge

OUTSTANDING SERVICE & LEADERSHIP
KERSTERN MALAMA
MANUFACTURING SYSTEMS ENGINEERING

Kerstern Malama graduated with her Bachelor of Science in manufacturing systems engineering (MSE) in May 2019. She graduated with honors and earned "Outstanding Undergraduate" by the MSE Department. Kerstern and her team placed first for their oral presentation at the 2019 Senior Design Project Showcase. She led the team that developed an automated tennis ball device to collect tennis balls. She conducted in-depth market research and led her team to design the final product. The project included an intricate business plan that employed key concepts in manufacturing systems engineering. Kerstern is a patient and wise project leader, teacher, and friend to other CSU-LSAMP students—overall, she is a mentor. It is not uncommon to see her in lab or somewhere on campus helping someone else learn or connect with resources.

ACTIVITY SPOTLIGHT:
SENIOR PROJECT SHOWCASE

On April 26, 2019, students participated in Senior Project Showcase. This is an opportunity for students with innovative senior projects to have their hard work reviewed and judged by a distinguished panel of industry experts. The four students highlighted here not only designed and realized innovative projects encompassing both engineering and entrepreneurship, they did it while mentoring and helping others do the same.

Examples of CSU-LSAMP Showcases

Automated Tennis Ball Collector: Kerstern Malama (left) & Jayshawna Jones (right)

Project Description: Tennis is a game enjoyed by many people. One of the biggest pains with tennis is collecting the balls after the player is finished. After thorough research, the team realized there were no commercial automated tennis ball collectors on the market. The five steps of the design process, manufacturing, programing, and 3D printing, were used to create an automated tennis ball device to collect tennis balls in par with customer critical-to-quality demands. A business model canvas has been created for the product outlining target customer segments, a value proposition for the customer, cost structure, revenue streams, and key partners to ensure it is able to launch on the market.

SMART Garden by Erwin Davis & Jose Olmedo (right)

Erwin and Jose worked on the Smart Garden. The mobile garden bed will make gardening easier for the end consumer because of its sensor technology, programmed lighting, and irrigation system. While realizing that there is an industry initiative in place towards a sustainable future, this project will contribute to a possible solution for optimizing production and hopefully pave a new road for gardening technology. The expected result is to be a one of a kind smaller scale innovation that agricultural companies can model.

ERWIN DAVIS

As an active member and organizer for the National Society of Black Engineers and a student assistant at the additive manufacturing lab located in the CSUN Oviatt Library, Erwin enjoys working with other students and sharing information about his innovative projects. Erwin was named the 3D Print Specialist in August 2017. The goal of his senior project was to research, design, and manufacture a self-sustaining mobile garden bed. After graduation, in July 2019, Erwin began work at The Naval Sea Systems Command, which engineers, builds, buys and maintains ships, submarines and combat systems that meet the Fleet's current and future operational requirements.

JAYSHAWNA JONES

Jayshawna filled her days at CSUN advising 5 fellow students on navigating through college and having a balance between school, work, and personal life. A year before her graduation, Jayshawna was selected from competitive pool of 70 to intern in the CSUN Innovation Incubator. There, she used lean start up methodology to conduct customer discovery for research and development for innovative technology. A year later, Jayshawna won the Senior Design Best Oral Presentation for her AeroDef Manufacturing Challenge and, in the same semester, earned her bachelor of engineering (B.Eng.) degree in manufacturing systems engineering.

JOSE OLMEDO

Jose Olmedo is patient and attentive mentor to other students majoring in engineering and computer science. Even in his early years as a sophomore, Jose had a lot of advice to offer new students. As he moved through his major courses he became increasingly engaged. As Vice President of Society of Manufacturing Engineers, President of Society of Hispanic Professional Engineers, and Member of the Leaders in Engineering and Computer Science, Jose was busy balancing his extracurricular involvement with school work. He graduated in summer 2019 a bachelor of engineering (B.Eng.) degree in manufacturing systems engineering.

Campus Coordinator:
Reza Sayed
Interim Director, CECS Student Services Center
(818) 677-2191
reza.sayed@csun.edu

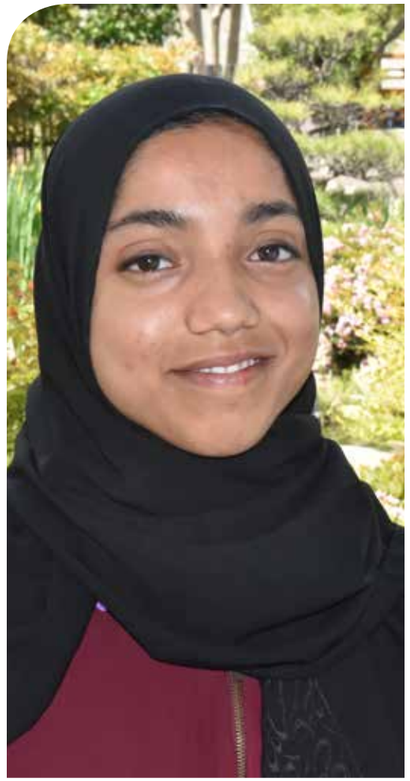
CAL POLY POMONA

OUTSTANDING RESEARCH IN STEM
DENISLAV NIKOLOV · MECHANICAL ENGINEERING

Denislav is a mechanical engineering major with minors in materials science and mathematics and a 3.99 GPA, making the Dean's List 7 times and the President's List 2 times. Denislav researched with Dr. Mehrdad Haghi, exploring the mechanics and materials science of vertebral fractures to better understand the effects of bone disease, primarily osteoporosis. The apparatus of the simulated fracture involved a 3D printed acrylonitrile butadiene styrene (ABS) model from computer aided design and manufacturing silicone-based intervertebral discs. Denislav traveled to University of Michigan in summer 2019 to work with Dr. David Kohn in the Henry Ford Detroit Hospital to research biomineralized tissue and its mechanical competence. During summer 2018, Denislav delved into exploring bioelectronic materials at UC Santa Cruz with Dr. Marco Rolandi. Denislav had prior internship experience with a NASA JPL robotics project, and an aerospace plastics engineering company. Denislav is also involved with various campus organizations, including the Engineering Student Council (ESC), Martial Arts Sports Club, Mud Run team, Tau Beta Pi Engineering Honors Society, and Sigma Phi Epsilon Fraternity. He served as Public Relations Officer of the ESC during 2017-2018 and Internal Vice President during 2018-2019. He has since become the first Cal Poly Pomona ESC member on the executive board for the National Association of Engineering Student Councils, serving as the Western Region Recruitment Coordinator during 2018-2019 and currently holds the position of Vice President of Recruitment. Denislav plans to attend graduate school for a PhD in mechanical engineering after graduating in spring 2020.

OUTSTANDING RESEARCH IN STEM
MAIKO LUNN · BIOLOGY

Maiko Lunn graduated from Cal Poly Pomona as a chemistry major with a 3.82 GPA in spring 2019. Starting at Moorpark community college in 2015, she became involved in chemistry outreach and career exposure as the President of Moorpark Chemistry club. In the summer of 2017, she participated in an internship at Interscan Corporation researching gas detectors for Hydrogen Peroxide and Peracetic Acid. After transferring to Cal Poly Pomona, Maiko participated in the Achieve Scholar's program in her junior year, and the CSU-LSAMP Research Scholar's program her senior year working on polymers with Dr. Alex John. After January 2018, she worked on two projects regarding synthesis of bio-based ABA-triblock copolymers and Molybdenum catalyst design for use in Deoxydehydration reactions. In the summer of 2018, she participated in an REU program at the University of Southern California with Dr. Surya Prakash on projects involving trifluoromethylation of carboxylic acids and regioselective acylation of 1,2,3 triazoles. In her senior year, she worked as a Learning Assistant for the Science Educational Enhancement Services, assisting in recitation sections and workshops for organic chemistry classes. Maiko was accepted to 6 PhD programs including, University of Minnesota, University of Michigan, University of Southern California, University of California, Irvine, University of Akron, and Boston College. She decided to attend the University of Michigan to pursue her PhD in chemistry and wants to work in industry after graduation.



OUTSTANDING RESEARCH IN STEM
KHADIJA SHAFIQ · BIOTECHNOLOGY

Khadija Shafiq is a biotechnology major with a minor in chemistry and a 3.99 GPA. As a CSU-LSAMP Scholar, Khadija investigated the HSV liposomal vaccines with Dr. Jill Adler-Moore determining the efficacy of vaccine formulations through analyses of their elicited immunological responses and evaluated the correlation between drug design and drug potency. Khadija's research was featured on the Research Spotlight of Office of Undergraduate Research website in 2019. Last fall, Khadija received the Doris A. Howell Foundation Scholarship for designing a project which investigated multiple tenants of HSV-1 vaccine development. She continued drug development research in University of Michigan in summer 2019. Khadija has presented her research at multiple venues, including the 7th annual Research, Scholarship, and Creative Activity Conference, the 44th annual West Coast Biological Sciences Undergraduate Research Conference, and the 14th annual College of Science Research Symposium. In 2018, Khadija was awarded a Peer Mentoring Scholarship from the Achieve Scholars Program to help increase student success in STEM research. Khadija is involved in multiple organizations. She co-founded a creative writing club in her sophomore year, is a member of the Kellogg Honors College and National Society of Leadership and Success, serves as a mentor in the Science Educational Enhancement Services Program, and is on the Executive Board of Science Council (SC). She served as Secretary of SC during 2018-2019 and currently is now President. Khadija worked as an Academic Excellence Workshop Facilitator for general chemistry, Learning Assistant for organic chemistry, and as a Facilitator for organic chemistry. Khadija intends to teach organic chemistry as a California State University professor.

OUTSTANDING RESEARCH IN STEM
ANDY KLAIB · ELECTRICAL ENGINEERING

Andy Klaib is an electrical engineering major who holds a 3.64 GPA. He worked with Dr. Scott Boskovich developing an assistive device using virtual reality to help visually impaired individuals. The device included a depth camera that allowed it to detect and map nearby objects and obstacles by informing the user about their surroundings using audio cues. Andy was also a member of the Unmanned Ground Vehicle project working on a model linear synchronous motor, similar to the type of motor used in the Maglev train and roller coasters. The motor used 72 watts of power to propel the car down the track and uses 10 electromagnets composed of 49 feet of 26 AWG enameled magnet wire. Andy was a member of the Institute of Electrical and Electronics Engineers Cal Poly Pomona student chapter, which focuses on the technical, professional, and individual development of all of CPP student engineers and non-engineers alike. The chapter shares IEEE's vision of being essential to the global technical community and to technical professionals everywhere and being universally recognized for the contributions of technology and of technical professionals in improving global conditions. After earning his bachelor's degree, Andy wishes to pursue a career in biomedical electrical engineering.

Campus Coordinator:
Steve Alas, Ph.D.
Professor, Biological Science
(909) 869-4546
alas@cpp.edu

SACRAMENTO STATE

OUTSTANDING SERVICE & LEADERSHIP
MORGAN MITCHELL · MATHEMATICS

Morgan Mitchell graduated from Sacramento State with a double degree in Mathematics and Women's Studies. Throughout her time at the university, she was able to further develop her passion for helping others in their academics through mentorship and research. By participating in programs like CSU-LSAMP, Science Educational Equity (SEE) Program, and Educational Opportunity Program (EOP), she was able to receive support in her academics that helped her persist through her degree. By having a network of support, she went on to mentor other students as an Instructional Student Assistant with EOP, specifically working with first generation and minority students in STEM fields. She enjoyed this position so much that she went on to work with 4th to 8th grade students for a nonprofit to help provide access to STEM activities to marginalized communities. This further developed her interest in researching how to make learning STEM more accessible, so she joined the McNair Scholars Program. She presented her multiple times, one of which she received a first-place prize. All of these experiences guided her to pursue graduate school. She is now attending a Doctorate program for Mathematics Education at the University of Houston. Morgan's ultimate goal is to receive a PhD in Mathematics Education and continue doing research to help students of color persist in mathematics and other STEM related fields

OUTSTANDING SERVICE & LEADERSHIP
BERNARDO CHAVEZ · BIOCHEMISTRY

Bernardo Chavez graduated with a BS degree in biochemistry from Sacramento State in spring 2019. He was born in Sacramento, California, but his parents decided to move back to Mexico shortly after pre-school. In Mexico, he completed kindergarten through third grade, then his parents decided to immigrate back to the US. Since his parents did not know much English, he decided to attend Sacramento State to help them financially. While at Sacramento State, he participated in the CSU-LSAMP summer bridge program and discovered his passion for research. He joined Dr. Mary McCarthy Hintz' research group as a CSU-LSAMP Research Scholar working on the isolation of cytotoxic compounds from the oshála (Ligusticum grayi) root. Bernardo presented his research at several events, including the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) National Conference. Present at the SACNAS conference gave him the opportunity to network with professors and other researchers around the country. In addition to research, he worked as a CSU-LSAMP Research Ambassador in the Center for Science and Math Success at Sacramento State. This position provided him the opportunity to reach out to underrepresented students and explain the importance of research for STEM careers, by presenting professionalization workshops and through one-on-one meetings. Bernardo is currently participating in the Postbaccalaureate Research Education Program (PREP) at the University of South Carolina. He plans to obtain a PhD in pharmaceutical sciences.

Campus Coordinator(s):

Enid Gonzalez-Orta, Ph.D.
Professor, Biological Sciences
(916) 278-6519
gonzalezorta@csus.edu

Mary McCarthy-Hintz, Ph.D.
Professor, Chemistry
(916) 278-6438
mccarthy@csus.edu

CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO

OUTSTANDING ACADEMIC & RESEARCH IN STEM
GABRIEL LOPEZ · MATHEMATICS

Gabriel Lopez graduated Magna Cum Laude in June 2019 and he is the first in his family to go to college. While initially uncertain of his choice of majoring in mathematics, and even more so of where that choice would take him, he quickly fell in love with the subject. So much so, that he wanted to engage with mathematics as much as possible. To do this, Gabriel joined CSU-LSAMP in the summer following his freshman year. Little did he realize how much this involvement would benefit his academic career. Following his participation in the CSU-LSAMP Math Summer program, he participated in two Mathematics REU programs, in 2017 he joined the REU at the University of Oregon, and in 2018 he participated in the REU at CSU San Bernardino. Gabriel presented his research at five national conferences, where he has distinguished himself not only for the quality of his research, but also for the clarity and quality of his presentations. He earned three awards at these conferences: first prize poster presentation in mathematics and statistics at the 2018 ERN, outstanding undergraduate student presentation at the 2018 Mathfest conference, and a second place in the physical and mathematical sciences session of the 2019 CSU Student Research Competition. Gabriel is now pursuing his mathematics PhD studies at the University of Colorado Boulder.

Campus Coordinator:

Belisario Ventura, Ph.D.
Professor, Mathematics
(909) 537-5406
bventura@csusb.edu

OUTSTANDING ACADEMIC & RESEARCH IN STEM
JOSE URIBE · CHEMISTRY

Jose Luis Uribe recently graduated from CSU San Bernardino with a BS degree in chemistry. Coming from a predominantly migrant and agricultural community, Jose faced both economic and social struggles when trying to pursue a higher education, especially in the area of STEM. These struggles, very often associated with being a first-generation college student, caused him to perform poorly during his first year in university. Fortunately, Jose found a passion when he took his first course in chemistry and became more involved with CSU-LSAMP and the CREST programs, which caused him to improve dramatically thereafter. He went from failing his first chemistry exam, to earning a perfect score in the second. Aside from excelling in his major courses and obtaining University Honors Cum Laude, Jose has been involved in theoretical chemistry research for the past year and a half. He participated in two REU programs at the University at Buffalo. His work in modeling the physical behavior of the organic ferroelectric, croconic acid, for the purpose of creating a more sustainable ferroelectric material has been presented at several conferences. Due to his perseverance, he has also received Chemistry Department Honors and accepted as a member in the ACS Division for Analytical Chemistry. Jose is now pursuing his chemistry PhD studies at the University of California Riverside.

OUTSTANDING ALUMNUS
ELIOVARDO GONZALEZ-CORREA · PHYSICS

Eliovardo Gonzalez-Correa served in the military, and after being medically retired from military service in 2013 for wounds sustained in combat, he enrolled in the physics department at California State University, San Bernardino. He was strongly motivated by his interest in finding solutions to the negative effects brought about by the use of technology. After joining the CSU-LSAMP at San Bernardino, Elio immediately applied to research programs. He was admitted into the CREST research program for spring 2015 and the PRISM program during summer 2015. Since his sophomore year, Elio worked with Dr. Tim Usher in the Physics department, on materials science. The results of this research were presented at the Southern California Conference for Undergraduate Research (SCCUR) in 2015, and at the 2016 Emerging Researchers National (ERN) Conference. Elio also participated in the UC Davis REU in summer 2016 working on the solar to electric conversion efficiencies of perovskite nanostructures. The results of this research were published in Nano Letters in late 2016. In fall 2018, Elio started his PhD studies in the Materials program at the UC Santa Barbara. He obtained a Bridge to the Doctorate fellowship starting fall 2018, and this year he obtained an NSF Graduate Fellowship.

San Diego State University

OUTSTANDING ACADEMIC

ANITA SANCHEZ · ENVIRONMENTAL ENGINEERING

Anita Alexandra Sanchez was an environmental engineering major at SDSU. Since her freshman year, Anita had been actively involved in Center for the Advancement of Students in Academia (CASA) programs, such as the Mathematics Engineering Science Achievement (MESA) program. As a MESA member, she benefited from the program's first year course, academic excellence workshops, shadow day and scholarships. After learning about opportunities and programs, Anita interned at the U.S. Fish & Wildlife and became an officer in the Society for Hispanic Professional Engineers. Looking to broaden her participation in STEM and obtain more knowledge about a graduate degree, she became involved in CSU-LSAMP program. As an active, she learned about how to further pursue her degree in STEM research. In her junior year, she was accepted into the NIH funded MARC program and conducted research in Dr. Natalie Mladenov's Water Innovation and Reuse Laboratory (WIRL). She also participated in an external Reinventing the Nation's Urban Water Infrastructure (ReNUWIt) Research Experience for Undergraduates (REU) summer research program at UC Berkeley in Dr. Lisa Alvarez Cohen's laboratory. Anita presented her research at various conferences and submitted her first publication. Her accomplishments of maintaining a high GPA had been recognized through her acceptance into the Tau Beta Pi and Chi Epsilon Engineering Honor's Societies. After graduating with her Bachelor of Science Degree in Environmental Engineering this past May, Anita began her PhD program in Civil and Environmental Engineering at Cornell University in the fall of 2019.

OUTSTANDING RESEARCH IN STEM

JENNIFER MARTIN-VELAZQUEZ · AEROSPACE ENGINEERING

Jennifer Martin-Velazquez, a first-generation college student, graduated from San Diego State University with a Bachelor's of Science in Aerospace Engineering and a minor in Astronomy. During her school career, she actively participated in extracurricular activities, including research in STEM. She began her journey by becoming involved in the SDSU Rocket Project Organization. In this organization she held various leadership positions for over three years. Throughout this time, she began as a research assistant for Dr. Gustaaf Jacobs in the sub-sonic wind tunnel on campus. After two summers of assisting, she was invited to participate in the Faculty Student Mentor Program (FSMP). She began conducting her own research on, Increasing the lifetime of Piezoelectric Diaphragms within Synthetic Jet Actuators, used for active flow-control. The summer of 2018 she was awarded the Summer Undergraduate Research Fellowship at San Diego State University, where she continued her research. Jennifer presented her research at various conferences including the Hispanic Engineer National Achievement Awards Corporation (HENAAC) Great Minds in STEM, UCLA CSU Symposium and the SDSU Student Research Symposium, where she was awarded the Women in Engineering Research Excellence Award. Jennifer's impact on research in engineering has gone beyond her own research interests, she has also trained and mentored other undergraduates in the lab and provided various lab tours/lab shadows to high school, community college and university students, hoping to motivate them about a career in engineering research.

OUTSTANDING RESEARCH IN STEM

THELMALYN MONTENEGRO · BIOLOGY

Thelmalyn Montenegro graduated from San Diego State University with a Bachelor's degree in biology. Her resilience and persistence allowed her to work toward her research goals. She worked in Dr. Stanley Maloy's research laboratory under the mentorship of Dr. Veronica Casas. The main interest of the lab is to research phage-encoded exotoxin genes and the ways in which they influence the evolution of novel human pathogens. She worked on a project involving the diphtheria toxin (DTX) gene. She presented her research at the Student Research Symposium (SRS) and the SRS Showcase at University President Adela de la Torre's inauguration. Her membership in CSU-LSAMP allowed her to receive a formal research experience. She had the unique opportunity to be both a protégé and a mentor in the Maloy lab. In addition to undergraduate research, she also had leadership experience in multiple organizations. In particular, she was a strong leader in the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS). She ran general meetings, arranged for her lab mentor to hold a professional development workshop, and collaborated with other committee leads in the university community. Additionally, she performed community service in other student associations, such as the Compact Scholars Program, as well as in her church community. Ultimately, CSU-LSAMP has provided her with the skills and preparation necessary for graduate school is currently a masters student at CSU Fresno.

CAMPUS COORDINATORS

Estralita Martin, Ph.D.
Assistant Dean for Student Affairs
College of Sciences
Director of CASA
(619) 594-4009
esmartin@sdsu.edu

Thelma Chavez
Coordinator, LSAMP-MARC-MESA
College of the Sciences
(619) 594-7195
thelma.chavez@sdsu.edu

OUTSTANDINGSERVICE/LEADERSHIP

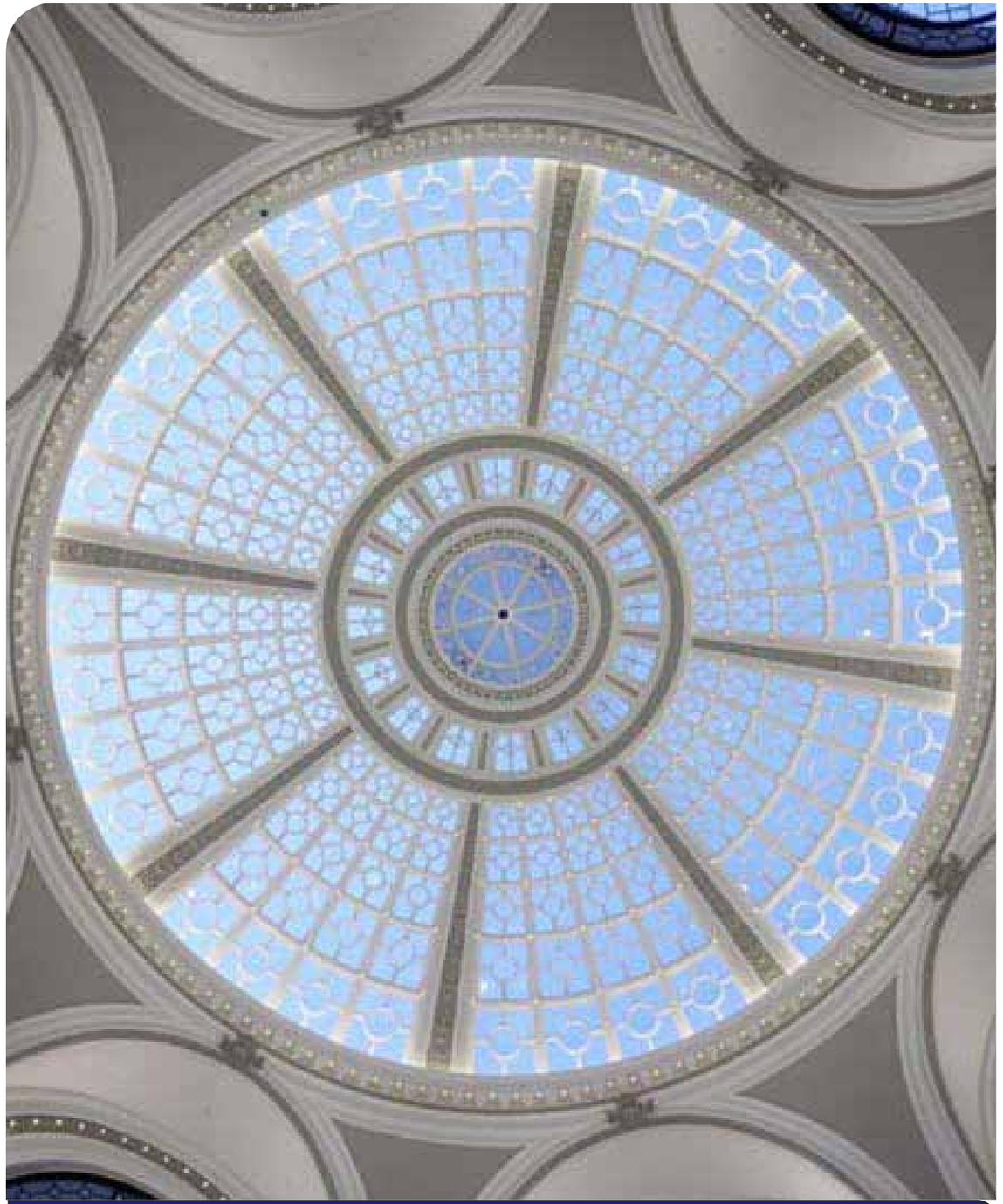
CONYERS NELSON · COMPUTER SCIENCE

Even before transferring to SDSU in fall of 2015, Conyers was a student leader at his community college. Returning to college at 43 years of age, Conyers was determined to make the most of it and not only be successful but contribute to the success of others. During his time at SDSU, Conyers actively participated in the National Society of Black Engineers (NSBE) and during his last year in college was the co-president. In 2015, Conyers was selected by the San Diego NSBE Professional Chapter to receive a scholarship for being an exceptional student and for outstanding service in the community. For two summers Conyers volunteered for the NSBE Summer Engineering Experience for Kids (SEEK) where he travelled to different locations to teach elementary students in under-represented communities about STEM. Conyers was elected to be the treasurer for the planning committee to orchestrate the 2019 NSBE professional Development Conference in San Diego in August 2019. It is rare that a student is allowed to be on the planning committee. Conyers graduated with a degree in computer science with a minor in information systems. Conyers interned for Northrop Grumman for 2 summers and began working full time in August 2019.

San Francisco State University

OUTSTANDING PERSEVERANANCE
MESOMA ESONWUNE · COMPUTER SCIENCE

Mesoma Esonwune is a rarity among computer science majors at San Francisco State University. Being one of the few women of color in the major, Mesoma has remained encouraged through the challenge. After joining Girls Who Code in high school and being with 20 girls in the Square HQ in San Francisco, she saw a culture that she wanted to be part of. She also noticed the lack of women in programming roles and wanted to change it. Although she has faced several challenges along the way, Mesoma has an encouraging mom and a strong support system, which come in handy during hard periods. She now stays motivated to continue on in her program and ultimately earn her BS in Computer Science in spring 2020. Mesoma also wishes to motivate others around her, like her younger cousins who are interested in STEM. After graduation, Mesoma wants to identify and work with a company that has interests in helping high school and college students who have similar backgrounds as her. She also wishes to earn her graduate degree as well.



Campus Coordinator:

Teaster Baird, Ph.D.
Professor, Biochemistry
(415) 405-0935
tbaird@sfsu.edu

SJSU SAN JOSÉ STATE UNIVERSITY

COMPELLING PERSONAL STORY
ANDREA COTO
CIVIL ENGINEERING

Andrea Coto graduated from SJSU in May of 2019 with a BS degree in Civil Engineering with a 3.5 GPA. Andrea is currently pursuing her PhD degree at Stanford University after having secured a very prestigious NSF Graduate Research Fellowship. Her research area of interest is sustainable design and construction as it relates to extreme environments, specifically outer space.

Although born in California, Andrea spent her childhood in El Salvador. With no job opportunities for her, she decided to look for her own "American Dream" by moving to San Francisco, CA. Things were very challenging at the beginning because she was trying to learn conversational English while working at the Dollar Store in the Mission District. She started taking ESL courses at City College of San Francisco while working. She came close to walking away from school because of a poor grade in Calculus while working three jobs, but a professor at the community college provided her with mentoring and academic support. She was able to succeed which allowed her to transfer SJSU in Fall 2016. At SJSU, Andrea took advantage of every opportunity she could access including the McNair Scholars Program, internships with NASA and the Port of San Francisco, the Engineering Leadership Pathways Scholars Program and the Stanford Summer Undergraduate Research Program.

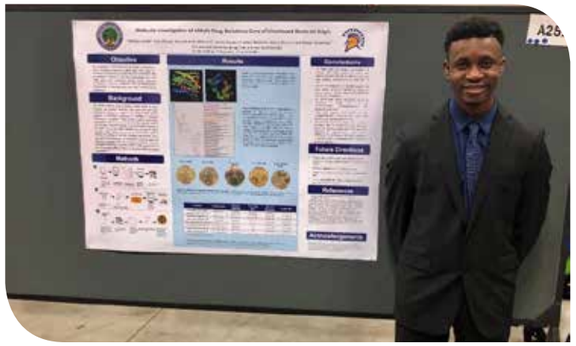
Outreach is very important to her. She hopes that other underrepresented students hear her story, see that they too can reach their goals and hopefully help in fighting the misconceptions many have about Latino immigrants.

OUTSTANDING RESEARCH IN STEM
WILLIAM UMEH
BIOLOGICAL SCIENCES

William Umeh graduated from San Jose State University with a BS in Biological Sciences, concentration Microbiology, in May 2019. Will hopes to continue to an advanced degree in Microbiology and has applied to several graduate programs and NIH PREP programs that serve to prepare students for advanced degrees. While at SJSU Will received LSAMP funding to support his time doing research in Dr. Cleber Ouverney's microbiology lab. Will hopes to continue to a career as a clinical research scientist.

The main goal of Will's research project at SJSU was to characterize the phenotype of a multi-drug resistance (MDR) protein which was isolated from a natural microbial community under an expression system. Specifically the project aimed to understand how this MDR gene and associated protein affect antibiotic resistance. MDR clones were established in BL21-DE3 (Novagen) E. Coli cell lines. The MDR-containing cells were subjected to various antibiotic challenges to investigate resistance levels compared to wild type cells. Results so far indicate that the MDR enhances resistance of tetracycline 4 fold, whereas ampicillin resistance is only observed in the presence of the MDR gene. The group has identified the potential structure of the MDR protein, the pore geometry and have performed structural comparisons of this MDR to the closest structural relative.

Will was able to present his research at the Annual Biomedical Conference for Minority Students in Indianapolis in November of 2018.



OUTSTANDING RESEARCH IN STEM
DAVID NAVARRO
CHEMISTRY

David Navarro graduated from San Jose State University with a BS degree in Chemistry in May 2019. He is currently pursuing a PhD in Inorganic Chemistry at University of California, Irvine and his considering career paths in academia or the chemical industry.

At SJSU, David was an undergraduate researcher for 2 years in the lab of Dr. Radlauer. His research experience at SJSU focused on the synthesis of di- and tricopper and diiron complexes that physically mimic the active site of methane monooxygenase (MMO) enzymes. Particulate and soluble MMOs are bacterial enzymes that can effectively catalyze the direct oxidation of methane to methanol. Mimicking MMO activity could therefore significantly enhance the overall efficiency of fuel production by converting greenhouse gases into useful fuels. David's project aimed to address the challenge of reproducing enzyme-like activity by embedding a smaller inorganic molecule within a larger synthetic scaffold that was designed to simulate the secondary coordination sphere of MMO..

David has presented on his research in the Radlauer lab multiple times at local and national conferences including at the SJSU College of Science Student Research Day (in both 2018 and 2019), at a recruitment symposium at UCLA (in August 2018), at the Annual Biomedical Research Conference for Minority Students (ABRCMS) in Indianapolis (November 2018), and at the National Meeting of the American Chemical Society in Orlando (March 2019). At ABRCMS, David was awarded a Certificate of Achievement for his poster presentation.

Campus Coordinator:
Karen Singmaster, Ph.D.
Professor of Chemistry
(408) 924-4980
karen.singmaster@sjsu.edu

OUTSTANDING ACADEMIC & RESEARCH IN STEM, & SERVICE/ LEADERSHIP
MELLANIE GOMES
CHEMICAL ENGINEERING

Mellanie Gomes is a chemical engineering major at San Jose State University who excels in her course work, maintaining a 3.56 GPA. She expects to graduate in May of 2020 and she plans to pursue a PhD degree. She is research active in Dr. Miller Conrad's chemical biology lab which is focused on addressing the antibiotic resistance of bacteria. Many Gram-negative bacteria use a LuxIR-type quorum sensing (QS) circuit to regulate gene virulence. By disrupting quorum sensing, the group aims to block the production of virulence factors in pathogens allowing the immune system to more easily clear the bacterial infection.

In these LuxIR-type systems, the LuxI-type synthase yields an acyl homoserine lactone (AHL) signaling molecule from two substrates, S-adenosyl-L-methionine (SAM) and an acylated acyl carrier protein (acyl-ACP). Once the concentration of AHLs increases at high cell density, the signal readily binds to LuxR, a transcriptional regulator responsible for the synchronous expression of QS genes. Targeting the QS system in Chromobacterium violaceum, they hypothesize that upon treatment with a competitive inhibitor of the LuxI-type synthase, CviI, no AHLs will be produced, preventing activation of quorum sensing and virulence. The production of violacein, a QS-controlled pigmented virulence factor, was quantified to assess efficacy of the potential inhibitors. Preliminary results show modest violacein inhibition, but more optimization is needed.

Mellanie also organized a nine day Global Medical Bridgades visit to rural areas of Honduras for 20 members. The group provided basic medical support to the communities.

Cal Poly

SAN LUIS OBISPO

OUTSTANDING COMMITMENT TO CREATING A MORE SUSTAINABLE AND EQUITABLE WORLD THROUGH TECHNOLOGY DEVELOPMENT

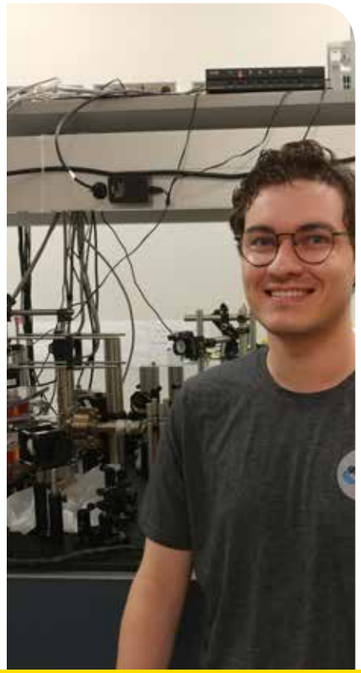
NATHAN LUBEGA · MECHANICAL ENGINEERING

Nathan Lubega graduated with a BS in mechanical engineering in June 2019. He is a combat veteran of the United States Marine Corps (USMC), where he served 2 tours to Afghanistan in Operation Enduring Freedom (OEF). After his enlistment, he attended community college at Santa Barbara City College (SBCC) where he was a member of the Mathematics, Engineering, and Science Achievement (MESA) program and accepted an invitation to the Phi Theta Kappa honor society. At SBCC, he also participated in the Problem-based Initiatives for Powerful Engagement and Learning in Naval Engineering and Science (PIPELINES) internship program, a collaboration between University of California, Santa Barbara (UCSB) and Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) to design solutions to real-world Naval engineering and science problems. After transferring to Cal Poly in Fall 2016, Nathan became an officer in the Engineers Without Borders (EWB) chapter at Cal Poly, with the goal of building a better world through engineering projects that empower communities to meet their basic human needs. Additionally, he conducted research with Lawrence Livermore National Laboratory (LLNL) into additive manufacturing, carbon-capture, and sustainable energy systems as a Lawrence Scholar. Post-graduation, Nathan is pursuing an M.S. in Mechanical Engineering at the University of California, San Diego as a Graduate Engineering Minority (GEM) Fellow. He has also continued his research with LLNL. Nathan's goal is to use his knowledge and experience to further technology and shape energy policy to create a sustainable energy alternative for underserved communities around the world.

OUTSTANDING COMMITMENT TO ACCESS, INCLUSION, & EQUITY IN UNDERGRADUATE RESEARCH

ANNALISA PARKER · INDUSTRIAL TECHNOLOGY & PACKAGING

Annalisa Parker began her academic career as Division 1 Athlete for Cal Poly. After studying microbiology and swimming for two years, Annalisa discovered her passion for medical packaging and supply chain along with her goal to pursue a career within the biotechnology industry. By her third year, Annalisa became heavily involved on campus leading multiple clubs and had successfully switched into the Industrial Technology and Packaging program, with a minor in biological sciences. Annalisa was the president of the Biotechnology Club which entailed executing the yearly Biotechnology and Biomedical Career Fair and connecting professionals in the industry with students. She also started a new club called the Undergraduate Research Association which aimed to connect students with faculty on campus who were conducting research. Annalisa worked alongside CSU-LSAMP at Cal Poly and with the Dean of Research for three years in order to better the process of getting students involved with Undergraduate Research Experiences. At the same time, Annalisa also served as Membership Vice President of Alpha Phi Omega, a co-ed community service fraternity and was an active member of the Filipino Cultural Exchange and Poly Pack – all while working at a local medical office as an Office Administrator. In summer of 2018, Annalisa worked at St. Jude Children's Research Hospital in Memphis, TN. In summer 2019, Annalisa interned at Stanford Healthcare. After graduating in December 2019, Annalisa will pursue a full-time career within Medical Packaging or Supply Chain Logistics and obtain a Masters degree in public health.



OUTSTANDING ACADEMIC & RESEARCH IN STEM

JUSTIN JEE · PHYSICS & ELECTRICAL ENGINEERING

Justin Jee graduated with BS degrees in physics and electrical engineering in June 2019. He started research through the Frost Summer Research Program working in Dr. Katharina Gillen's neutral atom quantum computing lab. He presented this research at the 2018 Southwest Quantum Information and Technology Workshop and the 2019 APS Division of Atomic, Molecular and Optical Physics conference. At the same time, Justin was also conducting his own research into designing an open source scanning tunneling microscope. The project's objective was to reduce the cost of acquiring an entry level STM from over $20,000 to under $300, increasing the technology's accessibility to undergraduate institutions. In 2017, he received a Baker-Koob grant to fund this research which later became his senior project. In summer 2018, Justin was selected for the CAMPARE Program and completed a research project at Stanford University, where he characterized cryogenic electronics for a liquid argon time projection chamber in the Deep Underground Neutrino Experiment. During the same summer, Justin tutored students for the math portion of the general GRE and gave a lecture about spin-phonon coupling in antiferromagnetic NiO to the Stanford Physics Journal Club. In Fall 2018, Justin was selected to attend the annual Optics and Photonics Winter School Workshop at the University of Arizona, where he participated in lectures about current research in the field and toured state of the art optics labs. He plans to pursue a PhD studying the optical properties of novel materials while continuing to promote accessibility in STEM.

Campus Coordinator:

Jane Lehr, Ph.D.
Associate Professor, Ethnic Studies
(805) 756-2859
jlehr@calpoly.edu

OUTSTANDING ACADEMIC & RESEARCH IN STEM

ANTHONY TRUJILLO · ENVIRONMENTAL ENGINEERING

Anthony Trujillo is a first-generation transfer student who graduated with a blended BS in environmental engineering with a minor in construction management and an MS in civil & environmental engineering. Prior to transferring to Cal Poly in 2016, Anthony graduated from the College of the Canyons with 4 Associates of Science degrees (biology, engineering, mathematics, and physics) and one Associates of Arts degree in psychology. In summer 2016, Anthony participated in the NSF REU: the Community College Cultivation Cohort at the University of Southern California, where he characterized a novel chemolithoautotrophic, iron-oxidizing, bacterial species found in deep sea floor vents and presented his research at SACNAS. Anthony participated in three research projects prior his MS - in geotechnical engineering with Dr. Jim Hanson, mechanical engineering with Dr. Eltahry Elghandour, and water engineering with Dr. Rebekah Oulton. For his MS project, Anthony worked with Dr. Yarrow Nelson investigating the biodegradation of Fruit Labels and their fate in recycling, landfill, municipal composting (aerobic & anaerobic), home composting, incineration, and marine environments, and led a team of 5 undergraduates. He also worked in the Civil/Environmental Engineering Laboratories, supervising 4 undergraduates and worked with faculty and staff overseeing the day-to-day operations. Anthony promoted sustainability and equity as an officer of Empower Poly Coalition and chaired the Responsible Voters Guide project, which highlighted ASI candidates most likely to advance social and environmental justice. Anthony believes that through the study and integration of many fields of science and humanities, true understanding and innovation may transpire.

California State University
SAN MARCOS

OUTSTANDING SERVICE & LEADERSHIP
BRAYDEN CORTES · BIOLOGICAL SCIENCES

Brayden Cortes graduated from both high school and junior college at 16 and transferred to California State University San Marcos (CSUSM) in 2016. At Palomar Community College, he was a Bridges to the Baccalaureate Scholar, and at CSUSM he was selected for the CSU-LSAMP Program and for a RISE fellowship. In Dr. Keith Trujillo's Behavioral Neuroscience and Psychopharamacology lab, Brayden excelled in the investigation of neurobiological mechanisms that underlie addiction focusing on determining the effects of stimulants (such as methamphetamine) and dissociatives (such as ketamine) in laboratory rats. To further his experience in research, in 2017 he participated in the Stanford Summer Research Program (SSRP), where he performed research on epilepsy and learning in the Neurosurgery laboratory of Dr. Ivan Soltesz. The following summer he was an AMGEN Scholar at Washington University in St. Louis in the Anesthesiology laboratory of Dr. Jose Moron-Concepcion, where he investigated the intersection of chronic pain and emotion. On top of his broad experience in research, Brayden is committed to community outreach. As President of the CSUSM Society for the Advancement of Chicanxs and Native Americans in the Sciences (SACNAS) and as Lead STEM Ambassador with the Center for Research and Engagement in STEM Education (CRESE), Brayden has devoted his extracurricular time to diversifying the sciences and bettering the futures of local underserved communities. He graduated from CSUSM with a BS in biology in spring 2019 and entered the Neuroscience PhD program at Washington University in St. Louis in the Fall.

OUTSTANDING ACADEMIC
SOPHIA HERNANDEZ · BIOCHEMISTRY

Sophia Hernandez, a biochemistry major, transferred to California State University San Marcos (CSUSM) from MiraCosta Community College in fall 2018. While at community college, Sophia was a stellar student and a Bridges to Baccalaureate Scholar. Upon transfer to CSUSM, she joined the CSU-LSAMP Program and was selected for a MARC fellowship. In her first semester at CSUSM, she received a 4.0 GPA, continuing an extraordinary record of academic success. She works with Dr. Jane Kim studying microsatellite instability in a yeast model. Sophia created a knockout yeast strain in order to investigate the role of a specific gene on expansion of DNA repeats responsible for the neurodegenerative disease Myotonic Dystrophy Type 2. Sophia traveled to Tufts University for a summer research opportunity where she studied repeat instability in quiescent yeast cells. She also received a scholarship funding a trip to Peru to shadow in a community clinic. Sophia is active in organizations on campus, including the Society for Advancement of Chicanos/Hispanics & Native Americans in Science (SACNAS) and American Chemical Society (ACS). She has volunteered with the Migrant Education Program since her middle school years and hopes to serve as a role model and mentor for these students. Sophia is a first-generation college student and aspires to ultimately receive an MD/PhD and help promote the advancement of minority women in STEM.

OVERCOMING OBSTACLES TO SUCCESS
MAGALY GUZMAN SOSA · BIOTECHNOLOGY

Magaly Guzman Sosa, a Mixtecan immigrant from a rural community, transferred to California State University San Marcos (CSUSM) from Palomar and MiraCosta Community Colleges in 2017. She had long been interested in research and commuted 3 hours each way by public transportation to work with Dr. Brian M. Zid at UC San Diego. Upon transfer to CSUSM, Magaly was selected as a CSU-LSAMP Scholar and continued her work examining the factors that affect the aggregation of TAR DNA binding protein 43 (TDP-43). This protein is involved in the formation of aggregates found in patients with Amyotrophic Lateral Sclerosis (ALS) and Frontotemporal Dementia (FTD). Because of her hunger for more knowledge and experience in research she joined Dr. Carlos Luna-Lopez' lab at CSUSM in fall 2018. Her research focused on the formation of a bilayer of phospholipids and alkenones to create better drug delivery methods and to understand cell membrane behavior. Magaly is a well-rounded individual who is involved in the American Chemistry Society (ACS) and the Office for Training, Research and Education in the Sciences (OTRES). Magaly has presented her work at national and regional conferences. Her last semester at CSUSM, based on an excellent presentation of her research, Magaly was selected to represent CSUSM at the 33rd annual CSU Statewide Student Research Competition. She graduated with a BS in biotechnology in spring of 2019 and started a PhD program at Purdue University in fall.

OUTSTANDING RESEARCH IN STEM
TERRANCE HAANEN · BIOCHEMISTRY

Terrance Haanen is a first-generation transfer student from MiraCosta College. Shortly after transferring, Terrance became a CSU-LSAMP Scholar and continued his work in the genome maintenance laboratory of Dr. Jane Kim. He has worked with Dr. Kim elucidating factors that promote genome instability by investigating tetranucleotide repeats and the effect of chromosomal location on trinucleotide repeat expansion. Terrance has presented his work at various conferences, including the Southern California Genome Stability Symposium where he received 2nd place for undergraduate research. In spring 2019, he was selected to represent CSUSM at the 33rd Annual California State University Statewide Research Competition. Terrance has been awarded the Fenstermaker Foundation Award and the Quinby STEM Leadership Award. Terrance was also awarded a highly competitive MARC Fellowship. His hard work has translated into opportunities for summer research programs at both Stanford University and UC San Diego. At Stanford, Terrance worked with Dr. Mary Teruel identifying several G-Protein coupled receptors that showed promise in promoting hyperplastic adipose tissue expansion in the hopes of minimizing the adverse effects of obesity and type II diabetes. At UC San Diego, he worked with Dr. Michael Burkart synthesizing several carbohydrate analogs of a natural product that showed tumor suppression properties. Terrance is a well-rounded individual who actively participated in the Society for the Advancement of Native Americans and Chicanos/Hispanics in the Sciences (SACNAS). In spring 2019, Terrance graduated with a BS in biochemistry. Hel started a PhD Program at the University of Michigan in fall where he was awarded a Rackham Merit Fellowship.

Campus Coordinator:
Keith Trujillo, Ph.D.
Professor, Psychology
(760) 750-3680
keith@csusm.edu

SONOMA
STATE UNIVERSITY

OUTSTANDING ACADEMIC
VALERIA SUAREZ VEGA · BIOCHEMISTRY

Valeria Suarez Vega was born and raised in Michoacán, Mexico but moved to the United States at the beginning of her senior year of high school in June 2014. She left her parents behind to have a better education and live in the land of opportunity. She has been academically proficient since elementary school, which is evident from the fact that she has been on the Dean's list since arriving at Sonoma State and graduated with a degree in biochemistry and a 3.96 GPA. She was a Presidential Scholar and a recipient of a Chemistry Department Scholarship. She was actively involved in extra-curricular activities like student government, the chemistry club, and the rowing team. She was the Treasurer of Sonoma State's Chemistry Club and worked with faculty members to establish a SACNAS student chapter at Sonoma State. She also worked with Professor Jon M. Fukuto using metalloproteins and redox active species. Her dream to pursue a PhD in bioinorganic chemistry started from this work. She has published some of her work in the Journal of Chemical Research in Toxicology, in a paper that studied the export of reducing species from the cells and the possible implications. In summer 2018, she went to the TAMU REU program where she worked on the synthesis and characterization of Ni-Fe complexes that have possible implications on hydrogen oxidation and reduction for renewable energy storage. She is proud to be the first person in her family graduating with a college degree and plans to continue her studies and pursue a PhD in chemistry.

OUTSTANDING ACADEMIC
JENNIFER JUAREZ YOC · BIOLOGY

Jennifer Juarez Yoc is a biology and Spanish double major with a minor in Chicano and Latino studies. Her parents fled from Guatemala to escape the civil war. To survive, they recycled bottles and cans. During her childhood, she and her pregnant mother faced homelessness. When her brother was born, the physicians hospitalized him for a month. In this time of crisis, she advocated for her sibling and mother. Her exposure to a medical setting and to a linguistic disparity ignited her early desire to pursue a career in medicine. Now, her family resides in San Francisco's degraded public housing. Last year, she provided medical home care due to her mother's ovarian cyst removal and to vertigo. Her mother and her are co-parenting, as she is the English speaker at home who advocates for her three younger siblings and mother. Currently, she is the diversity officer of the Pre-Health Professions club, and a MESA tutor and mentor. In addition, she volunteers with the Future Faces of Family Medicine Residency Program, where she works with Dr. Hansen to conduct outreach at high schools, translate newsletters, and mentor 20 students. Her SSU pre-health minority students are engaging in projects to improve the resources of the residency clinic. In a year, Jennifer will be the first in her family to graduate from college and will continue to pursue her aspiration to become a medical doctor.

OUTSTANDING RESEARCH IN STEM
IAN OCAMPO · GEOLOGY

Ian Ocampo is interested in the formation and evolution of deep terrestrial planetary interiors. At Sonoma State University, Ian was given the tools to think about the chemical and structural makeup of the Earth's crust and mantle. He applied these tools during his summer internship at the Smithsonian Institution, National Museum of Natural History, where he worked with top geoscientists conducting experiments to recreate some of the earliest conditions on Earth. During this internship, Ian was exposed to experimental and analytical instruments, previously been unavailable to him, which helped to shift his focus to the deep mantles and metallic cores of rocky planets. Prior to enrolling at SSU, Ian spent five years pursuing a career in music. While travelling the western United States with a jazz inspired rock band, he found himself marveling at the red canyons of Arizona, the snow-capped peaks of the Colorado Rockies and Grand Tetons, and the vastness of Crater Lake in Oregon. Those geologic features sparked his curiosity and he decided to earn his undergraduate degree. With the help of CSU-LSAMP and the McNair Scholars Program, he has been able to work with both Dr. Laura Waters and Dr. Bogdan Negru investigating the geochemical nature of early Earth. Ian will begin his PhD in both mineral physics and material science at Princeton University, where he will use high temperature-pressure techniques to subject geologic materials to the extreme conditions of the core for a better understanding of how our universe and solar system have developed.

Campus Coordinator:
N. Sam Brannen, Ph.D.
Professor, Mathematics
(707) 664-2591
brannen@sonoma.edu

OUTSTANDING IMPROVEMENT
DREW HORTON · MATHEMATICS

In high school, Drew hated mathematics. She entered Sonoma State as an art studio major in the fall of 2009, failed her classes, and dropped out of school. She started working to support herself, and in spring of 2015, she resumed her studies at the local community college, paying her own way. While taking an algebra class, she realized math wasn't what she thought it was. She continued to take math classes, and after completing the calculus sequence decided to switch from a Spanish major to pure math. She transferred to Sonoma State in the fall of 2017, and since then has had a perfect 4.00 GPA. She was president of the Sonoma State math club, and was a Supplemental Instruction Leader for most of her time at Sonoma State. Drew is extremely thankful for the support and opportunities given to her through CSU-LSAMP. It allowed her to participate in an REU in Uzbekistan in the summer of 2018, and helped her apply to many graduate programs. She is very excited to be pursuing her PhD at the University of Colorado this fall. Through the CSU-LSAMP program, she has done research in Ramsey Theory, more specifically working to count the total number of Pseudo Progressions, which are a generalization of arithmetic progressions. She and her cohort have presented their findings at one of the weekly math colloquiums, and have presented a poster of their work at several academic venues.

California State University | Stanislaus

OUTSTANDING ACADEMIC
JOSE CHAVEZ · COMPUTER SCIENCE

Jose Chavez earned his Associate's degree at Merced Community College in mathematics and transferred to Stanislaus State as a computer science major. While he learned to write code in his first year at community college, at Stan State computer science quickly became more than just a college major for him. His fascination with problem solving techniques and algorithms and make his studies feel more like a hobby., Jose also works as a tutor both on and off campus. He tutors students in computer science and math by helping them understand algorithms, debug and optimize their code. He also shares his knowledge about how students can improve their chances of finding jobs at big companies, how to make themselves competitive in the market, and resources that they could use to prepare for their future interviews. Towards the end of his Junior year, he began to attend hackathons and create projects in his free time. He finds hackathons a good way to drive his creativity to make projects. He also likes to help his community where computer science is under represented by giving talks at schools and volunteering as a mentor for high school students teaching them about what they can do to involve themselves at an earlier age. Jose is a senior planning to graduate in fall 2019. At Stan State he has maintained a near perfect GPA and has made the Dean's List every semester. He hopes to become a Software Engineer in the Silicon Valley after graduation.

OUTSTANDING SERVICE & LEADERSHIP
JOHN SOLO · COMPUTER SCIENCE

John Solo is a Central Valley native who transferred to Stanislaus State from Merced College, as a computer science major. As a student at Merced College, John was a STEM tutor at the Tutorial Center and would actively help out in his local community by organizing blood drives and performing volunteer work under an honor society called Alpha Gamma Sigma. Soon after he transferred and joined CSU-LSAMP in spring 2018, he became the recipient of the NSF S-Stem Scholarship where he participated in cybersecurity research with Dr. Megan Thomas and attended several conferences. He participated in a summer NSF REU program at UC Merced with co-mentors CCBM Co-director, Ajay Gopinathan, and CCBM Project Scientist, Dr. David Quint focusing on the Computational Tool Bridging Image Network Extraction and In Silico Kinesin-1 Mediated Transport on Real Microtubule Networks. He presented his research at the UROC Annual Summer Research Symposium. John became a distinguished leader in the Computer Science Club and was elected president in fall 2018. He organized workshops, invited professional engineers to hold talks on campus and coordinated with a local tech company to help bring development internship opportunities to the Computer Science department. He also volunteered at Code 2040, a non-profit aimed at addressing racial inequity in tech by bringing more opportunities to underrepresented minorities. His research and leadership experience led to a summer internship at Verizon Connect working as a Software Engineering Intern. John hopes to become a full-time Software Engineer after graduating from Stanislaus State in fall 2019.

OUTSTANDING RESEARCH IN STEM
MEGHAN WILLIAMS · BIOLOGY & CHEMISTRY

Growing up in the small town of Tehachapi, Meghan Williams had few opportunities. Her mother is a disabled veteran, and Meghan looked to her as a role model for learning the value of hard work and perseverance. Meghan was always interested in scientific research and was eager to explore opportunities. In 2017, Dr. Jennifer Cooper offered Meghan the opportunity she was looking for as an undergraduate research assistant. The Cooper lab uses the California ground squirrel as a model for addressing questions in evolutionary biology and genetics, and after being trained in molecular genetic laboratory techniques, Meghan was encouraged to develop her own research project. She used her new skills to genotype 100 ground squirrels at 7 different microsatellite loci, using these data to perform kinship analyses and reconstruct family pedigrees within ground squirrel colonies to determine if familial relationships influence natal dispersal. In recognition of Meghan's excellence in research, she was the recipient of two SERSCA mini-grants, and a SERSCA undergraduate assistantship. As Meghan has gained experience, she has assumed the responsibilities of a senior lab technician. She mentors undergraduates entering the program and trains them in genetic techniques. Meghan is looking ahead to her next undergraduate project, which will focus on genetic sequencing of the California ground squirrel gut microbiome, a topic that will allow her to combine her genetics and microbiological research interests and expertise, and which may serve as the springboard for a Master's thesis project.

OUTSTANDING ACADEMIC & RESEARCH IN STEM
RENE PADILLA · PHYSICS

Rene Padilla attended Modesto Junior College, where he demonstrated deep passion for physics. His enthusiasm and exceptional performance were recognized with multiple awards such as the EOP&S Program Student of the Year Award, the B.J. Wells Memorial Award, and the CCCEOPSA Student Scholarship given for excellence in academic performance. In April 2017, Rene obtained an Associate's degree in Physics (AST) and transferred to Stanislaus State to pursue his Bachelors in physics. In his first semester, he worked with Dr. Wing To analyzing data from the Large Underground Xenon (LUX) experiment aimed at finding and studying the properties of dark matter. He worked in background noise modeling and the study of muons as a significant producer of background noise in the experiment. Rene presented his work at the 32nd Annual Student Research Competition at Sacramento State. During that time, Rene became an active member of multiple programs that support students in STEM majors, including the CSU-LSAMP Program. Consequently, Rene was accepted to form part of the CAMPARE Summer Internship Program, where he spent the summer of 2018 doing research at SLAC National Accelerator Laboratory operated by Stanford University. He worked in the LZ dark matter experiment, which is the next generation of direct dark matter detector experiments. Rene worked in the Krypton Removal System, a process in which xenon is purified. He presented his work in different conferences and symposiums, including the AAS Annual Conference., Rene has maintained a very high GPA and been on the Dean's List every semester. Rene received his BS in physics in May 2019. He is pursuing his PhD in Particle Physics in the Experimental Particle Physics Graduate Program at UC Santa Cruz.

Campus Coordinator:
Melanie Martin, Ph.D.
Professor, Computer Science
(209) 667-3787
mmartin@csustan.edu

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CSU-LSAMP STATEWIDE OFFICE

6000 J Street, Sequoia Hall 226
Sacramento, CA 95819-6124
(916) 278-3838
csus.edu/csu-lsamp