CALIFORNIA STATE UNIVERSITY LOUIS STOKES ALLIANCE FOR MINORITY PARTICIPATION

October 2018 | Vol. 5

CSU-LSAMP

YEARS

PROUD

PROGRAM RECOGNIZING OUTSTANDING UNDERGRADUATE DISTINCTION

CSU-LSAMP is funded through the National Science Foundation (NSF) under grant #HRD-1826490and the **Chancellor's Office of the California State University. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation or the Chancellor's Office of the CSU**

INTRODUCTION

Welcome to the fourth edition of CSU-LSAMP PROUD, the annual publication of the California State University Louis Stokes Alliance for Minority Participation. This publication 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 celebrate **25 years** of CSU-LSAMP, check in on some of the gradautes of the CSU-LSAMP Bridge to the Doctorate program, and share pictures and stories from our international programs. We also look ahead to the future as I am pleased to announce that CSU-LSAMP recently received another five-year grant from the National Science Foundation.

Lisa Hammersley, Ph.D.

Lead Project Director, CSU-LSAMP

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

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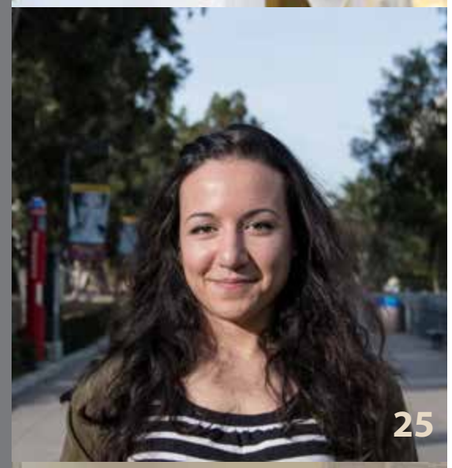
PROUD SCHOLARS BY CAMPUS



PHASE V UPDATE

Funded by the National Science Foundation and the Chancellor's Office of the California State University, CSU-LSAMP 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, becoming a truly system-wide effort. The primary goal of CSU-LSAMP is to enhance the academic and professional preparation of CSU-LSAMP participants for careers in STEM.

We currently started our sixth five-year cycle of funding, known to us as the STEM Pathways and Research Alliance (SPaRA). At the beginning of each cycle of CSU-LSAMP, we set a series of short and long-term goals for the project. Data from the first year of our fifth cycle (Phase V) showed that not only did we exceed most of our short-term goals, but we exceeded a number of our long-term goals. As the end of the fifth year of Phase V data shows, CSU-LSAMP continues to thrive and provide rewarding opportunities for our students.

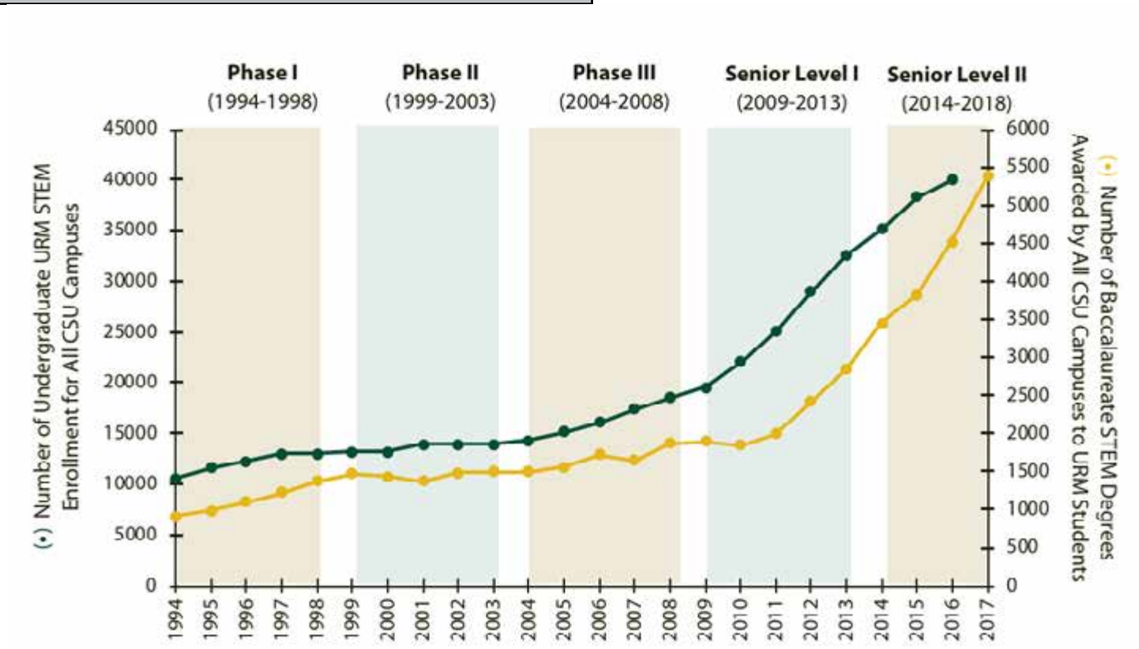
25 YEARS OF SUCCESS

Increasing the number of URM students who graduate in STEM

Since the inception of CSU-LSAMP in 1994, the number of baccalaureate STEM degrees awarded by the CSU to URM students has increased 487%. Baccalaureate STEM degrees awarded by the CSU to non-URM students increased by 53% during the same period. URM CSU-LSAMP participants are twice as likely to graduate as URM CSU students who do not participate in CSU-LSAMP.

Increasing the number of URM students who pursue a graduate degree

An estimated 41% of CSU-LSAMP participants either earned a post-baccalaureate degree or are currently enrolled in graduate programs. 135 participants in CSU-LSAMP have earned a doctorate and 866 CSU-LSAMP graduates have earned a Master's degree. Over 2,000 graduates of the CSU-LSAMP program are currently enrolled in graduate programs.



CSU-LSAMP: SUCCESS WRITTEN IN THE NUMBERS

- Since 1993, CSU-LSAMP has served 26,011 participants, including 21,736 URM students
- The annual number of participants has increased more than four-fold, from 641 in 1994 to 3,049 in 2017
- From 1994 to 2017, CSU URM-STEM undergraduate enrollment increased 278%. STEM enrollment for non-URM students increased by only 26% over the same time period.
- From 1994 to 2017, CSU URM-STEM baccalaureate degree production increased 487%
- CSU-LSAMP participants are 1.3-1.5 times more likely than non-participants to remain enrolled in STEM disciplines.
- CSU-LSAMP participants are 1.7 times more likely than non-participants to graduate with STEM degrees within 6 years.
- In 2016-17, more than 900 CSU-LSAMP students engaged in research on their own campuses, at national laboratories, and internationally.
- Hundreds of CSU-LSAMP students disseminated their research, producing journal articles and presentations at conferences regionally, nationally, and internationally.
- 41% of CSU-LSAMP graduates persisted at the post-baccalaureate level. And, 14% of these participants earned Master's degrees, 3% earned doctorates, and 24% remain enrolled.

CSU-LSAMP NSF NATIONAL GRADUATE RESEARCH FELLOWSHIP AWARDEES 2018

Elena Arroyo (SDSU)
Physics and Astronomy -Physics of Living Systems
San Diego State University

Maylin Caldwell (CSUSM)
Life Sciences - Genetics
California State University, San Marcos

Jose Antonio Flores Velazquez (Cal Poly Pomona)
Physics and Astronomy - Astronomy & Astrophysics
California State Polytechnic University, Pomona

Adriana Ann Garcia (SFSU)
Life Sciences - Biochemistry
Stanford University

Eliza Hernández (Cal Poly Pomona)
Life Sciences - Ecology
University of Oregon

German Lagunas-Robles (Cal Poly Pomona)
Life Sciences - Evolutionary Biology
California Polytechnic State University, Pomona

Magdalena Lara (CSUDH)
Life Sciences - Microbial Biology
California State University, Dominguez Hills

Joseph Thomas-Daniel Lucey (CSULA)
Geosciences - Hydrology
California State University, Los Angeles

Emily Zepeda (SFSU)
Life Sciences - Ecology
University of California, Davis

CSU-LSAMP BD

WHERE ARE THEY NOW?

Funded by the NSF, the LSAMP Bridge to the Doctorate (BD) program supports cohorts of 12 students for their first two years of graduate-level study. To date, NSF has supported fifteen CSU-LSAMP-BD cohorts. San Francisco State served as the performance site for cohorts 1 and 4, CSU Northridge for cohorts 7 and 9, and Cal State LA for cohorts 2, 3, 5, 6, 8, and 10-15. The CSU-LSAMP-BD program supports students through attainment of their Master's degree and prepares them for entry into Ph.D. programs.
Through the generous support of the LSAMP BD program, CSU-LSAMP has served a total of 189 students, 24 of whom are presently enrolled at Cal State LA in cohorts 14 and 15. Of the 164 students that participated in cohorts 1-13:

85 were accepted into STEM Ph.D. programs
46 are currently enrolled in Ph.D. programs
39 have earned a Ph.D., 4 have earned an M.D, and 1 earned a DVM.
Of these, 10 have entered the professoriate, 4 are employed as physicians, 9 are engaged in postdoctoral research, and 13 have become part of the STEM workforce, with positions from Lawrence Livermore National Laboratory to the Smithsonian Institution's Museum of Natural History.

Here is just a sample of some of those successes of whom we're particularly **PROUD.**

CSU-LSAMP Bridge to the Doctorate, Cohort I, San Francisco State University

Dr. Juan Mendoza

Assistant Professor
Institute for Molecular Engineering and the Department of Biochemistry and Molecular Biology
University of Chicago

Juan Mendoza's expertise is in cancer research, bioinformatics, protein engineering, structural biology, and immunology. His research focuses on understanding basic principles of protein function relevant to human health and disease. Protein families of interest include the interferon (IFN) superfamily of cytokines which are an essential part of the innate immune system, providing protection against the spread of viral infections and cancerous growths. His work in combining newly evolved interferon cytokines with comprehensive biophysical and functional studies is providing new insights into cytokine signaling and creating new opportunities for developing promising molecules for basic research and clinical use. Further work focuses on developing computational tools to accelerate protein engineering efforts and extend our understanding of the protein sequence-structure-function paradigm to other protein superfamilies.

Mendoza received a bachelor's degree in biochemistry from San Francisco State University, and a doctorate in molecular biophysics with an emphasis in computational and systems biology from the University of Texas Southwestern Medical Center. As a postdoctoral scholar at Stanford University, his honors included a National Institutes of Health (NIH) National Cancer Institute Career Development Award, and prestigious fellowships from the Helen Hay Whitney Foundation and the Damon Runyon Cancer Research Foundation.

CSU-LSAMP Bridge to the Doctorate, Cohort II, Cal State LA

Dr. H. Paul Martinez
Staff Scientist, Lawrence Livermore National Laboratory
Ph.D., Chemistry, 2011, University of California, Davis
M.S., Chemistry, 2007, Cal State LA

Dr. Patricia Castillo
Post-Doctoral Researcher, Immunology, University of California, Davis
Ph.D., Immunology, 2014, UC, Davis
M.S., Biology, 2007, Cal State LA

CSU-LSAMP Bridge to the Doctorate, Cohort III, Cal State LA

Dr. Vanessa L. González

Computational Genomics Scientist
Global Genome Initiative
National Museum of Natural History
Smithsonian Institution

Dr. González currently serves as a Computational Genomics Scientist for the Global Genome Initiative (GGI) – an initiative aimed at preserving and understanding the genomic diversity of life). As a Smithsonian scientist, she sets out to understand how species are related across the tree of life. She leads projects in genome biology and evolutionary bioinformatics, specializing on working with "big data." By peering into the genetic makeup of organisms, we can figure out how, where, when, and why biodiversity happens. After receiving a Ph.D. from the Department of Organismic and Evolutionary Biology and the Museum of Comparative Zoology at Harvard University in 2013, began research at the Smithsonian focusing broadly on biodiversity genomics, systematics, and invertebrate biology.

Education:
Ph.D. Harvard University (2013); M.S. California State University, Los Angeles (2007); B.S. University of California, Los Angeles (2005).

CSU-LSAMP Bridge to the Doctorate, Cohort IV, San Francisco State University

Dr. Maree Jaramillo
Assistant Professor in Residence, Mathematics
University of Connecticut
Ph.D., Mathematics, 2014,
University of California, Santa Barbara
M.A., Mathematics, 2008, San Francisco State

Dr. Anastasia Chavez
President's Postdoctoral Fellow
Huneke Postdoctoral Fellow
Mathematical Sciences Research Institute (MSRI)
University of California, Davis
Ph.D., Mathematics, 2017,
University of California, Berkeley
M.A., Mathematics, 2010, San Francisco State

Dr. Jose Ibarra-Soza
Research Scientist, Gilead Sciences
Ph.D., Chemistry, 2013, University of California, Davis

Dr. Mayra Pastore
IRACDA Postdoctoral Fellow, Department of Cellular, Molecular Pharmacology, University of California San Francisco School of Medicine
Ph.D., Endocrinology & Reproductive Physiology, 2015, University of Wisconsin, Madison
M.S., Biochemistry, 2006, San Francisco State

Dr. Lawrence (Rocco) Varela
Senior Software Engineer, DataStax
Ph.D., Bioinformatics, 2013,
University of California, San Francisco
M.S., Computing Science, 2008, San Francisco State

WHERE ARE THEY NOW?

CSU-LSAMP Bridge to the Doctorate, Cohort V, Cal State LA

Dr. Omar Moreno
Physicist, SLAC National Accelerators Laboratory

Omar Moreno is a physicist at the SLAC National Accelerator Laboratory working to unravel the mysteries of the Universe. He received his B.S. in Applied Physics in 2006 from the University of California, Irvine. In 2008, upon joining the Master's program in Physics at California State University, Los Angeles, he became a member of the fifth cohort of LSAMP Bridge to the Doctorate (BD) program. He received his Master's in Physics in 2009 for his work on the GEp(3) experiment and went on to receive his PhD from the University of California, Santa Cruz in 2016 for his work on the Heavy Photon Search experiment. Currently, he is part of the Light Dark Matter eXperiment which aims to decisively test a variety of dark matter scenarios.

Dr. Maura Palacios Mejia
HHMI Postdoctoral Scholar
Environmental DNA Research, Education, & Outreach, UCLA

Dr. Maura Palacios Mejia came to U.S. during the Salvadoran Civil War and like many immigrants had a dream. One teacher, Ms. Elaine Saito, and one whale watching trip, is all it took to pursue a career in Marine Biology. She attended California State University, Long Beach and graduated with a double major in Marine Biology and Zoology. She was then accepted to the LSAMP Bridge to the Doctorate at California State University, Los Angeles and graduated in 2009 in a degree in Biology with an emphasis on Marine Ecology. Maura then went on to a Ph.D. program in Wildlife and Fisheries Sciences, where her research focused on population genetics and speciation of freshwater fish in Mexico, Central America and the Caribbean. She is currently a HHMI postdoctoral scholar in Environmental DNA research, education, and outreach at University of California, Los Angeles. In this role, she is carrying out research in collaboration with The Nature Conservancy in the Mojave Desert, as well as landmark locations in Los Angeles, like the L.A. River, developing two first year students course on environmental DNA through the new eSIE: environmental DNA for Science Investigation and Education Program, and assisting in community driven science through the CALeDNA program.

Maura worked in the Biology Department as a lecturer at California State University, Los Angeles prior to taking her current position for three years, while still completing her dissertation. She enjoyed teaching and mentoring students at CSULA, providing countless advice, letters of recommendations, and opportunities towards students success in their careers. She hopes to continue to serve the community, future scientists from all fields, and make significant scientific contributions in environmental conservation.

CSU-LSAMP Bridge to the Doctorate, Cohort VI, Cal State LA

Dr. Corey E. Baker
Assistant Professor of Computer Science
University of Kentucky

Corey E. Baker, Ph.D. is an Assistant Professor in the Computer Science department at the University of Kentucky where he leads the Network Reconnaissance (NetRecon) Lab. Dr. Baker's research interests are in the area of cyber physical systems specializing in opportunistic wireless communication for the Internet of Things (IoT), smart cities, smart homes, and mobile health environments. Particularly, Dr. Baker is interested in pragmatic applications and the fundamental issues related to real-world resource availability in today's operating systems for opportunistic wireless communication. Dr. Baker was a recipient of the University of California President's Postdoctoral Fellowship at the University of California San Diego, GEM Ph.D Fellowship, Intel Scholarship, McKnight Dissertation Fellowship, and the NSF LSAMP Bridge to the Doctorate Fellowship. He received a B.S. degree in Computer Engineering from San Jose State University, a M.S. in Electrical and Computer Engineering from California State University, Los Angeles, and M.S. and Ph.D. degrees in Electrical and Computer Engineering from the University of Florida where he was advised by Professor Janise McNair. Corey has served on the board of directors of the National Society of Black Engineers (NSBE) numerous times as a two term National Treasurer and CFO, two term National Treasurer Emeritus, and as the Region 6 Chairperson. Dr. Baker is currently a NSBE Region 6 Finance Zone Advisor. Formerly, Dr. Baker was the official blogger for GEM and blogged about topics to promote success amongst STEM graduate students which included securing graduate school funding, navigating Ph.D. programs, and publishing. His blogs can be found at http://coreyebaker.com. You can follow Dr. Baker on Twitter at @DrCoreyBaker

Dr. Rosa Padilla
Postdoctoral Researcher
Air Force Research Laboratory
Ph.D.,Mechanical Engineering, 2016,
University of California, Irvine
M.S., Mechanical Engineering, 2010, Cal State LA

Dr. Michelle Palacios
Postdoctoral Fellow, Non-clinical Drug Development
Roivant Sciences
Ph.D., Microbiology, 2017,
University of North Carolina, Chapel Hill
M.S., Biology, 2010, Cal State LA

WHERE ARE THEY NOW?

CSU-LSAMP Bridge to the Doctorate, Cohort VII, California State University, Northridge

Dr. Evan Randles
Assistant Professor, Mathematics
Colby College

Dr. Evan Randles is currently an Assistant Professor of Mathematics at Colby College in Waterville, ME. He completed his Ph.D. in Applied Mathematics from Cornell University in 2016, where he received the NSF Graduate Research Fellowship. He also earned a M.S. in Applied Mathematics from Cornell in 2014.

Dr. Cristo Ramirez
Post-doctoral Scholar, Geosciences
Pennsylvania State University

Dr. Cristo Ramirez completed his Ph.D. in Geosciences at Pennsylvania State University in 2017. He is currently a postdoctoral fellow at Penn State. He also earned a M.S. in Geology from CSUN in 2011.

Dr. Christopher Gutierrez
Security Solutions Research Scientist
Intel Labs
Ph.D., Computer Science, 2017, Purdue University
M.S., Computer Science, 2011, CSUN

CSU-LSAMP Bridge to the Doctorate, Cohort VIII, Cal State LA

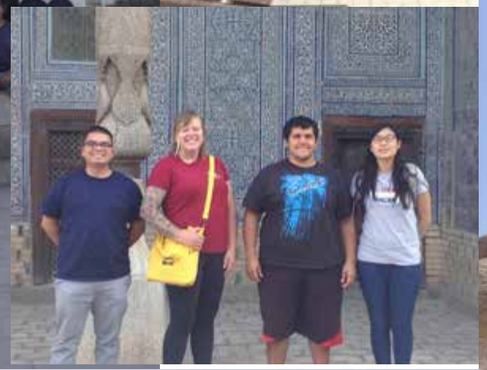
Dr. David Guzman Monzon
Research Associate
Brookhaven National Laboratory
Ph.D., Materials Engineering, 2018, Purdue University
M.S., Physics, 2012, Cal State LA

Dr. Velveth Klee
Faculty, Los Angeles Trade Technical College
Ph.D., Materials Science, 2016, University of California, Riverside
M.S., Physics, 2012, Cal State LA

Dr. Helen Sanchez
Lecturer, Civil Engineering
California State University, Los Angeles
Ph.D., Civil Engineering, 2015, University of California, Los Angeles
M.S., Environmental Science, 2012, Cal State LA

CSU-LSAMP Bridge to the Doctorate, Cohorts XIV - XIII are in Ph.D. programs across the country

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, **469 CSU-LSAMP participants (an average of 47 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. The program is funded by the IRES program at the National Science Foundation, and gives U.S. students a 10-week summer research experience in Uzbekistan, the birthplace of algebra, under the mentorship of world-renowned mathematicians Shavkat Alimov, Shavkat Ayupov and Utkir Rozikov. In collaboration with their Uzbek peers and mentors, this summer the U.S. students are conducting cutting-edge research in Leibniz Algebras (structure of derivations on operator algebras, derivations and automorphisms groups on algebras of unbounded operators on Hilbert spaces, structural theory of Leibniz algebras and superalgebras), Harmonic Analysis (numerical methods, Fourier transformation, spectral theory) and Mathematical Biology (DNA, Holliday junction, Cayley tree, Gibbs measure).

In addition to 6 IRES students chosen nationally, CSU-LSAMP funded 4 CSU-LSAMP students to attend the program this summer, Drew Horton (Sonoma State), Oscar Castanos, (Fresno State), Alexandro Luna (Fullerton), and Savanah Yam (Monterey Bay).

Students went to Uzbekistan from June 1-August 5, 2018) to conduct research in mathematics (8 weeks) and a cultural program (1 week),

A very successful program both culturally and academically, each of the four students co-authored a paper that has already been submitted to peer-reviewed international journals:

1) O. Castanos, U. U. Jamilov and U. A. Rozikov, On Volterra quadratic stochastic operators of a two-sex population on S^1\times S^1, Uzbek Mathematical Journal submitted).

2) U. A. Rozikov, I. A. Sattarov and S. Yam, p-adic dynamical systems of the function ax/(x^2+a), p-Adic Numbers, Ultrametric Analysis and Applications (submitted).

3) A. R. Luna, U. A. Rozikov and I. A. Sattarov, p-adic dynamical systems of (3,1)-rational functions with unique fixed point, Ergodic Theory and Dynamical Systems (submitted).

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

4) K. K. Abdurasulov, D. Horton and U. X. Mamadaliyev, On solvable Leibniz algebras whose nilradical has characteristic sequence (m1,m2,m3) , Uzbek Mathematical Journal, No. 3 (2018) (submitted).

One of the students, Alex Luna, will be presenting his research at the American Mathematical Society's Western Regional Meeting at San Francisco State University on October 27, 2018. The other three students will be presenting their research at their home institutions this Fall.

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 80 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 have gone on to conduct other research projects – not necessarily related to the work they conducted in the course. For example, Citlayi Villaseñor from San Diego State University and a participant in the Summer 2018 Costa Rica program, recently presented her molecular biology research project poster at the SACNAS 2018 conference. Similarly, another Summer 2018 participant, freshman Mariah Daniel from CSU Monterey Bay will soon be starting her first long-term independent research project. 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 engage in more high-impact research experiences.

The course takes place in a wide variety of habitats, including the rain forest of Volcán Tenorio National Park, the cloud forest of Monteverde, the coffee highlands of Tarrazú, the rural village of Mastatal at the base of 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.

In the past three years of the program, student participants have also had the opportunity to a 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.

Group Project Example: Carbon neutrality and climate change / Santa Maria de Dota

Efforts to reduce levels of atmospheric carbon dioxide represent a key response to the threat of global climate change. One method of achieving that goal is the use of trees (especially tropical forest trees) to sequester CO2 from the air. Maintaining and protecting forest cover in forested landscapes and planting of new seedlings on deforested sites are both effective.

After reading and discussing a review article on carbon emissions and the role of tropical trees in sequestering carbon, each participant calculated the carbon emissions caused by his or her own round-trip air travel from California to Costa Rica, using: http://www.terrapass.com/carbon-footprint-calculator/ . Assuming that a tropical tree could sequester 1500 lbs of CO2 over its lifetime, the students determined that they would each need to plant 2-3 trees in Costa Rica to offset their carbon footprint.

The 2018 group planted more than 100 trees, well over twice the number needed to mitigate the carbon footprint of their travel. The planting work contributed to a large-scale reforestation project on a denuded mountaintop in the beautiful highlands of Copey. Trees planted included useful timber trees (mahogany) as well as species whose flowers and fruit would attract wildlife (peach, posoqueria, loquat).

LOOKING TO THE FUTURE: CSU-LSAMP STEM PATHWAYS AND RESEARCH ALLIANCE (SPARA)

We are **PROUD** to announce that CSU-LSAMP has been awarded a STEM Pathways and Research Alliance grant (HRD#1826490) for 2018-2023.

CSU-LSAMP: STEM Pathways and Research Alliance

Funded by the National Science Foundation and the Chancellor's Office of the California State University, CSU-LSAMP will move forward to its sixth five-year cycle known to us as a STEM Pathways and Research Alliance (SPaRA). CSU-LSAMP's overall goals for the new project are two-fold: (1) to continue increasing the number of URM students graduating with undergraduate and graduate STEM degrees, and (2) to contribute to the production of scholarly research in broadening participation in STEM.

To achieve the latter goal, CSU-LSAMP has formed a team of highly-qualified social science and education researchers and university administrators with experience in broadening participation research to disseminate successful undergraduate intervention models that increase access to, and success in, STEM baccalaureate degree programs and facilitate admissions to STEM graduate programs.

About the Institute for Social Research

Established in 1989, the Institute for Social Research (ISR) at California State University, Sacramento (CSUS) is a multidisciplinary institute that is committed to advancing the understanding of programs, policies and communities through applied research. The Institute offers research expertise and technical assistance serving as a resource to agencies, organizations, the University, and the broader community. Utilizing quantitative and qualitative methods, ISR produces various types of assessments, program and policy evaluations, survey research, workload studies, and specialized analyses. Services include research design, sampling design, data collection and coding, computer-assisted telephone and field interviewing, mailed and online surveys, focus groups, database management, and statistical analysis. ISR has completed projects with more than 50 federal, state and community agencies, private firms, and many academic units. Faculty affiliates of the Institute offer specific content expertise in a wide variety of disciplines, including the social sciences, health and human services, and education.

Meet our CSU-LSAMP SPaRA Research Team

ISR RESEARCH TEAM

Shannon Williams, Ph.D., is the Executive Director of the Institute for Social Research at California State University, Sacramento. She has 20 years of experience conducting applied social science and program evaluations in the education, social service, and health sectors, including large-scale multi-site studies. Her research has focused extensively on vulnerable populations and racial disparities.

Valory Messier, M.A., is a Research Specialist at the Institute for Social Research at California State University, Sacramento. She has been the lead researcher evaluating the CSU-LSAMP program for seven years. She brings sixteen years of experience performing quantitative data analyses and using large and complex datasets, as they pertain to applied social research and evaluation projects. She has managed 20 projects and written over 50 applied research reports.

AMERICAN UNIVERSITY RESEARCH TEAM

David C. Barker, Ph.D., is Professor of Government and the Director of the Center for Congressional and Presidential Studies at American University. Prior to that, he was the Director of the Institute for Social Research at California State University, Sacramento, and the Principal Investigator of program evaluation of the CSU LSAMP Alliance. He has published three university press books, over two dozen peer reviewed scientific research articles, and over 50 applied research reports or book chapters. He has been the principal investigator on more than 60 grants or contracted projects, totaling more than $11 million.

Dave E. Marcotte, Ph.D. is Professor and Chair of the Department of Public Administration and Policy in the School of Public Affairs at American University. His work includes the evaluation of a number of university-based interventions to improve retention in STEM education. He has been principal or coinvestigator on projects funded by the National Institutes of Health, the National Science Foundation, the Spencer Foundation, the Ford Foundation, the Russell Sage Foundation, the Smith Richardson Foundation, and the Substance Abuse and Mental Health Services Administration, the Centers for Medicare and Medicaid Services, among others. He has published more than 30 in peer-reviewed journals, a book, and scores of research reports.

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California State University, Bakersfield

OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERSHIP
JAZMINE MEJIA-MUÑOZ · BIOLOGICAL SCIENCES

Jazmine is an outstanding researcher, who graduated in spring 2018 with a degree in biology from CSUB. Her ambition was clear as she approached Dr. Amber Stokes about joining her lab the summer before starting at CSUB. She began research that fall semester investigating the chemical ecology of rough-skinned newts, Taricha granulosa. The following year, Jazmine also joined Dr. Antje Lauer's lab, where she investigated the occurrence of valley fever, Coccidiodes immitis, in marine mammals on the coast of California, which is a collaboration between CSUB, Cal Poly San Luis Obispo, and two Marine Mammal Centers in California. Jazmin participated in several programs that supported her research, including the LSAMP program, the MARC-U-STAR program, Sally Casanova Pre-Doctoral Program, and the Student Research Scholar program. She has also participated in summer internships, which allowed her to gather additional experience outside of CSUB and further define her future goals. In the summers of 2016 and 2017, she attended the Moss Landing Marine Labs: Vertebrate Ecology Lab, and the National Oceanic and Atmospheric Administration (NOAA), respectively. Jazmine has presented at ten different conferences, including the Western Section of the Wildlife Society the CSU COAST-WPRI Student Research Poster Reception, the San Joaquin Community Conference, and the Microbiology Student Symposium. In addition to research, Jazmin serves as the president of the CSUB Biology club and is constantly encouraging other students to apply to internships and scholarships, helping other students to become more self-confident and successful. She is currently applying to PhD programs in marine biology.

OUTSTANDING RESEARCH IN STEM
ALEXANDER WAN · BIOLOGICAL SCIENCES

Alexander moved to California from the Philippines when he was 17 years old. After earning an associate degree in Biology from Bakersfield College, he transferred to CSUB in fall of 2016. Alexander joined Dr. Danielle Solano research group in the summer of 2017, where he synthesized a variety of small molecules with the goal of developing small molecule inhibitors of the enzyme lysyl oxidase, an attractive therapeutic target for the treatment of metastatic cancers. He presented his research at the annual American Chemical Society (ACS) National Meeting held in New Orleans in spring 2018. In addition to his research, Alexander participates in the Emergency Medical Research Assistant Program (EMRAP) at Kern Medical, where he assists physicians with procedures and research. He also works to support his education by teaching children about science and cooking. In summer 2016, Alexander was admitted to the Summer Medical and Dental Education Program at UCLA and plans to apply to medical school for fall 2019. When Alexander graduates with his degree in Biology and a minor in Chemistry in fall 2018, he will be the first in his family to complete a bachelor's degree.

OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERSHIP
JESUS MORENO · GEOLOGY

Jesus was born of immigrant parents from Mexico and is the second of his siblings to attend CSUB. Originally pursuing a criminal justice degree, he switched to geology after taking an earth sciences course at Bakersfield College. After transferring to CSUB, he applied for the MSEIP and LSAMP programs, and has been working for two years with Dr. David Miller on the provenance and paleogeography of Cenozoic river systems in southern California. In his first year, he participated in multiple field crews and database development. In his second year, he helped run a summer internship program, developed training materials, and supervised field crews. He has presented multiple times at Geological Society of America meetings, most recently as lead author on a study linking sedimentation in the San Joaquin Valley to plate tectonic interactions along the continental margin. Besides being a researcher, he participated as an intern in the Energize Colleges program on sustainability and energy conservation initiatives and the Edible Garden project at CSUB. He has been accepted into the Africa Array program, a five-week geophysical field study, at Penn State and Witwatersrand University, South Africa. He also produces a YouTube channel on geologic education. Jesus attributes his successes to his older sister who exposed him to STEM-related subjects as well as to Dr. Miller and the supportive Geology Department at CSUB. Jesus hopes to attend graduate school after getting a B.S. in geology. He wants to encourage and excite young kids in STEM-related subjects just like his sister did.

OUTSTANDING RESEARCH IN STEM
ANGEL FRANCO-ARZATE · BIOLOGICAL SCIENCES

For the past year and half, Angel has been working in a team of undergraduate and graduate students on various aspects of valley fever in California. He recently presented his work at the Emerging Researchers in the Natural Sciences (ERN) program in Washington DC, where he won first prize for his poster presentation in the category Environmental Earth and Ecology. He also presented his work at the Microbiology Student Symposium at UC Berkeley in April 2018. He has quickly demonstrated very good laboratory skills, can trouble shoot methods, and knows how to apply basic statistical methods (one-way ANOVAs and correlations). Angel has become very interested in the ecology of Coccidioides spp., the causative agent of valley fever, and the factors that determine the presence of the pathogen in the soil. He is a very reliable and hardworking student and would also make a fine field biologist. He works great in a team and since recently, is also being involved in training new student research assistants. Angel plans to continue on with a master's degree and ultimately a PhD.

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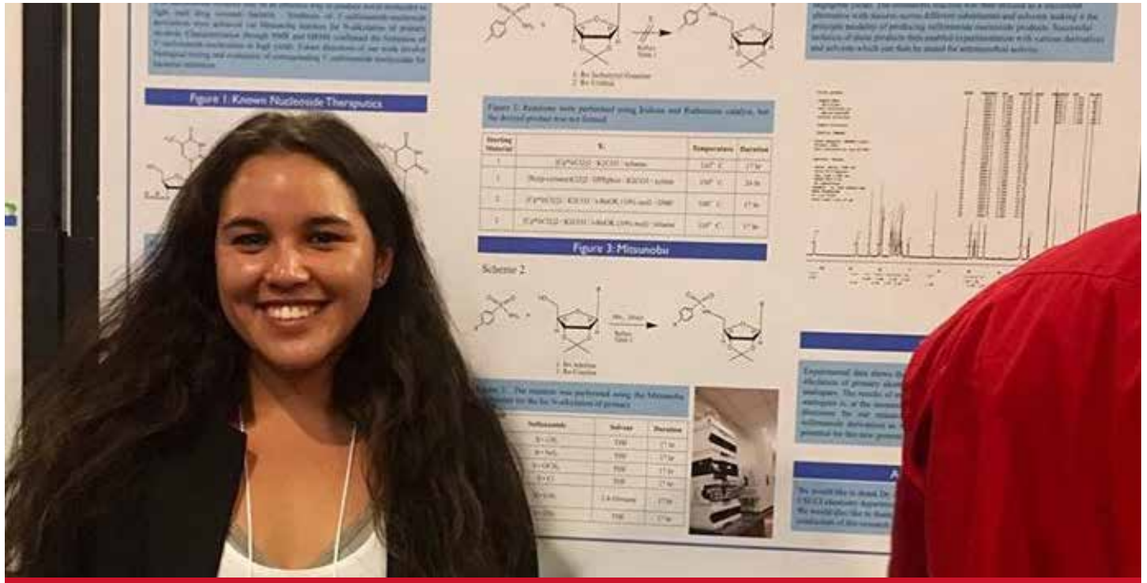
Channel Islands
CALIFORNIA STATE UNIVERSITY

OUTSTANDING ACADEMIC
VANESSA LOPEZ · CHEMISTRY

Vanessa received Academic Honors in Chemistry – awarded to the top two graduating chemistry majors – and graduated cum laude in spring 2018 with a BS in chemistry and minors in biology and Chicano/a studies. Vanessa worked with Dr. Ahmed Awad investigating the synthesis of sulfonamide nucleoside conjugates, looking for antimicrobial activity. She also conducted research in neuroscience at the University of New Mexico, investigating hippocampal neurogenesis given a prenatal ethanol exposure paradigm. In fall 2018, she began her PhD in medicinal chemistry at the University of Washington, where she received the Graduate School Top Scholar Award, and will focus on pharmaceutical research, motivated by the critical role such research has played in her family. Vanessa wishes to become a professor to aid in bridging the gap between minorities and their desire to pursue higher education in STEM. She recognizes how critical mentors were to her self-image as someone who would attend college. Yet, Vanessa encountered a lack of support in high school, surrounded by children from affluent families: as a minority from a low-income family, she couldn't relate to her peers and teachers, and struggled academically. She barely gained admittance to college, where the struggle continued, particularly as she found few women and minorities in her upper division chemistry courses. She credits amazing mentors and the support at home for her faith in her potential and her successes. Her dream is that all students, minority or not, have equal emotional support from professors and teachers to be the best they can.



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OUTSTANDING DETERMINATION
MARINA GHALI · CHEMISTRY

Marina sees herself as someone who has received a second chance to rewrite destiny. She's committed to a life in service of others through a career in medicine. Given her determination and resiliency, there's no doubt she'll attain her goal of becoming an outstanding physician and improving the lives of many. Few would have considered Marina college material, let alone an accomplished researcher or future physician. Marina spent much of her childhood homeless, rotating through shelters and caring for her elderly grandparents. Like many immigrants, Marina understood education to be the path from poverty to a stable life. After enrolling in college, she experienced a severe medical emergency that repeatedly threatened her life. She was forced to withdraw from school, undergo 17 operations, and spend a year and a half of medical setbacks and recuperation. The financial, personal, and emotional trauma led to self-doubts regarding her abilities as a student. Yet, Marina graduated with a BS in chemistry. She found a supportive research mentor in Dr. Ahmed Awad synthesizing sulfonamide-nucleoside analogs and investigated their potential as efficient antiviral and antibacterial agents. As part of the highly competitive COPE Health Scholar program, Marina conducted clinical rotations at two hospitals and rose to become a supervisor in the program. As a supervisor, she trained incoming Health Scholars and interviewed prospective scholars. Marina's personal, academic, volunteer, and research experiences leave her poised to realize her dream of becoming a physician; her personal resiliency and positive outlook ensure she will do so.

OUTSTANDING SERVICE/LEADERSHIP
KRISHNA ALGOSO · BIOLOGICAL SCIENCES

Transformation - that's how Krisha sums up her undergraduate years, from the unconfident small-town girl, to the seasoned undergraduate researcher, and to the aspiring PhD scientist tackling her MS in biology as part of the Bridges to the Doctorate Program at CSU LA. Krisha's path to a BS in biology and a minor in chemistry from CSU Channel Islands in spring 2018 started inauspiciously. She struggled academically, repeating Calculus and Chemistry. Even as she found her niche through studying and conducting research in cell biology, she struggled with doubts regarding her capabilities and sense of belonging. Krisha found support and motivation within LSAMP and through mentors. Krisha also worked as a Peer Leader in a STEM academic support program. She used the training and experience to become a STEM Outreach leader and a STEM Tutor. She co-founded our SACNAS chapter to provide other students the types of learning opportunities and support she found in LSAMP. She's since served as SACNAS president. Via LSAMP, SACNAS, and in the STEM Center, Krisha invested time and energy mentoring and encouraging other students. Krisha intends to become a high-impact researcher and a professor who will educate, lead, collaborate with, and inspire the community's youth to implement change. She is eager to motivate younger students from all backgrounds to transform themselves in becoming curious and confident researchers who believe in themselves the way she learned to believe in herself, and in their capacity to make a profound impact on the world.

Photo Courtesy of CSU Channel Islands

CALIFORNIA STATE UNIVERSITY, CHICO

ACTIVITY SPOTLIGHT: SUMMER CALCULUS BOOT CAMP

The CSU-LSAMP @ Chico State Summer Calculus Boot Camp has been going strong for several years now and continues to demonstrate the strong influence that it has on the students that take part in it. This past summer, 23 students consisting of first-time freshmen and continuing students participated in the 4-week summer calculus boot camp held from July 9th through August 3rd. Students attend class from 8 AM – 3 PM, Monday through Friday, and receive instruction on problem solving, explorations, and applications of pre-calculus mathematics incorporating calculator skills. The topics covered during the boot camp include fractions, functions and their graphs, rational expressions, exponents and radicals, linear equations and inequalities, absolute value, polynomials, logarithms, exponentials, and trigonometry. Students meet other students with similar interests and the motivation to excel. They will improve their problem-solving abilities in a collaborative learning environment conducive to success in science, mathematics, and engineering. Student housing and subsistence are provided to students during their four-week stay. Students experience living on their own for the first time and form life-long friendships. Students who successfully complete the boot camp receive a $600 stipend, a free graphing calculator and school supplies throughout the year.

Throughout the program students learn invaluable skills that help prepare them for college including developing good study habits, time management, and financial literacy. Our visitors include college deans, department chairs, faculty members and previous LSAMP students. Gayle Hutchinson, the President of CSU, Chico is a strong supporter of our LSAMP students. Students are also introduced to resources available to students at CSU, Chico.

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California State University DOMINGUEZ HILLS

OUTSTANDING ALUMNUS & RESEARCH IN STEM
IVAN MORENO · CELLULAR & MOLECULAR BIOLOGY

Ivan was a cellular and molecular major, who transferred from Long Beach City College in fall 2014. As a first-generation Mexican-American and first-generation high school graduate and college student, his main concern was earning a bachelor's degree so that he could find a job to help his family. Once at Dominguez Hills, he found faculty who believed in him and gave him the opportunity to perform research in their lab. Ivan always had an innate curiosity for science and microbes, but never thought he could become a scientist. However, he was awarded a very competitive Summer Undergraduate Research Fellowship at the Scripps Institution of Oceanography, as a part of their NSF REU program, during the summer of 2017. Under the mentorship of Dr. Karin Kram, Ivan completed several impressive research projects and presented his work at numerous conferences. Ivan was excited to read research papers outside of his normal coursework. He became a leader in the lab, as he trained new students, and helped current students with both REU and graduate school applications. Ivan started the PhD program in fall 2018 at the Scripps Oceanographic Institute. He hopes to become a professor, researcher, and mentor for future students seeking acceptance in STEM fields.

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OUTSTANDING RESEARCH IN STEM
VINCENT TRAN
COMPUTER SCIENCE & MATHEMATICS

Vincent transferred from El Camino College as a computer science major in fall 2015. He is a first-generation college student who became interested in research after taking upper division math courses. He worked on research, presented his work and has as a paper that will be refereed for conference proceedings at the prestigious 50th annual international conference in France. He is interested in cybersecurity, has taken cryptography class and worked as a teaching assistant in statistics. Vincent was accepted into a very competitive summer REU at Texas A&M University to work on a project developing algorithms for drone cybersecurity. All these accomplishments have been done while being a full-time student working three jobs to support a family. He plans to apply to PhD programs in applied math or computer science, with special interest in security algorithms and artificial intelligence.

OUTSTANDING ACADEMIC
MAGDALENA LARA
CELLULAR & MOLECULAR BIOLOGY

Maggie transferred as a cellular and molecular major in fall 2016 from Riverside community college and from American University. Since high school, she distinguished herself for outstanding grades, and was selected class valedictorian, all while working 30 hours per week. She has always worked to help her family. But, once at Dominguez Hills, she was able to cut down her hours, giving her more time to focus on her classes. She was then able to maintain a 3.98 GPA, while also working on her research. She joined the research lab of Drs. Kathryn Theiss and Karin Kram, where she worked on characterizing the microbiome of the non-native tropical milkweed, Asclepias curassavica. During summer 2017, she attended the Scripps Institution of Oceanography's SURF (Scripps Undergraduate Research Fellowship) program and worked with Dr. Paul Jensen. Maggie took on a leadership role in her research group. Her oral presentations are well put together and she effectively uses humor to keep her audience engaged. Maggie is both detail oriented as well as interested in deeply understanding the material. Maggie started the biology PhD program at Stanford University in fall of 2018. Due to her outstanding academic and research achievements, she was awarded the prestigious NSF Graduate Research Fellowship.

CALIFORNIA STATE UNIVERSITY
EAST BAY

OUTSTANDING PASSION FOR PERSONAL & PROFESSIONAL DEVELOPMENT

PETER ALVAREZ
BIOLOGICAL SCIENCES

Peter's family encouraged him to take his education seriously, so he could have a secure future. After earning acceptance into Cal State East Bay, he proudly became the first in his family to attend college. As a first-generation student, Peter did not have the guidance of familial role models with knowledge of the college experience. During his first year, Peter felt he did not belong and was not engaged in his classes. Things changed when he began research with Dr. Claudia Stone, and felt excited about learning. Applying the concepts learned in class in research helped him understand the material better, which improved his academic performance. Peter is also involved in extracurricular student experiences. He was instrumental in founding and organizing the Cal State East Bay Science Club, "SciTalk", which engages students in discussion of current science research. He is also an Operations Supervisor at the Recreation and Wellness Center, and a member of Lambda Theta Phi Latin Fraternity, Inc. In summer 2017, he participated in the CSU-LSAMP Costa Rica Summer Expedition and was one of two 2017 participants invited back for the 2018 Expedition to serve as a teaching assistant. Peter's research involves genome editing of the model plant white lupin with CRISPR-Cas to mutate genes of interest. The resulting loss-of-function mutants are then analyzed for any phenotypical changes, which can reveal gene function. Peter plans to pursue a master's degree in molecular and cellular biology, followed by a PhD. He is considering a career as a college professor.

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OUTSTANDING ACADEMIC & RESEARCH IN STEM

BINH CAO · MICROBIOLOGY

As an immigrant, Binh has faced challenges varying from language barriers, cultural differences and financial hardships. At first, these challenges were intimidating and discouraging, but by overcoming them, he grew to appreciate hard work and diversity. Binh has maintained a perfect GPA throughout his college career. His research examines Toxoplasma gondii, which possess specialized secretory organelles whose contents are secreted into the host cell where they modulate various host processes. His project seeks to understand how proteins are trafficked to these organelles, namely the rhoptries and the dense granules. His work has garnered attention as he was invited to deliver a talk at Stanford University in May 2018. He co-authored a peer-reviewed manuscript in the Journal of Immunology from research he performed at the NIH. He received a Future Scholar Scholarship and was accepted into the Cal State East Bay Center for Student Research Scholar's Program. Furthermore, Binh received an Honorable Mention in the Student Paper Competition at the Northern California Parasitologists conference and presented a poster at the 21st annual Bay Area Microbial Pathogenesis Symposium in spring 2018. Binh is very meticulous and hardworking, and always willing to help others in the lab. He has shown his dedication to scientific research by going above and beyond what was required for an undergraduate researcher. Binh is also active on campus, working as a Supplemental Instruction Leader and peer tutor, participating in various student-research and other science-focused events held on campus throughout the year.

OUTSTANDING PERSEVERENCE & PASSION FOR RESEARCH

DENNIS CALDERON · PHYSICS

Dennis has had to deal with severe vision problems – He had his corneas replaced and actively deals with medical issues resultant from the procedure. He does not see 20/20, even with glasses, making certain aspects of being a student challenging. Despite the challenges, he maintains a positive and optimistic attitude, friendly and highly approachable demeanor, and an unwavering belief that life is what you make of it. Since arriving at Cal State East Bay in 2016, Dennis' GPA has improved dramatically, from his transfer 2.8 GPA to his current GPA above a 3.6. In fall 2017, he made the honor roll for the first time, ever. Dennis works with Dr. Amy Furniss measuring gamma-ray emitting galaxies with the VERITAS instrument (Very Energetic Radiation Imaging Telescope Array System) located in Arizona – one of three ground-based gamma-ray observatories in the world. Their goal is to determine the origin of the gamma rays from the vicinity of the supermassive black holes at the center of these unique galaxies. In summer 2018, he was selected to participate as a CAMPARE Scholar for a summer research internship at UCSD. Dennis is the president of the Cal State East Bay Society of Physics Students and is the physics department student-representative on a University student programming committee. Dennis has also spearheaded a community outreach project, collaborating with the University's Institute for STEM Education and the Hayward Unified School District, promoting physics and STEM in local middle- and high-schools in the Hayward area.

FRESNO STATE

Discovery. Diversity. Distinction.

OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERSHIP

ALDO GARCIA · PLANT SCIENCE

Aldo earned his BS in plant science in May 2018. As the son of immigrant farm-workers, Aldo was determined to pursue a higher education. He initiated his research early in his academic journey under the mentorship of Dr. Anil Shrestha focusing on the effects of moisture, temperature and sun exposure on the breakdown of various herbicides. In 2017, he was selected to receive funding from the United States Department of Agriculture National Institute of Food and Agriculture to collaborate with Dr. Jeffrey Mitchell (UC Davis) and Dr. Shrestha on determining key soil physical functions including water infiltration and aggregation to assess changes associated with the no-till and cover crop management practices. Aldo presented his research at the American Society of Agronomy, Crop Science Society of America and Soil Science Society of America conference and at the California Plant and Soil Conference. Aldo participated in an internship funded by the Water Resources Institute at CSU San Bernardino working with the USDA Natural Resources Conservation Service assisting with soil climate project planning in the Fresno, Kings, and Kern Counties of California. In addition to research, Aldo participated in the Soil Judging Team competing at national conferences and volunteered to provide lectures to students from the Migrant Institute of STEM and Leadership to expose young students to various careers in science and agriculture. Aldo is pursuing an MS degree in plant science at CSU Fresno with aspirations to continue to the doctorate, while continuing to serve as a mentor for disadvantaged students.

OUTSTANDING RESEARCH IN STEM

MAIZEE LEE· CHEMISTRY

Maizie completed her BS in chemistry from CSU Fresno in May 2018. After transferring from Fresno City College, she conducted research in medicinal chemistry with Dr. Qiao-Hong Chen. Her research focused on synthesizing natural product derivatives from flavonols to be tested as potential drug candidates. Maizie presented her findings at the CSU Program for Education and Research in Biotechnology (CSUPERB) Symposium. As a first-generation student, inspired by research and opportunities, she continued her research and went on to present at the 38th Annual Central California Research Symposium, Annual Biomedical Research Conference for Minority Students, and American Chemical Society National Meeting. At the 2018 CSUPERB conference, she was awarded the Research Scholar award for her current research on synthesizing derivatives for Triple Negative Breast Cancer by the Doris A. Howell Research Foundation and was a Glen Nagel Undergraduate Research finalist. Maizie was also selected by the chemistry department as the 2018 Outstanding Undergraduate for BS chemistry. Maizie is pursuing PhD at Emory University in chemistry with an emphasis in organic chemistry and is being supported by the Quayle Student Achievement Fellowship. Maizie has a passion for discovery and wants to find a career to help lives through chemistry.

OUTSTANDING ACADEMIC & RESEARCH IN STEM

YVETTE ESPINOZA · COMPUTER ENGINEERING

Yvette earned a BS in computer engineering with minors in mathematics and Mandarin Chinese from CSU Fresno in May 2018. She graduated with an impressive 3.83 GPA and was the recipient of the Undergraduate Dean's Medal for the Lyles College of Engineering. As a first-generation student and daughter of immigrant parents, she received a scholarship to attend the university through the Smittcamp Family Honors College. Early in her undergraduate career, Yvette was selected to participate in the iSchool Inclusion Institute (i3) University of Pittsburgh summer research program. She also participated in two international cultural awareness and linguistic trips to China as part of her studies. Yvette served as a leader and role model for students as a CSU-LSAMP Peer Mentor assisting other disadvantaged freshmen and first-year community college engineering majors, tutored engineering courses, and was an active participant in various engineering student organizations on campus. Motivated by her interest in research, Yvette actively participated in the CSU-LSAMP Academic Year Research Program. Her research team worked on a watercraft capable of mapping an underwater surface using an Extended Kalman Filter as the watercrafts state estimator. Her team designed the watercraft and performed mapping using nontraditional equipment, providing a cost-efficient solution. Additionally, Yvette participated in two internships with Raytheon Missile Systems, before accepting a position with Northrop Grumman, a global aerospace and defense company. Yvette plans to pursue graduate studies in computer engineering and continue serving as a mentor and role model especially for young girls in engineering.

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OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERSHIP

ABIGAYLE DIRDAK · MATHEMATICS

In May 2018, Abigayle earned a BA in mathematics and a minor in physics from Fresno State. Abigayle played an important role in the Department of Mathematics, serving as a Peer Mentor for mathematics majors and the Vice President of the Mathematics Club. She also served as a Mathematics Outreach Fellow helping with the development of interesting, accessible, hands-on math activities for students of various ages. The activities helped promote mathematics and higher education to numerous first-generation college students, like herself, by giving presentations at local schools and community colleges. Abigayle's research interest and ambition led her to a position with the CSU-LSAMP Summer Research Program at Fresno State. Under the mentorship of Dr. Carmen Caprau, Abigayle conducted research in Knot Theory. where she studied virtual trivalent braids and proved conditions for such braids to yield isotopic closures. During the following academic year, supported by PUMP (Preparing Undergraduates through Mentoring toward PhDs) Undergraduate Research Groups, Abigayle was able to study the area of Zeros of Polynomials Generated by Quadratic Factor Denominator under the mentorship of Dr. Khang Tran. Abigayle presented her research at multiple national conferences including the Joint Mathematics Meeting 2018, the Nebraska Conference for Undergraduate Women in Mathematics, Underrepresented Students in Topology and Algebra Research Symposium (USTARS), and the Central California Research Symposium. Abigayle is pursuing her PhD in mathematics at the University of Arizona. Her future goals include becoming a mathematics professor, so she can continue to encourage students to pursue STEM careers and research.

CALIFORNIA STATE UNIVERSITY FULLERTON™

OUTSTANDING RESEARCH IN STEM
MONIKA TADROUS · MECHANICAL ENGINEERING

Monika is a senior majoring in mechanical engineering. She grew up in Cairo, Egypt and came to the USA six years ago. She is a member of Tau Beta Pi engineering honors society and conducts biophysics research with Dr. Wylie Ahmed in the Laboratory of Soft, Living, and Active Matter "SLAM Lab". Monika's project involves developing low cost microfluidic devices and use the devices for multiple applications. The applications are studying the negative pressure in plants, active colloids, and microorganisms. She is passionate about biomedical engineering where she can work on projects that link engineering, biology, and physics. Monika's project finalized the procedure to create microfluidic devices and developed a syringe pump to control the fluids flow in devices. Monika is also developing a new microfluidic device design to study negative pressure. She was selected as a finalist in the undergraduate research competition at the Society of Women Engineers (SWE17) conference. Monika was awarded a position for the 12-week LSAMP iREU in France this past summer. She has presented her work in three separate conferences and won a poster competition award at the SWE17 conference. Monika has also submitted an abstract and been accepted to present at the American Physical Society Conference in March, which is the field's premier international conference. After completing her bachelor's, she will pursue graduate studies in biomedical engineering, where she will combine her expertise in engineering and biophysics to develop technologies to treat neurodegenerative diseases.

OUTSTANDING RESEARCH IN STEM
LUIS GARAY · BIOCHEMISTRY

Luis is a senior biochemistry major currently participating in research with Dr. Allyson Fry-Petit's solid-state inorganic chemistry lab for the past three years. His project involves analyzing potential non-cooperative octahedral tilting perovskites. This research is of importance to Luis because he has a keen interest, dedication, and passion for finding the threshold between perovskites that are described as cooperative versus those that are non-cooperative. Luis has blossomed into an amazing researcher. Not only has he taken the lead on his projects, and has several independent projects, he has also become a mentor and overall group leader. He has also presented his work several times. When he joined the lab, he had his eyes set on a publication for which he has worked relentlessly, and that dream should be becoming a reality within the next year. His career goals include obtaining a PhD in a field that studies the application of material chemistry or nanotechnology in medicine. Luis hopes to apply to graduate school for the 2019 academic year.

OUTSTANDING ACADEMIC
CATHERINE TAYLOR · BIOCHEMISTRY

Catherine graduated in May 2018 with a BS in biochemistry. She worked in research with Dr. Peter de Lijser's organic chemistry lab for over two years. Catherine's research project involved using photochemistry to induce oxidative cyclization to create novel heteroaromatic ring structures. She studied the mechanisms of these reactions because they proceed through reactive intermediates. These reactive intermediates can cause damage to DNA and proteins in the body. She worked on isolating the cyclic products and characterizing them. Catherine has proven to be an outstanding researcher, leader and role model for other students in the lab. In addition to her work in the lab, Catherine was also very busy with her coursework, her role as an SI leader, and with her applications to graduate school. She was accepted into many outstanding PhD programs, including UCI, UCLA, UCSD and the University of Colorado at Boulder. Although Catherine had a full schedule, she continued to strive for the best academic performance possible and had one of the highest GPAs in the program. Catherine's career goals are to obtain her PhD in organic chemistry and to continue research in the field of chemistry. Catherine began her PhD at UCI in fall 2018.

OUTSTANDING SCHOLAR AND RESEARCHER
WESLEY WHITING · MATHEMATICS

Wesley (Wes) came to CSUF two years ago and during these two years he has taken the meaning of "outstanding student" to a new high. He conducted research with Dr. Zair Ibragimov on Cassinian metrics in the geometry of hyperbolic-type metric spaces. He published two high quality papers and has a third paper on averaging one-point hyperbolic-type metrics recently accepted for publication in the Proceedings of the American Mathematical Society. Wes has presented over 15 talks at various venues, including an international conference. He is the first student tutor who qualified to tutor upper level math. Wes participated in the International Summer Research Experience in Uzbekistan. He organized and ran the first Student Analysis Seminar at CSUF, and was the only student awarded the Mathematics department's Benson Scholarship in 2017. In 2018, he was awarded the most prestigious departmental award, Stiel Prize. Wes will be entering the PhD program in mathematics at UCI this fall, where he was accepted with a full scholarship and hopes to do more research in his interest areas of analysis and probability theory.

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HUMBOLDT STATE UNIVERSITY

OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP

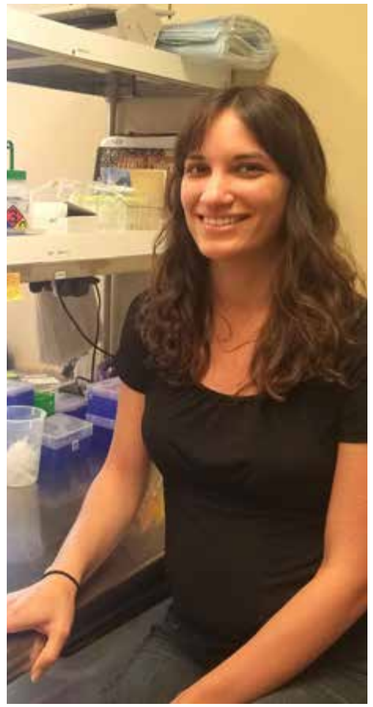
CARLA QUINTERO · PHYSICS & ASTRONOMY

Carla is a physics & astronomy student, who has distinguished herself as a leader, researcher and scholar. She is a proud daughter of immigrants, who overcame obstacles to give their children better opportunities than the ones they had. She has been interested in astronomy since a young age and was fortunate to have a family to support her. As a first-generation student, she wishes to honor their sacrifices and help create a supportive environment to encourage underrepresented students to feel welcomed and encouraged to stay in STEM. Carla works with Dr. Paola Rodríguez Hidalgo's research group on quasars, which are incredibly luminous objects that reside in the core of most massive galaxies but, are so distant to us, they resemble stars. Her work involves finding and studying extremely high velocity outflows in quasar spectra and their relation to X-ray absorption. Carla has presented her research at the 2017 American Physical Society Far West conference, several local HSU IdeaFests and has attended the Conference for Undergraduate Women in Physics. She maintains a high standard of academic excellence in her field. Carla is the president of the Society of Women in Math and Sciences and the Physics & Astronomy clubs. Carla has helped organize the community building workshop for women in science, "You Belong Here!", and she has contributed in the development of "Crafternoon" and "Codernoon", activities where future female scientists build skills and community. Carla plans to attend graduate school and continue her studies in physics and astronomy.

OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP

SAMUEL DEGREY · BIOLOGICAL SCIENCES

Samuel works on research with Dr. Michael Camann, where he sorts through the collections at the end of each entomology class. His experiences working for Dr. Camann gave him leverage and allowed him to teach himself about entomology. He has worked on several research projects in aquatic insect ecology in Dr. Camman's lab, and later with Dr. Alison O'Dowd. In the summer of 2017, he was accepted into the American Museum of Natural History Biology REU program in New York City, where he researched on the development of the mosquito mouthparts, as well as scale structure and evolution in primitive insects. He presented the results of his research at the Entomological Society of America's national meeting last fall, with an oral talk on scale structure, and a poster on mosquito development. In addition to his research, he also ran the HSU Entomology club, where he gave talks on ice crawlers and jumping bristletails. He has worked as a statistics course teaching assistant since 2016. Samuel is planning to attend graduate school in entomology at University of Wisconsin-Madison. He will be studying the genetics, ecology, and physiology of cold adaptation in Drosophila suzukii, which is a major introduced pest of many fruits.



OUTSTANDING ACADEMIC, RESEARCH IN STEM & SERVICE/LEADERSHIP

DIXIE BLUMENSHINE · CELL & MOLECULAR BIOLOGY

Dixie is a senior cell & molecular biology major with a chemistry minor graduating in fall 2018. She has maintained a high GPA, excellence in research, and serves as a leader and mentor for others. She has served two years as president for the Indigenous Natural Resource Science and Engineering Program Club. She is a peer tutor in multiple STEM subjects at HSU's Learning Center. Her ongoing research with Dr. John Steele involves the development of a cellular model of Huntington's Disease in induced pluripotent stem cell-derived neurons, that will simultaneously investigate the effects of huntingtin protein accumulation. Her central hypothesis is that overexpression of huntingtin protein, with the eventual inhibition of cells' autophagy pathway, will lead to a disease-like state. She is currently using a novel human cell model that will allow assessment of how excess huntingtin is managed or cleared by cells, and precisely how cell death occurs upon buildup of huntingtin protein. Overexpression of endogenous HTT gene products is being induced using a stably integrated inducible CRISPR transcriptional activator (dCas9-VP64 fusion) tools, allowing for transient and reversible transcriptional activation of the HTT gene, and enabling the study of the response of human induced pluripotent stem cell-derived neurons following overexpression of HTT gene to reveal how abnormal expression contributes to cell death. Dixie has presented this research at four meetings, from local to international level. She is hoping to pursue a career as a physician and research scientist.

OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP

ALYSSA SUAREZ · ENVIRONMENTAL SCIENCE & MANAGEMENT

Alyssa completed her degree in environmental science & management: environmental planning & policy with a minor in geospatial analysis in spring of 2018. Alyssa has excelled at research during her time at HSU. She has participated in two summer research experiences for undergraduates. Recently, as part of the NSF Rroulou'sik Summer REU, she reported on the assessment of sea level rise on Humboldt Bay waterfront infrastructure and locations significant to the fishing community. She also has international research experience with the NAPIRE Program, Organization for Tropical Studies where she spent a summer investigating habitat effect on bird plumage in 49 species. Alyssa also maintains an excellent GPA while contributing significantly to the Indian Natural Resources, Science and Engineering Program (INRSEP) at Humboldt State as a Peer Mentor and leader. She has presented her research at several national conferences, including AISES and SACNAS. Alyssa had a summer position as a GIS biotechnician for the Humboldt Bay National Wildlife Refuge, where she will assist with a sea level rise vulnerability study. She plans on attending graduate school to further her environmental policy and planning background. She is also interested in law school, where she would like to study environmental law, with a focus on Native American or Water Law.

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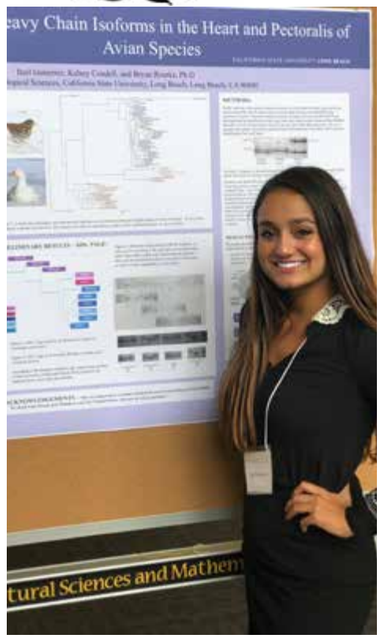
CALIFORNIA STATE UNIVERSITY
LONG BEACH



OUTSTANDING RESEARCH IN STEM
ITZEL GUTIERREZ · MOLECULAR/CELL BIOLOGY & PHYSIOLOGY

Itzel completed her BS in molecular cell biology and physiology. During her time at Long Beach, she worked with Dr. Bryan Rourke in an Integrative Mammalian Physiology lab. She led a project focused on studying birds and their flight muscles. She sequenced the amino acids of various avian muscles and identified several novel isoforms by carrying out this protein identification against a molecular phylogeny of all known avian myosin isoforms. Over the time, Itzel has presented at the CNSM Student Research Symposium, Southwest Regional Meeting of Organismal Biologist and the West Coast Biological Sciences Undergraduate Research Conference. This summer 2018, she and her research professor will be published a paper entailing new findings, correcting sequences that were misnamed in GenBank, and putatively identifying novel isoforms from fresh bird samples. During her time at Long Beach, Itzel served as both the Social Chair and Vice President of the Long Beach Pre-Dental Club, where she helped coordinate outreaches to local elementary schools to educate children on oral health and also Health Clinics to help provide free dental services to people from the community. Itzel plans on applying to professional schools to continue studying oral biology to realize her long-term goal to bring about discoveries of medical treatment that would raise oral health on a broader level.

OUTSTANDING ALUMNA
ROSANNA CALDERON · MOLECULAR/CELL BIOLOGY & PHYSIOLOGY

Rosanna graduated in spring 2016 with her bachelor's in Molecular Cell Biology and Physiology. She was accepted into the RISE MS to PhD program and graduated with her master's in biochemistry in 2018 from CSU, Long Beach. Rosanna worked with Dr. Deepali Bhandari on investigating the role of the PI3K-Akt pathway in adaptation to endoplasmic reticulum (ER) stress in MDA-MB231 cells. Rosanna was interested in identifying signaling proteins/mechanisms that play a decisive role in determining whether cells survive or die due to ER stress. As an undergraduate student Rosanna worked as a peer mentor and tutor for the Hispanic Serving Institute – Science Technology Engineering and Math (HSI-STEM) program. She participated as an LSAMP Fellow for two years as well as the HSI-STEM Winter Research Program and the Hispanic Health Opportunity Learning Alliance (H2OLA) Fellowship. Rosanna presented her research multiple times as an undergraduate including posters presentations at the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS), Alliance for Diversity in Science and Engineering (ADSE) Young Researchers Conference and Southern California Undergraduate Research Conference (SCURC). As a graduate student, she had the opportunity to present her research at the American Society for Cell Biology in Philadelphia, Pennsylvania. Rosanna will be continuing her education and pursue her PhD in the Program for Biomedical and Biological Sciences (PIBBS) at the Keck School of Medicine of the University of Southern California.

OUTSTANDING ACADEMIC
JOSEPH GUTIERREZ
GEOLOGICAL SCIENCES

Joseph's academic career began at El Camino Community College in 2014, where he majored in geology and was part of the Honors Transfer Program (HTP). While in the HTP, he presented on the effects of anthropogenic carbon on ocean acidification at the 2016 HTCC Student Research Conference. He also assisted Professor Kevin Coffey with his Intro to Geology lab sections and was offered a Geology and Honors Oceanography test-grading position by Professor Joseph Holliday for his outstanding achievements in the college's Natural Sciences Division. Joseph graduated with honors from El Camino with an AS-T in geology and an AA in general studies: physical and biological sciences. Joseph participated in the HSI-STEM Summer Bridge to the Beach research program, where he conducted research with Dr. Matt Becker, where he received training on an x-ray powder diffractometer, which he used to identify swelling clay minerals that functioned as clogging agents in Miraloma Basin, Anaheim. Following the completion of his summer research, he started his upper-division geology coursework at CSULB and researched with Dr. Gregory Holk in petrographic and stable isotopic studies of the Rio Fortaleza Complex of the Coastal Batholith of Peru. He has since graduated from CSULB with a BS in geologic sciences, maintaining a 3.7 GPA. His academic record has earned him a full ride to CSU Fullerton to pursue his MS in geology with an emphasis in geoscience education. Joseph plans to use his education to prepare the next generation of geoscientists, and to improve college-level geoscience education.

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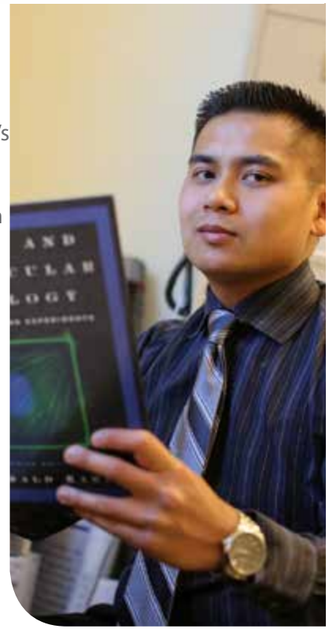
OUTSTANDING RESEARCH IN STEM
ANDY DINH
CHEMISTRY

Andy is a senior working towards a BS in chemistry with an option in material science. His journey began in the spring of 2017 when he joined Dr. Xianhui Bu's lab to conduct research on metal-organic frameworks. He was then accepted into CSU-LSAMP and Keck Energy Material Program at CSULB. With the support of both programs, he dedicated countless hours into his research and was able to discover and characterize a new porous crystal. His crystal consists of indium, cobalt, and triazole backbones crosslinked with benzene-tricarboxylic acids into a kagome structure. He found optimal synthesis conditions to create two variants of the crystal and measured both for potentials in gas storage and separation applications. He presented his results at the Southern California Conferences for Undergraduate Researchers and received a travel award to present at the Annual Biomedical Research Conference for Minority Students. The manuscript for this crystal has been written and is awaiting additional revisions before publication. Currently, Andy is researching different methods to form new indium super-tetrahedral structures as well as modifying previously known structures with organic ligands to increase their surface area and gas affinity. So far, he has successfully partitioned an indium-based crystal with an organic ligand. He hopes to store medication within this crystal and slowly release it through the partitioned openings, creating a door way to a new possibility of a controlled drug delivery system. Andy is currently applying for PhD programs in chemistry and wishes to study materials with applications in the biomedical field.

CAL STATE LA

CALIFORNIA STATE UNIVERSITY, LOS ANGELES

OUTSTANDING ACADEMIC, RESEARCH IN STEM & SERVICE/LEADERSHIP
BENJAMIN NITTAYO · BIOLOGICAL SCIENCES



Benjamin transferred to Cal State LA in fall 2014 as a biology major with a minor in microbiology. He maintained an overall GPA of 3.993 and placed on the Dean's list every term during 2015-2017. He graduated summa cum laude and with Honors in May 2018 and will start his Microbiology PhD program at UC Davis in fall 2018, as a Floyd and Mary Schwall Fellow. In 2014, Benjamin researched in Dr. Nathan Lanning's systems biology lab to complete an Honor's Thesis that focused on the mitochondria's role in melanoma homeostasis. In summer 2016 and 2017, Benjamin participated in two distinct microbiology research projects at City of Hope with Dr. Javier Ogembo and Dr. Edwin Manuel. These four research projects have resulted in eleven oral or poster presentations in the past two years at national, regional, and local conferences, three manuscripts that are in preparation for publication, and numerous scholarships and travel awards. Benjamin also served his community as the Vice President of the Cal State LA Cancer Research and Awareness Society, where he organized a "Think Pink" celebration for breast cancer, raised money for pediatric oncology patients, and arranged for a bone marrow registry drive on campus in collaboration with the City of Hope and Be the Match Registry. Benjamin's desire to pursue microbiology and cancer research mainly stems from the loss of his father who passed away from complications of viral pneumonia that hastened the progression of his leukemia during a round of chemotherapy.

OUTSTANDING RESEARCH IN STEM & SERVICE/LEADERHIP
YASMEEN SOLANO RODRIGUEZ · BIOCHEMISTRY

Yasmeen entered Cal State LA in fall 2013 as a biochemistry major and gained her first research experience with Dr. Xin Wen in spring 2016. This experience changed Yasmeen's method of thinking by teaching her to gather, interpret and integrate the data and ignited a desire in her to continue asking questions in graduate school. Yasmeen also collaborated with Purdue University in the Advanced Lyophilization Technology Hub during summer 2017. As a result of her research, Yasmeen participated in nine national and state conferences, where she networked with the scientific community and presented her research. Her drive to pursue a career in science comes from bettering her community. As a minority from the neighborhood of El Sereno, where education is not the best and gang violence is abundant, she wants to serve as a role model to the children in her community. Yasmeen hosted science workshops where she interacted with children of all ages to excite them about research and the world of science through fun science experiments or videos of science experiments. Additionally, Yasmeen worked hours at El Sereno Recreation Center to engage teenagers in conversations and encourage them to go to college and the different financial aid options available to them. As the youngest and only daughter in a family of five, Yasmeen will be the first graduate with a BS in biochemistry and this alone motivates her to achieve her goals of pursing a graduate degree and return to her community as a successful role model.

OUTSTANDING ALUMNUS
ADRIAN GOMEZ · CHEMISTRY

Adrian discovered his passion for research when one of his East Los Angeles College MESA advisors recommended him for a summer research opportunity at Cal State LA. When he joined the atmospheric chemistry lab and met Dr. Krishna Foster that summer, his research career trajectory changed forever. Through her mentorship, he was able to articulate his work at various professional conferences including the American Chemical Society and SACNAS. He transferred from East LA College to Cal State LA in fall 2011 and joined in summer 2012. He was given the opportunity to conduct research in a new environment with one of the top professors in atmospheric chemistry, Dr. Barbara Finlayson-Pitts at UC Irvine, who challenged him to get out of his comfort zone and try to excel in a high-paced environment. This opportunity resulted in his first publication, which focused on the development of analytical techniques for measuring amines in the atmosphere. Adrian was selected for Cohort XI (2014-2016) of the LSAMP-BD program for his MS in chemistry. In September 2016 he started his PhD program in chemistry at UCLA with Dr. Saman Sadeghi. During the first two years of his PhD program, he published two more research papers, and recently submitted a paper to Nature. As his research career progresses, he is falling more in love with not only conducting interdisciplinary work but also in creating projects from idea to real world applications

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OUTSTANDING ACADEMIC, RESEARCH IN STEM, & SERVICE/LEADERSHIP
JOSEPH LUCEY · CIVIL ENGINEERING

Joseph entered Cal State LA in fall 2013 as a civil engineering major and joined the CSU-LSAMP program in December 2013. Joseph excelled academically as evident by his overall GPA of 3.607 and major GPA of 3.65, and placement on the Dean's list six times. He belonged to three honor societies (Phi Kappa Phi, Tau Beta Pi, and Chi Epsilon) and received five scholarships. Aside from academic excellence, Joseph researched with Dr. Sonya Lopez at Cal State LA and Dr. JT Reager from NASA Jet Propulsion Laboratory. Joseph's research focused on developing a statistical model that relates groundwater storage, precipitation, and surface inundation data that can be used to predict future trends and provide a general understanding of surface inundation in areas that lack ground data. Joseph also worked with Dr. Mehran Mazari to develop a statistical model that predicts pavement roughness values, which is directly related to pavement longevity to improve pavement maintenance and rehabilitation strategies. Joseph presented his research seven times and won Best Undergraduate Oral Presentation in Engineering and Computer Science in 2017 and 2018. Joseph also served as President and Treasurer of Chi Epsilon from 2015-2017. Additionally, he served as the Supplemental Instruction Leader for different math courses. Joseph's excellence in academic, research and service led to admission into the Hydrology and Water Resources PhD program at UCLA for fall 2018. Additionally, Joseph won three prestigious graduate school fellowships to fund his PhD program – the NSF-GRFP, GEM Fellowship and Eugene V. Cota-Robles Fellowship.

CAL MARITIME

OUTSTANDING EFFORT AND PERSEVERANCE
JORGE BRAVO · FACILITIES ENGINEERING

Jorge is currently pursuing a degree in facilities engineering. Being born and raised in the Bay Area has imbued Jorge with an appreciation for the job satisfaction and exciting opportunities that being an engineer in the hub of technology and innovation can provide. As a Latino studying STEM disciplines, Jorge hopes to inspire other Latinos to pursue higher education in areas that are underrepresented. Family and education go hand-in-hand in Jorge's ethics, and he credits his family with their strong support as he looks to become a college graduate from a demanding engineering program at Cal Maritime. Jorge has also given back substantially to the community, having volunteered as a member of City Year Chicago, an AmeriCorps initiative. In the City Year Chicago program, Jorge worked on the south side of Chicago programming and supervising after-school programs and working on various volunteer projects to improve the quality of life in the community. After graduation, Jorge seeks to continue working with various volunteer and nonprofit organizations and give back, as he recognizes how he has benefited from positive role models pushing him towards education and self-improvement.

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OUTSTANDING ACADEMIC, & SERVICE/LEADERHIP
AMELIA HERMAN · MARINE TRANSPORTATION

Amelia is a junior studying to earn a BS degree in marine transportation. Consistently excelling in her coursework, Amelia has proven to be a strong mentor to CSU-LSAMP students in her degree program. Her contributions include helping other cadets navigate their degree plan and guiding cohorts in her own class and those less senior to her as they work towards a USCG sailing credential. Amelia is also studying to receive a minor in Maritime Law. Hailing from Tacoma, Washington, Amelia has never lost sight of her passion for being on the sea and she hopes to use her degree to sail to new places and be able to return to the Pacific Northwest. In addition to her strong academics, Amelia represents the sense of community and initiative that is valued at Cal Maritime. She has proudly represented the campus through outreach and community engagement. Most recently, she was selected to serve as the Student Residential Housing Director, building on her commitment to enhancing the quality of residential life on campus (and aboard the ship). Her abilities as a student are strengthened by her commendable work-ethic, and her concern for her fellow peers and volunteer efforts towards those in the broader community serve are exemplary.

OUTSTANDING ACADEMIC, & SERVICE/LEADERHIP
TREVOR MURPHY · MECHANICAL ENGINEERING

Trevor recently completed his BS degree in mechanical engineering with a minor in mathematics and cum laude distinction. Trevor joined CSU-LSAMP in his freshman year and credits participation in LSAMP with his academic success. He maintains that LSAMP mentoring, advising and tutoring helped him navigate his first few years in a rigorous and challenging degree program. His leadership skills were also demonstrated by his mentoring of EOP students and service as a Residential Assistant aboard the Training Ship Golden Bear. Recently, Trevor worked on his senior capstone project with several classmates to develop a submersible inspection camera system deployable from a kayak into the water and receive live video from underwater, allowing an observer to monitor images at several feet of depth. Trevor will begin working for Marriott International later this year and hopes to continue his work in engineering management, eventually pursuing a Master's degree after gaining some experience as an engineer in the workforce.

California State University
MONTEREY BAY
Extraordinary Opportunity

OUTSTANDING SERVICE/LEADERSHIP
DANIEL OLIVARES · BIOLOGICAL SCIENCES

Daniel is a biology major, concentrating on ecological, evolutionary, and organismal biology, and an education minor. Daniel has pursued research, service, and leadership opportunities that have provided him with a myriad of skills as a STEM undergraduate and have given him the opportunity to couple his interests in STEM with his passion for connecting with and serving his community through education. Daniel's research experience has allowed him to explore several distinct areas of the life sciences, conducting both behavioral ecology and marine research at CSUMB, investigating parasite-host interactions through the University of Colorado, Boulder SMART (Summer Multicultural Access to Research Training) program, and studying cell signaling in neurons at Pennsylvania State University. Daniel was selected as a Peer Mentor in the TRiO SSS STEM-Health Sciences program, where he mentored other STEM majors from underrepresented backgrounds on how to navigate the challenges of pursuing STEM degrees and also shared his own experiences as a model for his peers. Daniel has also taken on several leadership and philanthropic roles, including Secretary and Community Service Chair, with his fraternity Gamma Zeta Alpha, a group known for their particular focus on promoting success in higher education within the Latino community. Finally, Daniel has combined his most recent adventure, studying abroad in Cordoba, Spain for the 2017-18 school year with his interest in education, sharing his experiences traveling with elementary aged children through the online Reach the World program that pairs Gilman Scholarship recipients with schools.

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OUTSTANDING RESEARCH IN STEM
KIRBY BARTLETT · MARINE SCIENCE

Kirby is a marine science major and transfer student, who has consistently demonstrated a passion and aptitude for research that has allowed her to truly stand apart from the rest of her peers. Her dedication to pursue meaningful research opportunities started even prior to her matriculation at CSUMB. While still a community college student, Kirby was accepted into the highly competitive Monterey Bay Regional Ocean Sciences REU program. This experience grounded her interest in pursuing a career in marine research and prepared her for selection for the national NOAA Educational Partnership Program (EPP), a $45,000 scholarship and research internship program. She has contributed to five different research projects, ranging from snorkeling streams in Washington to collect data necessary for quantifying the effect of returning salmon on resident trout populations, to modeling the effects of spatial factors on coral densities in Puerto Rico. Besides research, Kirby has made peer mentoring a priority, working as a supplemental instruction leader through CSUMB's Cooperative Learning Center. In addition to the NOAA EPP, Kirby has also received several other awards and scholarships acknowledging her skills in research and academics. She received an honorable mention on her NSF GRFP proposal, was awarded the CSU LSAMP at Monterey Bay Community College Transfer Merit Award, and several other scholarships. Kirby plans to continue her educational achievements while pursuing an MS with the Bren School of Environmental Science and Management at University of California, Santa Barbara, where she will undoubtedly continue to excel.

OUTSTANDING RESEARCH IN STEM
TIFFANY RIVERA · ENVIRONMENTAL SCIENCE, TECHNOLOGY, & POLICY

Tiffany is an environmental science, technology, and policy major, who has combined her interests in chemistry and sustainability to explore her primary research interest: green chemistry. During summer 2017, Tiffany was accepted to her first research position at Michigan State University to use computational chemistry to identify the best method for prediction of experimental potentials of quinones. She then researched at Penn State University REU in summer 2018, where she also volunteered on a leadership role hosting a booth at a local children's art fest to help young future scientists connect to chemistry through art. Under the mentorship of her CSUMB faculty mentor, Dr. John Goeltz, Tiffany has explored other avenues of chemistry, including identification of chemicals best suited for use in batteries for energy storage. Tiffany presented a poster at the 2018 American Chemical Society National Meeting titled "Evaluating Computational Chemistry Methods in Accuracy to Predict Redox Potentials". This experience introduced her to the networking potential of disciplinary research societies and inspired her to raise the profile of the career and research opportunities available in chemistry. She recently applied to start an American Chemical Society Student Chapter at CSUMB. Her short-term goal is to promote research opportunities in chemistry for CSUMB students and her long-term goal is to help establish a chemistry curriculum, so that CSUMB includes a chemistry major. This interest in creating a lasting legacy at CSUMB is also reflected in her position on the College of Science Dean's Student Council, where she represents her peers.

California State University
Northridge

OUTSTANDING RESEARCH IN STEM
ALEXIS ALEMAN · BIOLOGICAL SCIENCES

Alexis is currently a senior majoring in biology. Alexis has worked with Dr. Thomas Minehan since summer 2017. In the organic chemistry laboratory they use techniques for running reactions, compound purification methods, and NMR Spectroscopy analysis of synthesized compounds. There has been extensive work done in Dr. Minehan's laboratory with successful synthesis of natural products that bind to DNA. There has also been extensive work of newly designed pathways to an array of natural compounds. Alexis is currently working on a compound that is a derivative of nogalamycin. Nogalamycin is an antibiotic compound that has antitumor properties to it. Nogalamycin is also known to have DNA binding affinity, with its ability to interact with nucleic acids. Nogalamycin's nucleic acid binding properties allow it to bind and inhibit DNA replication and transcription. This research is to create a derivative of nogalamycin that will successfully bind to the major groove of DNA. Alexis will be synthesizing this compound and will ultimately analyze the binding affinity to DNA.

OUTSTANDING RESEARCH IN STEM
HAMZA HAMID · MANUFACTURING SYSTEMS ENGINEERING

Hamza is a senior studying manufacturing systems engineering. Hamza's interest in engineering was inspired by two of his uncles. Being able to see their success in STEM gave him the confidence to pursue engineering. They taught him to persevere, be industrious, and to put his heart in everything he does. Hamza is not only interested in his research and own success, he is an inspirational mentor to other students. At the same time, he is closely involved with and passionate about the intricacies of his research. His research focuses on the human skull, and he is interested in is the human jaw. Through the additive manufacturing process, vat photopolymerization, also known as stereolithography (SLA), physical models of the human jaw can be printed and observed more closely. SLA is a form of additive manufacturing which creates physical models through hardening ultraviolet light (UV) sensitive liquid resin in a container. He researched already existing UV light systems and was encouraged by his faculty mentor to buy a microwave to build his own system, which he completed in a couple of months and felt accomplished. Hamza learned that good research experiences should not be all theoretical. He finds that getting hands-on experience and applying the research is the best part. Through his research he has learned how broad the field of manufacturing is. His research has given him a deeper appreciation of the field of manufacturing and believes there are still many discoveries to be made.

OUTSTANDING RESEARCH IN STEM
CHRISTIAN SOTELO · MECHANICAL ENGINEERING

Christian is a senior majoring in mechanical engineering. Having faced significant educational roadblocks throughout his academic career, he did not stop from achieving his goals. Christian attributes part of his success to his instructor and mentor, Dr. Jonathan Grady, who was a huge factor in his academic development through the help of one-on-one mentoring at a critical transition period from high school to college. In the summer of 2017, Christian had the opportunity to work with Syracuse University in the Upstate LSAMP program. He performed thermodynamic analysis understanding effects of laser ignited combustion systems in the Thermodynamics and Combustion Laboratory (TCL) within the Department Mechanical and Aerospace Engineering at Syracuse University. He worked alongside Dr. Ben Akih-Kumgeh and multiple doctoral students to carry out fundamental experiments aimed at characterizing the ignition properties of alternative and conventional fuels. The overall goal of his project is to optimize the production of syngas from liquid gas. The burning of syngas offers benefits such as decreasing CO2 and O3, produces higher octane rated fuels, and decreases the net production of CO2 helping minimize the greenhouse effect. Christian's assisted with thermodynamic analysis on the ignition properties of alternative and conventional fuels during pyrolysis, preparing stoichiometric mixtures of n-heptane using argon and oxygen, monitoring shock tube experiment identifying potential leaks in system, calibrating HeNe QCL system to capture optimum CO levels in experiment, troubleshooting data acquisition systems while gathering experimental data and presenting weekly on compressible flow theory, laser absorption spectroscopy, CO detection methods. These experiments will aid in the design of advanced combustion systems such as internal combustion engines, gas turbines and process burners.

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CAL POLY POMONA

OUTSTANDING ACADEMIC
DAISY AHUMADA HERNANDEZ · ENVIRONMENTAL BIOLOGY

Daisy graduated Summa Cum Laude as an environmental biology major in spring 2018 with a 3.8 GPA, making the Dean's List 11 times. Daisy researched with Dr. Edward Bobich determining the effects of the allelopathic chemical, juglone, on the germination and seedling success of California native and non-native plants. During the summer of 2017, Daisy also participated in the Green Energy Technology Undergraduate Program at Rutgers University, where she conducted biodegradation research of industrial contaminants at Chemours Chambers Works, a chemical manufacturing plant in Deepwater, New Jersey. Daisy successfully isolated aniline degrading bacteria using sealed culture bottles and bioaugmented anaerobic microcosms with Dehalococcoides to dechlorinate tetrachloroethylene and trichloroethylene. Daisy presented her research at Cal Poly Pomona Student Research, Scholarship & Creative Activities Conference, ABRCMS, and Southern California Conferences for Undergraduate Research. Daisy also served as president for her Ronald E. McNair Scholars cohort, and as historian for the Botany club (Botanicus). She was also a science camp counselor in the Cal Poly Pomona Discovery Camps, where she taught biology, chemistry, physics, and math to campers from the local school districts. She was also involved in the Science Educational Enhancement Services (SEES) peer mentoring program where she guided incoming freshmen in the College of Science. Daisy wishes to continue to speak and inspire students to continue their education by sharing her experiences as a first-generation student from a poverty-stricken town. Daisy will be attending UC Davis to pursue her PhD in Plant Pathology and hopes to become a professor.

OUTSTANDING RESEARCH IN STEM
JOSEPH GAZING WOLF · PLANT SCIENCE

Joseph graduated Summa Cum Laude as a plant science major in spring 2018 with a 3.91 GPA, placing on the Dean's List six times and the President's List. While in college, Joseph focused on his research on restoration ecology and sustainable agriculture. He joined a collaborative effort funded by the USDA and the Agricultural Research Institute, which brought together scientists from the Departments of Aerospace Engineering, Mechanical Engineering, Computer Science, and Plant Science. The goal was to develop unmanned aerial vehicles with hyperspectral technology to be used for precision agriculture production, crop monitoring, crop protection, and restoration work. Joseph also led another research project to discover non-chemical methods for control of invasive insect species in agriculture. His leadership as a scientist led his mentors to ask him to spearhead a larger project developing a statewide invasive insect control program by gathering scientists and practitioners from across the state. Joseph gave thirteen oral and poster presentations at state and national conferences over two years, and two papers accepted for publication. Joseph was involved in the scientific community as an active member and peer mentor in the McNair scholars, Achieve scholars, CSU-LSAMP, Graduate Readiness and Advanced Degrees, and Science Educational Enhancement Services programs. Joseph's research was featured on the Office of Undergraduate Research website, an article in the University magazine, and a video about his work by the Department of Strategic Communications. Joseph received the highest honor in the College of Agriculture as the Outstanding Student Leader of the Year.

OUTSTANDING ACADEMIC
PETER KUETZING · MECHANICAL ENGINEERING

Peter is a mechanical engineering major with minors in both materials science and Spanish and holds a 3.83 GPA. Peter researched with Dr. Mehrdad Haghi exploring PLG 10-90 (L-lactide -co-glycolide). This absorbable biopolymer showed promise as a strong candidate for Anterior Cruciate Ligament (ACL) reconstruction. The project produced a set of evolutionary equations which predicts failure under a variety of conditions, including cyclical loading and strain rate, and ultimately a constitutive model specific to the biopolymer. He intends to continue this research to further develop the model with additional conditions. During summer 2017, Peter continued his exploration of biomaterials at Caltech with Dr. Julia Greer. He studied genipin crosslinked collagen nano-fibers as scaffolds for ACL regrowth. Peter has also been involved in several research projects, including studying the effects of bisphosphonates on female osteoporosis patients at Western University of Health Sciences and comparing blood flow measuring techniques in mice after a myocardial infarction at Rutgers NJ Medical School. All projects are a culmination of his aspiration to pursue the interdisciplinary fields of engineering materials and the life sciences. Peter is also involved with a variety of organizations across campus, including the Engineering Student Council (ESC), Roller Hockey team, Kellogg's Honors College, Tau Beta Pi Engineering Honors Society, and Sigma Chi Fraternity. He served as Treasurer of the ESC during the 2017-2018 and currently holds the position of President. Peter plans to attend graduate school for a PhD in bioengineering after graduating in spring 2019.

OUTSTANDING ACADEMIC
EDDIE BANUELOS · BIOTECHNOLOGY

Eddie graduated Summa Cum Laude as a biotechnology major and chemistry minor with a 3.93 GPA, achieving the Dean's List 12 times and President's List 3 times. He worked on two research projects with his research advisor, Dr. Steve Alas, focusing on how metallic prosthetics effect bone growth and microbial biofilm formation. He presented the findings at the summer 2017 RISE Symposium. In the Science Educational Enhancement Services program, he served as a peer mentor for incoming freshmen, guiding them so they would have a successful transition into their college careers. He was invited into the Golden Key International Honor Society for high academic excellence. Later, he became part of the executive board and served as Treasurer during 2017-18. After joining Golden Key, he was invited to the National Society of Leadership and Success (NSLS) for his excellent GPA. Through the club, he expanded his leadership skills by participating in live seminars. From there, he volunteered with NSLS to feed the homeless with the INSAN Foundation and painted an elementary school with the Inland Empire United Way. He also joined the Rose Float Club, where he assisted in the construction of the 2017 Cal Poly Rose Float. He further advanced his volunteer activities by participating at his local church, Saint Martha, where he participated in the Walk for the Hungry event and Christmas children gift giveaway. Eddie plans to apply to graduate school, pursuing the biotech industry or academia afterwards

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SACRAMENTO STATE

OUTSTANDING RESEARCH IN STEM
RAFAEL CEJA AYALA · MATHEMATICS

Rafael graduated as a mathematics major with an emphasis in pure mathematics in spring 2018 and was this year's recipient of the Natural Sciences and Mathematics Dean's Award. As a first-generation student and the oldest of six, Rafael was not expected to attend college. However, his persistence led him to Sacramento State, where he distinguished himself within the mathematical community. As an incoming freshman, he joined the CSU-LSAMP summer bridge MathAmp program, which inspired him to pursue a mathematics major. After his first year, he became a mathematics facilitator for MathAmp for two years. Rafael has a strong record of research. He participated in two summer REU programs, where he studied combinatorics, and number theory and abstract algebra. He also participated as a CSU-LSAMP and a McNair researcher focusing on number theory. He attended several conferences, including SACNAS where he won an outstanding poster award. His work was published in the McNair journal and is currently working on another paper with his recent REU team from CSU Channel Islands. Rafael has been the recipient of several scholarships, including the Gates Millennium Scholarship. Additionally, he contributed to a newspaper in his hometown of Ukiah, worked as an Undergraduate Math Lab tutor and a College Assistant Migrant Program tutor, he was an unpaid intern at a legal services firm helping immigrants, and volunteered to help adults working towards their high school equivalency. Rafael is pursuing his PhD at Purdue University where he plans to study algebraic number theory.

OUTSTANDING SERVICE/LEADERSHIP
SHANNON CLAYTON · BIOLOGICAL SCIENCES

Shannon completed her BS in biological sciences with a concentration in microbiology in spring 2018, making her the first in her family to graduate from college. In her first years at Sacramento State, she got involved on campus through athletics as a cheerleader. She traded her pompoms to focus on her academics and get more involved in programs surrounding STEM. She participated in the CSU-LSAMP summer bridge Introduction to Science Research Program and discovered her passion for research. Soon after she joined Dr. Andrew Reams lab, where she studied the mysteries of gene amplification, a mechanism behind cancer, using the soil bacterium Acinetobacter baylyi as a genetic model. Because of her involvement with research, she joined the CSU-LSAMP and the NIH's Research Initiative for Scientific Enhancement (RISE) research programs. She has presented her research at several venues, both on and off campus, such as the Sacramento State Provost's Student Research Fall Forum and the CSU Annual Biotechnology Symposium. In addition to her coursework, she has held different positions on campus that have given her the opportunity to work with students. She worked as a peer mentor for the First-Year Experience Program, a Learning Assistant for introductory biology courses, and a Peer Assisted Learning Facilitator for the upper division microbiology course. She will join the Professional Masters Stem Cell Program, a two-year MA program at Sacramento State in collaboration with UC Davis in fall 2018.

OUTSTANDING SERVICE/LEADERSHIP
THERON SOWERS · GEOLOGY

Theron completed her degree in geology in spring 2018 as the first person in her family to complete a degree. When she transferred to Sacramento State in fall 2015, she immediately began seeking out research opportunities. During spring 2016, she began working with Dr. Amy Wagner in the Wagner Aquatic Geochemistry and Spectroscopy (WAGS) Lab. After developing a technique to analyze hypersaline waters with the Liquid Water Isotope Analyzer (LWIA), she continued her research with a Summer Undergraduate Research Opportunity (SURE) Award in 2016, during which she plotted geographic trends in the geochemistry of the hydrothermal waters in Yellowstone. During the summer of 2017, she was accepted into the Research Experience in Solid Earth Science for Students (RESESS) program in Boulder, Colorado where she worked with the USGS on an update to the National Seismic Hazard Map. In addition to her research work, Theron became passionate about community outreach and science communication. She was able to work this passion as the President of the Geology Club, where she orchestrated $8,000 in scholarship awards for the students in the Geology Department. Her work as a CSU-LSAMP Scholar on stable isotopes in the South Fork of the American River was closely aligned with her overall research interests: big-picture geology and the stories that the rocks tell. Taking interdisciplinary approaches to solving geologic questions lies at the heart of what drew Theron to geology in the first place. She hopes to continue interpreting the stories of the rocks while pursuing a graduate degree.

OUTSTANDING RESEARCH IN STEM
SAMUEL CABRAL III · BIOLOGICAL SCIENCES

Samuel grew up in the wind sheared and sun baked valleys of California's Mojave Desert, and was awestruck by the surrounding beauty of nature. It was not until he took a genetics course that he realized there was a larger, deeper aspect of this natural beauty. The intricacies governing the mechanisms and laws of life through genetics thrilled Samuel and ignited a thirst for deeper understanding in this field. Though there are many important dimensions pertaining to the study of biology, his interest in biology as a discipline of beauty and mysteries remains paramount. Samuel working in Dr. Andrew Reams' microbial genetics lab for nearly two years studying the mechanisms of gene amplification. He conducted research in elucidating the theory of adaptive amplification in the soil bacterium Acinetobacter baylyi. Gene amplification plays a key role in the formation of antimicrobial resistance in pathogens and results in increased virulence. Most importantly, all human cancers utilize gene amplification as a strategy for proliferation. Therefore, thorough understanding of the mechanisms directly involved in gene amplification directly impact human health and quality of life. He attended several conferences, including SACNAS where he won an outstanding poster award. Samuel is attending the University of Arizona for a doctorate program. He wishes to work as a project manager for a government agency such as the United States Geologic Survey or for the Game and Fish Department. In this capacity, he wishes to be directly responsible for the maintaining and protecting genetic diversity of vulnerable biological populations.

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CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO

OUTSTANDING ACADEMIC

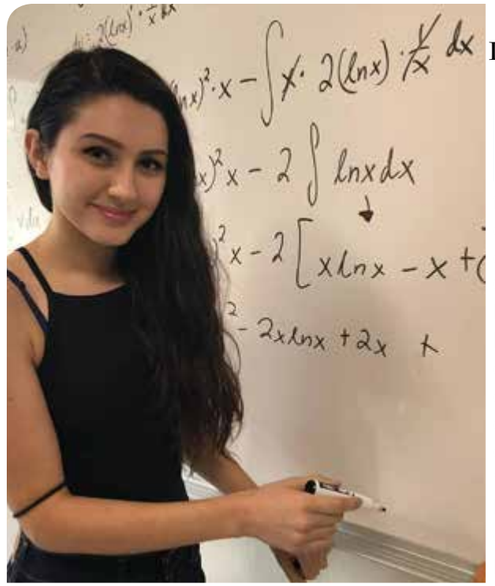
AURORA CALDERON DOJAQUEZ · MATHEMATICS

Aurora is a mathematics major and is the first in her family to pursue a college education. While growing up, she realized getting an education was a priority and that pursuing it will require effort and sacrifice. During her four years at CSU, San Bernardino, she demonstrated academic excellence by maintaining an overall 3.90 GPA. She has been able to achieve this great accomplishment while taking advanced mathematics courses in preparation for attending graduate school. Aurora is very grateful to all her professors and mentors for guiding her every step of the way and providing a great support system. Aurora worked as a mathematics facilitator for CSU-LSAMP and she worked as a student assistant for the Chemistry Department. She also researched on group theory with Dr. Hasan to complete the requirements for receiving Departmental Honors. Her career plans have always involved receiving her PhD in mathematics and becoming a university professor and mentor, so she can help the students like her achieve their dreams. Aurora has successfully graduated Magna Cum Laude and has been admitted to a PhD program that will commence in fall of 2018.

OUTSTANDING ACADEMIC & RESEARCH IN STEM

MARLENE GUERRERO · MATHEMATICS

Marlene is a first-generation college student who began her college career at San Bernardino Valley College, where she obtained her AA in biological and physical sciences. She later transferred to CSU San Bernardino as a mathematics / economics concentration major, where she excelled in all of her courses. In June 2016, she joined the CSU-LSAMP Program and was selected as a facilitator for the CSU-LSAMP program in 2017. Marlene participated in the 2016 PUMP summer program, where she developed an interest in obtaining a masters and PhD degrees. In 2016-2017, she joined the PUMP undergraduate research group, and she presented her mathematical research at the 2017 PUMP Symposium held at CSU Northridge, as well as at CSU San Bernardino. Marlene was fortunate to receive an internship at State Compensation Insurance Fund working in the Information Technology department. In winter 2018, Marlene graduated with highest honors Magna Cum Laude. Marlene plans to attend a master's program in Information Systems Technology program in the fall.



OUTSTANDING SERVICE/LEADERSHIP

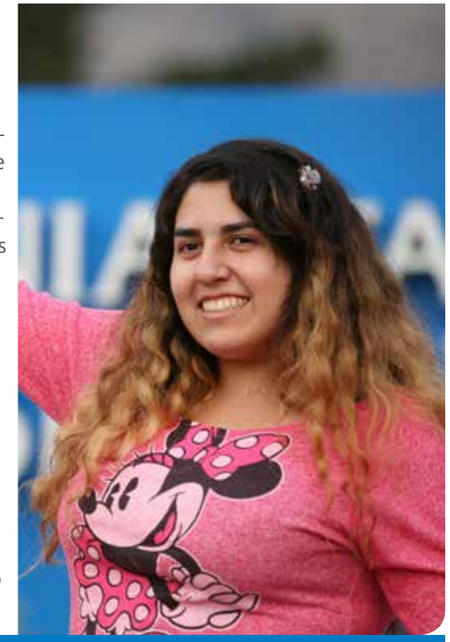
ITZEL DIAZ · COMPUTER ENGINEERING AND MATHEMATICS

Itzel is a computer engineering and mathematics double major and is a first-generation college student who joined the CSU-LSAMP program through the Academic Excellence Workshops for Chemistry. She decided to give back by becoming a facilitator of the workshops herself. Itzel has been a facilitator for the Academic Excellence Workshops for Calculus and a facilitator in the CSU-LSAMP Summer Math Program since 2013. In those roles, Itzel has helped quite a few students, who recognize her as an excellent facilitator. Additionally, she is currently involved in research on Parallel Computing with Dr. Gomez. Itzel has also collaborated extensively with the CSU-LSAMP Program by organizing some of the activities of the Summer Math Program. She also helps in disseminating information about, and recruiting students for, the Summer Enrichment Conference that the CSU-LSAMP Program hosts every year in December. Itzel expects to graduate with a double major in mathematics and computer engineering. She plans to pursue a graduate degree in computational mathematics.

OUTSTANDING RESEARCH IN STEM

ERIKA GUTIERREZ · COMPUTER SCIENCE

Erika is a third-year computer science major with a minor in mathematics who began her journey at as a business major, thinking her skill in math would lead to a career in finance or accounting. As a freshman, Erika intentionally drifted away from the sciences, thinking she did not fit the image of a scientist. When she took her first programming class she learned about her interest and skills in computer science and changed her major. In summer of 2017, Erika participated in a Research Experience for Undergraduates (REU) Program at Harvard University with Professor Radhika Nagpal in autonomous, outdoor, robotics research in their Self-Organizing Systems Research (SSR) Laboratory. Since then, Erika has presented her research at numerous conferences including SACNAS, ERN, SCCUR and Harvard University's REU Program Summer Symposium. In winter of 2018, Erika was offered a conjunction job with Facebook and CSUSB's Cyber Security Center as a Technical Project Manager, where her primary role is to be the liaison between Facebook and CSUSB. Her other responsibilities include coordinating events at the nationwide level, such as the summer camp "GenCyber" programs, and assisting her supervisors in managing their Center for Academic Excellence (CAE) community. She is currently learning different concepts of cybersecurity through Facebook and Codepath's Cybersecurity University course and is scheduled to teach the course to a class of approximately 40 students in fall of 2018 at CSUSB.



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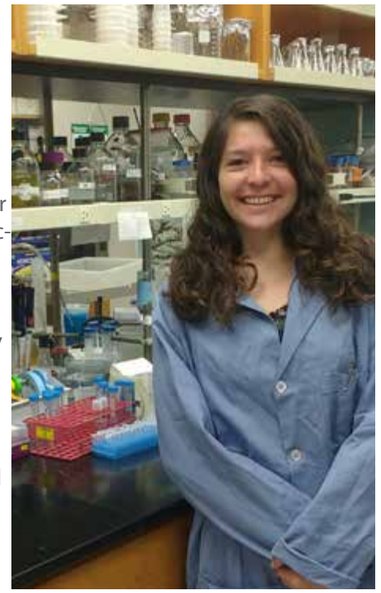
San Diego State University

Outstanding Research in STEM
Elena Arroyo · Physics

Elena graduated with a bachelor's degree in physics and was an active participant in the CSU-LSAMP program since the summer of 2013. Since her sophomore year, Elena worked under the mentorship of Dr. Arlette Baljon investigating anomalous diffusion of bacteriophages in mucus. She has had the opportunity to present her research at various local and national conferences. In addition, Elena conducted research at the University of Texas, Rio Grande and the University of Colorado at Boulder during two consecutive summers. Elena enjoys taking students on tours of her lab and shares her research experience with anyone who is interested. She has allowed many students to "shadow" her in the lab and has given research presentations during the summer CSU-LSAMP programs over the years. In spring 2018, Elena was awarded the very prestigious National Science Foundation (NSF) Graduate Research Fellowship. In addition to her strong research experience, Elena was very active in the Society for the Advancement of Chicanos/Hispanic and Native Americans in Science (SACNAS) and the Society of Physics Students (SPS) at SDSU. Elena is now pursuing a PhD from the Biological Physics, Structure and Design program at the University of Washington.

Outstanding Service/Leadership
Citlayi Villasenor · Biochemistry

Citlayi is a biochemistry major, who joined CSU-LSAMP in the summer of 2015, as an incoming freshman. Since joining CSU-LSAMP, she researched with Dr. Tom Huxford and participated in the CSU-LSAMP summer program in Costa Rica. In addition to her research, Citlayi acted as the 2017-2018 SACNAS Student Chapter President, where she was recognized on campus and by the national organization. Along with the executive team, Citlayi organized biweekly meetings with guest speakers and information on important upcoming events. With the help of her advisors, she coordinated workshops on "Cancer Research & Joining a Research Laboratory" and "How to make an Effective Curriculum Vitae". Citlayi organized several fundraisers, including one to raise money to make care packages to send to families in Puerto Rico. This was a joint effort with members of the Lambda Theta Phi Latin Fraternity at SDSU and UCSD. Citlayi created a "Wonders of Water (WOW)" workshop for (STEM)2 Exploration Day hosted by SDSU's Pre-College Institute, which allowed students from local high schools to experiment with water droplets on pennies, melting ice in salt water versus fresh water, creating lava lamps, and visualizing the diffusion of food coloring. Citlayi encouraged SACNAS members to apply for travel scholarships so that they too could attend the Annual National Conference. Citlayi organized the Google drive for future officers to utilize as a foundation and do not have to start from scratch, and for the club to remain active. Citlayi hopes to encourage more collaboration between STEM organizations on campus.



Outstanding Persistence & Resilience
Faith Aynekulu · Chemistry

Faith graduated with a bachelor's degree in chemistry and a minor in leadership in May 2018. She was awarded a travel award to present her research at the American Chemical Society Conference in March 2018. As an African-American, first generation college student ,Faith has overcome many obstacles in her college career. Because of these challenges, she was focused on her goal and her work ethic was unshakeable. She refused to let anything limit her. Aside from her contributions to research, she sought out the opportunity to develop leadership skills through active engagement. She served as a College of Science Student Council (CSSC) representative for the Black Student Science Organization (BSSO). It was her responsibility to advocate for the members' rights and to advance in their interests. She also served as the executive vice president for CSSC, acting as the official liaison of CSSC to the office of the Assistant Dean for Student Affairs for the College of Sciences. Faith does not take "NO" as an answer, even when life gives a curve ball. She keeps on striving and as a result of that, she is the first in her family to pursue a PhD in organic chemistry at the University of Missouri, Columbia.

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Outstanding Academic
Sara Torres Robles · Biochemistry

Sara is a senior majoring in biochemistry with a minor in Chinese. Throughout her undergraduate career, Sara has become involved in the Mortar Board Honor Society, Phi Eta Sigma National Society, Scholars Without Borders, and Maximizing Access to Research Careers (MARC) program. She currently works in the Structural Biochemistry Laboratory with Dr. Tom Huxford studying protein-protein interactions of UNC45 and Hsp83, which may play an important role in muscle function. Sara presented her research at various local and national conferences, including ERN-STEM 2018. Sara also participated in the 2015 Kyoto University Amgen Scholars Program, where she spent the summer in Kyoto, Japan, studying the effects of macromolecular crowding on the nucleocytoplasmic transport of proteins. Sara has studied abroad as a Gilman scholar in China for an academic year to prepare herself to become a research scientist involved with collaborative, international research. In summer of 2018, Sara participated in the Biological SIGNALS Research Program at the University of Wisconsin-Madison working on proteins involved in bacterial division. What sets Sara apart from all other students is that she has participated in all the aforementioned experiences while maintaining a 3.50 GPA. Sara aims to earn a PhD in structural biology, studying how life works at the molecular level, and wants to become a research professor, focusing on scientific problems in women's health and neglected tropical diseases.

San Francisco State University

Outstanding Compelling Personal Story
Jhony Zavaleta · Biological Sciences

Jhony is the son of immigrant parents. His mother came from Guadalajara, Mexico and his father came from Trujillo, Peru. As a child, Jhony moved almost every year because his father was in the US Marine Corps, and later because of his parents' divorce and finances. Jhony felt that because of financial and housing instabilities, it did not make sense to put effort and money into any extracurricular activities. Luckily, his parents valued education and bought him books or movies that described strange animals, dinosaurs, the planets and stars. This exposure motivated Jhony to participate in NASA's Science, Technology and Exploration Program (NASA STEP) in high school. Jhony's experience in NASA STEP influenced his eventual decision to pursue a BS in biology. Attending science classes and seeing the enthusiasm for science that his peers and professors shared convinced him that a path in biology was for him. He joined the lab of Dr. Megumi Fuse and quickly found that the research environment was home. Jhony was accepted into SFSU's master's program for physiology and behavior and will be working in a co-mentored research collaboration between Dr. Megumi Fuse at SFSU and Dr. Sharmila Bhattacharya at NASA Ames Research Center. After completion of his master's degree, Jhony intends to pursue a PhD and career in the biomedical sciences. He also wants to serve as a science educator for underserved communities and the general public to empower them with knowledge and motivate future generations to pursuing STEM careers.

Outstanding Academic & Research in STEM
Sofia Kakaizada
Biological Sciences

Sofia is a senior majoring in biology (physiology) with minors in race and resistance, chemistry and health education. She is the first in her family to pursue a 4-year degree and spends most of her time mentoring students and doing research. Sofia believes research is about discovering ways to prevent disease, increase survival rates and increase the quality of life in patients. In her first research project, Sofia focused on finding less invasive neurosurgical approaches to treat the brain. She then transitioned to understanding the mechanisms by which intrinsic brain tumors impact cognition and cognitive recovery. She has co-authored two publications and is co-author on eleven articles submitted for publication. Sofia's goal is to become a physician-scientist to continue researching to find innovative approaches to maximize survival and improve the well-being of patients. In addition to research, she is the president of M.A.S.E (Metro Association for Social Equity), an SF BUILD scholar, and is in the President's Leadership Fellow. Sofia has excelled academically and was selected for Phi Beta Kappa honors. She also participates in Stanford-LEAP (Leadership for Aspiring Physicians) where she encourages underrepresented minorities to pursue degrees in higher education in STEM fields. She wants to spread the message that with the help of community, proper support and proper resources, achieving your dream is possible.

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SJSU SAN JOSÉ STATE UNIVERSITY

OUTSTANDING ACADEMIC &RESEARCH IN STEM

CASSANDRA VILLICANA
BIOMEDICAL ENGINEERING

Cassandra is pursuing her BS degree in biomedical engineering and currently maintains a 3.9 GPA. She realized that her excelling in classes alone would not be enough to prepare her for her future goals, so she looked for a research opportunity. She has also started taking graduate level courses to prepare herself for the rigors of an advanced degree. She also participated in an international experience, where she traveled to Taiwan as part of the SJSU College of Engineering's Technology Initiative (GTJ) Program. She was part of a project group that included a diverse team from Taiwan, Philippines, and China. They were able to develop and present their "Real Time ECG Signal Processor" in three weeks, where they placed 1st among twenty global teams. In May 2017, Cassandra joined Dr. Laura Miller Conrad's research group focused on the gram-negative bacteria Pseudomonas aeruginosa, which has been classified by the World Health Organization as a priority pathogen due to its growing antibody resistance. She works closely on testing synthesized inhibitor effectiveness as well as using circular polymerase extension cloning (CPEC) techniques to successfully transform arnA into a BL2IDE3 for protein expression and future kinetic studies. This summer she worked with Dr. Miller Conrad's lab as well as Boston Scientific Corporation's lab to help with tissue related projects. She plans on applying to PhD programs in bioengineering with a goal of doing graduate research work in the area or tissue engineering.

OUTSTANDING ALUMNUS

JACOB MORALES SCHEKMAN
CHEMISTRY

Jacob graduated with his BS in chemistry in May of 2015. He conducted research with Prof. Gilles Muller synthesizing and characterizing luminescent lanthanide coordination complexes for application as molecular probes. As a member of the NIH RISE at SJSU, Jacob seized the opportunity to present his research at several conferences, like the American Chemical Society Meeting and the Annual Biomedical Research Conference for Minority Students, and thoroughly explored the many areas of chemistry available for study as a graduate student. Gravitating toward materials science, Jacob participated in an REU at the University of Southern Mississippi (USM) Polymer Science and Engineering Research Center. Working with Prof. Sergei Nazarenko, Jacob developed membranes which were permeable to water vapor yet impermeable to water in its liquid form. Choosing to continue his path as a materials scientist, Jacob enrolled as a PhD student at USM in August of 2015. His area of research involves the fabrication of hybrid organic-inorganic membranes for the separation of carbon dioxide from other gases. During his second year at USM, Jacob was accepted into the NSF National Research Traineeship, a program which emphasizes science communication and collaborative efforts. This traineeship lead Jacob to a summer externship at the University of California, Berkeley to work with Prof. Omar Yaghi, a pioneering chemist in metal-organic frameworks. Jacob's career goal is to work in industry and use that opportunity to develop a program that brings underrepresented minority high school students in for a summer research experience in industry.

OUTSTANDING ACADEMIC & RESEARCH IN STEM

GRACE JEANPIERRE
ELECTRICAL ENGINEERING

Grace is a first-generation student majoring in electrical engineering. She works with Dr. Abraham Wolcott investigating the direct amination of high pressure high temperature nanodiamond (NDs) surfaces for biodetection. Her focus is to aminate NDs to form colloidal and cellular stabilization, which requires a meticulous process for synthesis and surface characterization. She is a user at Stanford Linear Accelerator Center National Laboratory, where she prepares samples and probes various ND surfaces using XAS and XPS techniques. In summer of 2017, Grace participated in the Nanotechnology and Biomedicine REU at the University of Georgia with Dr. Mable Fok testing two fiber optic touch sensor systems used on spiral catheters. She presented her research at the 2017 Annual Biomedical Research Conference for Minority Students and the Biomedical Engineering Society conference. She traveled to Paris during summer 2018 to conduct research for the Optics in the City of Light REU through Michigan University. Grace is also pursuing a minor in mathematics and currently has a 3.89 GPA which has earned her memberships in Tau Beta Pi and Eta Kappa Nu honor societies and was recognized as a Dean's Scholar in spring 2017. She is in the MARC U-STAR program, aspires to continue pursuing research and obtain her PhD in electrical engineering. In the future, she envisions herself applying bioelectronics and wireless communications at a medical research center to aid in the advancement of medical devices. Ultimately, she intends to create a non-profit that provides low-income students access to STEM through workshops and classes.

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OUTSTANDING ACADEMIC & RESEARCH IN STEM

JASMINE GARCIA · BIOLOGICAL SCIENCES

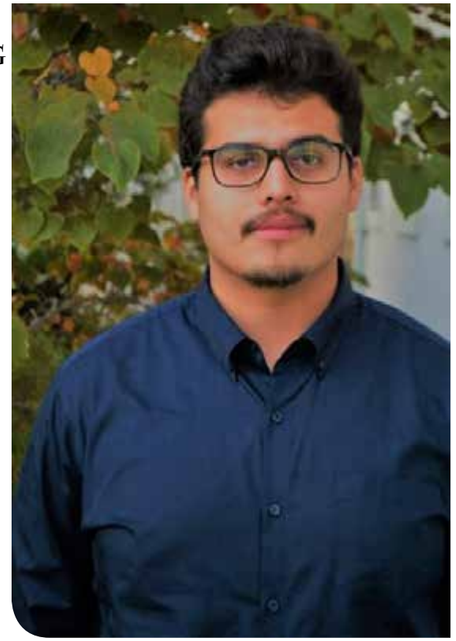
Jasmine graduated with a BS degree in biological sciences with a concentration in molecular biology and a minor in chemistry in December of 2017. A native of San Jose and the youngest of four children, she's the third of her siblings to graduate from San Jose State. During her undergraduate studies, Jasmine worked in the cancer biology research lab of Dr. J. Brandon White investigating the bioactive role of walnut ellagitannins in inhibiting the cell cycle in breast cancer cells. She has presented her research at the 2017 CSU Annual Biotechnology Symposium and the 2017 Annual Biomedical Research Conference for Minority Students, as well as at other on-campus events. Jasmine credits her experience in undergraduate research for improving her studies, especially her ability to ask questions, troubleshoot, and solve problems. Her academic success earned her a spot on the Dean's List. During her final year, Jasmine maintained a 4.0 GPA earning her the honor of being a President's Scholar. In her final semester, Jasmine worked part time in the research lab of Dr. Kevin C. Wang in the Department of Dermatology at Stanford University. Her contributions there gained her a coauthor position on a paper on pluripotency maintenance in mouse embryonic stem cells. She has helped with several projects aiming to understand epigenetic changes in chromatin structure and how it can impact various cellular processes. Jasmine plans on spending time continuing research training and further refining her research interests before pursuing a graduate degree.

CAL POLY

SAN LUIS OBISPO

OUTSTANDING SERVICE/LEADERSHIP

DANIEL SANCHEZ · AEROSPACE ENGINEERING



Daniel graduated with a BS in aerospace engineering in spring 2018. He played several leadership roles in an effort to promote higher education to underrepresented minorities. Daniel joined the Society of Hispanic Professional Engineers (SHPE). In SHPE, he led a committee of six members that worked to promote STEM careers to high school students in Santa Maria. He organized campus tours, industry tours, engineering workshops, and financial aid presentations to provide high school students a pathway to higher education. In summer of 2016, Daniel joined the AmeriCorps program as a CSU STEM VISTA Summer Associate, a full-time, ten-week program designed to expose K-12 underrepresented students to the STEM fields. In this role, Daniel promoted inclusivity and diversity for Cal Poly's Engineering Possibilities in College (EPIC) Summer Camp. At EPIC, he provided diversity and inclusion training to camp counselors, taught engineering labs to middle school and high school students, and served as a counselor for middle school students, including participants in Migrant Education Programs. Daniel's main career goal is to obtain a PhD in engineering and continue to promote STEM to underrepresented minorities. His main personal goal is to show underrepresented minorities that anything is possible with higher education.

OUTSTANDING ACADEMIC

KAI LING LIANG · CIVIL ENGINEERING

As a first-generation college student from a low-income family, Kai Ling excelled academically as a civil engineering student. Kai Ling earned multiple scholarships through her department and outside organizations to fully finance her education. She also worked as a tutor at Engineering Student Services, where her guidance and expertise contributed to the academic achievements of dozens of students in the College of Engineering. Kai Ling invested countless hours of dedication and hard work to develop herself as an engineer. She was the junior captain for the ASCE Steel Bridge team and designed a shower facility for a children's summer camp as a member of the Local Projects Team of Engineers Without Borders Cal Poly. Additionally, she has participated in research, organized labs for the Engineering Possibilities in College (EPIC) program and interned as a gas distribution engineer and structural designer at PG&E and FTF Engineering, respectively. For her senior design project, she directed a team of five in designing a culvert to mitigate flooding to downtown San Luis Obispo in a 100-year storm. Her design was praised by industry judges for its constructability and structural design, contributing to her team earning second place out of 24 teams in her class. Kai Ling is currently completing a master's in sustainable design and construction at Stanford University, where she plans to integrate constructability and sustainability with structural design to influence her future projects' environmental impacts and lifespans.

OUTSTANDING CONTRIBUTION TO CREATING A MORE DIVERSE, INCLUSIVE, AND EQUITABLE CAL POLY & STEM WORKFORCE

NATIONAL SOCIETY OF BLACK ENGINEERS (NSBE)

The National Society of Blacks Engineer's mission is to increase the number of culturally responsible Black engineers who excel academically, succeed professionally, and positively impact the community. The chapter, established in 1978, was created to academically and professionally support minority STEM students on campus. Each year, members attend national and regional organization conferences where they network with industry and other students from across the country. The conferences also provide valuable workshops to help students develop personally and professionally and a career fair with hundreds of global companies. NSBE also plays an important role creating a more diverse, more inclusive, and more equitable university. The 2017-18 NSBE Executive Board included the following CSU-LSAMP participants: Jeana Osburn, President, industrial engineering major; Ben Granberry, Vice President, civil engineering major; and Amman Asfaw, Secretary, electrical engineering major. Jeana joined NSBE her freshman year, and first became involved in the chapter's executive board as Secretary during her sophomore year. Ben joined NSBE as a freshman hoping to meet other black engineers but became more involved when he learned about NSBE's resources. Amman joined NSBE his freshman year, as the Social Media Chair, and has been heavily involved ever since.

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OUTSTANDING RESEARCH IN STEM

ROBERTO ABRIL VALENZUELA
PHYSICS & MATHEMATICS

Roberto graduated Magna Cum Laude with a double major in physics and mathematics in June 2018. He started as a physics major and later added a second major in mathematics after realizing he had a passion for both subjects. Roberto became involved in undergraduate research his second year when he joined Dr. Colleen Marlow's research group, where he studied thermal dependence of the electronic properties of carbon nanotube devices. Roberto conducted summer research with Dr. Marlow as part of the Frost Undergraduate Research Program after his sophomore year. In fall 2016, he presented his work at the Frost Research Poster Conference at Cal Poly. In Summer 2017 he participated in the Physics REU program at the University of Colorado at Boulder where he worked with Dr. Minhyea Lee on analyzing quantum oscillations in non-magnetic materials. Roberto completed his senior project with Dr. Marlow, focusing on expanding existing computer simulations of carbon nanotube films to include gating effects observed in experimental data. Roberto started his PhD in physics through LSAMP's Bridge to the Doctorate Fellowship at UC Santa Barbara, where he plans to continue his studies in the field of condensed matter. After obtaining his doctorate degree, Roberto plans to pursue academic research and to teach physics at the university level.

California State University
SAN MARCOS

OUTSTANDING ACADEMIC
FRANCISCO FERNANDEZ · BIOLOGICAL SCIENCES

Francisco, a LSAMP Scholar and MARC Fellow, graduated Magna Cum Laude in spring 2018 with a BS in biology with a perfect 4.0 GPA. He also worked diligently in research with Dr. Matthew Escobar on functionally characterizing the root-regulating glutaredoxin genes in Arabidopsis thaliana using CRISPR-Cas9. Francisco received awards for outstanding poster and oral presentations at various national conferences. Francisco's dedication to academics and research earned him the highly competitive California State University Trustees' Award for Outstanding Achievement that is awarded annually to one exemplary student from each CSU. Francisco also made important contributions as a summer scholar at Marshall University, where he studied obesity and diabetes in 2016. In the summer of 2017, he contributed to advancing research on stem cells at the University of Texas Southwestern. Both of these programs recognized Francisco's stellar academic performance and potential to thrive as a research scientist with offers to their respective PhD programs. Francisco is an advocate for science and seeks opportunities to mentor others. He is the secretary of the CSUSM Chapter of the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS). He openly shares his struggles with being a first-generation college student from humble beginnings and does so from a place of strength. Francisco's academic goals are to obtain a PhD in the sciences, to be a driving force for science, and to continue to mentor to students from various backgrounds.

OUTSTANDING SERVICE/LEADERSHIP
ROSA ROMERO · BIOCHEMISTRY

Rosa, an LSAMP Scholar and MARC Fellow, is a senior applying to PhD programs in biochemistry. Rosa's interest in research began when she took Dr. Jaqueline Trischman's organic chemistry course. Dr. Trischman recognized Rosa's potential and invited her to work with her on identifying antibacterial compounds in the marine bacteria strain UA 088. As a MARC Fellow, Rosa sought out a position in the biochemistry laboratory of Dr. Kambiz Hamadani, where she focused on examining fluorescence quantum yield determination for FRET analysis. With this work, Rosa contributed to the field of protein biochemistry. In addition to maintaining a strong GPA and excelling in research, Rosa exhibits impressive service and leadership skills. She is the founder and current vice president of the affiliated chapter of the American Chemical Society. In addition, Rosa has established initiatives at the Girls Inc. and Community Housing works, two programs that help students successfully navigate their way to a college education. Rosa has used her leadership skills to secure funding for these important programs; programs to which she attributes her enrollment at a university and current success. Rosa is now giving back to her community and inspiring others by being a role model to students of many ages. This summer, Rosa contributed to the prestigious Sackler National Science Foundation program at Yale, an experience that has brought her closer to her ultimate academic goal of obtaining a PhD.

OUTSTANDING RESEARCH IN STEM
YUMARY VASQUEZ · BIOTECHNOLOGY

Yumary, a first-generation college student and daughter of Venezuelan immigrants with a deeply rooted passion for research, graduated Cum Laude with a BS in biotechnology and a minor in computer science. Yumary was selected as a Summer Scholar for two years, was awarded a Biotechnology Outstanding Faculty Student Collaboration Award, has presented her research at various conferences, and is co-author on a peer-reviewed publication. Yumary's contributions to research began in the immunology laboratory of Dr. Julie Jameson studying the effects of obesity on inflammatory response in a mouse model. With her mentor's guidance, she pursued an interest in computer science and joined the population genomics laboratory of Dr. Arun Sethuraman, where she studied the population genomics of predatory lady beetles which are used as a biological control agent in agriculture. In addition to her publication based on this work, Yumary has two papers in preparation for her work on the parasitic wasp Dinocampus coccinellae, which would be the first whole-genome sequencing of this species. Yumary is also a Learning Assistant at the STEM Center, a Lead STEM Ambassador for the Center for Research and Engagement in STEM Education, and an elected representative on the Associated Students Inc. board. Yumary accepted to attend a PhD program in Intelligent Adaptive Systems at UC Merced as a funded NSF-NRT Training Program Scholar. After earning her PhD, Yumary seeks to become a professor and role model for students who are pushing past educational barriers to achieve their goals.

OUTSTANDING RESEARCH IN STEM
MAYLIN CALDWELL · BIOLOGICAL SCIENCES

Maylin, a proud Puerto Rican and Marine Corp veteran, graduated with a BS in biology and concentration in ecology in spring 2018 with a 3.7 GPA. Maylin transferred from Palomar Community College in fall 2015, where she was a Bridges to the Baccalaureate Scholar. She soon joined the LSAMP program and worked in the plant pathology laboratory with Dr. Mathew Escobar. Maylin was soon awarded the Maximizing Access to Research Careers (MARC) fellowship in recognition of her academic excellence and dedication to research. Maylin focused on identifying genes in Arabidopsis that activate mechanisms responsible for eliminating reactive oxygen species. She presented her work at various conferences and earned awards for the quality of her research. Maylin also received the California State University Trustees' Award for Outstanding Achievement, the highest student distinctions in the CSU system, awarded annually to one student per campus. Maylin skillfully balances her academic, research and service commitments. She is the founding president of the local chapter of the American Association of the University Women, an organization that was awarded Best New Student Organization under her leadership and was a STEM Ambassador mentoring many students. Maylin's long-term career goals are to obtain a PhD in biological sciences and to become an agricultural scientist with the aim of developing better agricultural methods. She earned the highly competitive National Science Foundation Graduate Research Fellowship and was accepted into multiple PhD programs. She accepted to attend the University of Puerto Rico in fall 2018.

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SONOMA
STATE UNIVERSITY

OUTSTANDING RESEARCH IN STEM
TAYLOR LEACH · BIOCHEMISTRY

Taylor is a graduating senior studying biochemistry. As a first-generation college student, he had little direction or guidance on what to study. He chose biochemistry because felt that it had endless opportunities. He immediately fell in love with this field and the innovation that surrounded it. Taylor was a student athlete for two years, balancing academics and NCAA baseball. Due to an injury, he was not able to continue playing baseball and he was able to dive into research. Taylor worked with Dr. Bogdan Negru research group in chemical education and the development of enhanced Raman spectroscopy. They first developed an educational lab focused on teaching undergraduates about nanotechnology using morpho butterflies. Taylor presented at the American Chemical Society conference in San Francisco and eventually published in The Journal of Chemical Education. Taylor then attended CSU-LSAMP's summer research training expedition in Costa Rica, where he designed and implemented an experimental field research project focused on the evaluation of dynamics of trees in a tropical forest plot. Finally, in his last year at Sonoma State, Taylor's research group shifted focus towards the enhancement of Raman spectroscopy, where they made a new solid polymer substrate containing gold nanoparticles for coherent Raman spectroscopy. The group then presented this research at the American Chemical Society conference in New Orleans, and then again at Mills college at the American Chemical Society Undergraduate Research Symposium.

OUTSTANDING PERSISTENCE
LIRIDONA LETI · CHEMISTRY

As a first-generation Albanian American, Liridona hoped to become the first in her family to attend college and obtain a degree. She attended community college and graduated with two associate degrees, one in theatre and the other in English. However, her true passion was in the sciences and she really wanted to study chemistry. Her love of science and chemistry is rooted in a story of war and genocide. In 1999, when she was eight years old, many people in her family were killed during the Kosovo crisis, and those who survived the war have since died of ailments that were most likely caused by environmental toxins released during the bomb raids. As a child, she spent a lot of time listening to her parents speak of the diseases that plagued her family. As a young adult, she has reflected on this often and has realized how much this experience has inspired her to pursue an advanced degree in chemistry, so that she may study environmental toxins. With that in mind, she plans on earning a PhD and aspires to enter the teaching profession at the college-level. Through tutoring and being a supplemental instructor, she has come to realize how important it is to help students understand the subject fundamentally. As a teacher, she plans to continue researching ways to de-pollute the air as well as create renewable energy.

OUTSTANDING ACADEMIC
JORGE RUIZ GONZALEZ · PURE & APPLIED MATHEMATIC, AND CHEMISTRY

Jorge is a triple major in applied and pure mathematics, and chemistry. Jorge grew up in Oakland, the son of an immigrant father and neither of his parents attended college or spoke English natively. Jorge is a first-generation college student and wishes to apply to graduate school and become a university professor. Some of the adversities that Jorge faced were having his father deported when he was 11 years old, leaving his mother to raise four children on her own. Jorge also has two older sisters with physical disabilities, with one also suffering from other chronic health issues. Jorge had to play a supportive role for his family by helping his mother in taking care of his older sisters while still doing internships and going to school in hopes of going to college to earn his bachelor's degree and attend graduate school. Being from Oakland and having seen the educational disadvantages that exist in minority, first generation and historically low-income students, Jorge wants to work in higher education to inspire and get more underrepresented and disadvantaged students to succeed in higher education. Jorge is involved in various positions and communities on campus such as MESA, EOP, Residential Life, and tutoring, and is planning to begin doing research in the Mathematics department.

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OUTSTANDING MATHEMATICS
JACOB PAXTON · APPLIED AND PURE MATHEMATICS

Jacob became interested in math in college after taking his first calculus course. He began as an applied math major and after taking modern algebra and real analysis, quickly applied for a double major in pure math. He has participated in the math modeling competition, been a math workshop leader, made the Dean's List, and has been awarded various scholarships during his college career. Jacob is thankful for the support and opportunities given to him through CSU-LSAMP. It allowed him to pursue ideas and subjects of interest to him outside of classes. Through the guidance of mentors in the program as well as collaboration with other participants, he feels that he's grown as both a student and a person. Through the CSU-LSAMP program, he participated in researching sandpile groups, an area of physics utilizing different branches of mathematics attempting to answer questions about self-organized criticalities. He hopes to be the first in his family to earn a postgraduate degree and plans to continue to pursue his educational interests.

California State University | Stanislaus

OUTSTANDING ACADEMIC
EFRAIN CALDERON · COMPUTER SCIENCE

Efrain comes from an immigrant family and is a first-generation college student who majored in computer science. His parents instilled in him the value of hard work. He worked on the peach, almond, cherry, and blueberry fields of the Central Valley of California during his summer vacations. This experience inspired him to strive to further his education. After dropping out and then coming back to Stanislaus State, Efrain was able to get back on track on his educational path and made the Dean's List on three separate occasions. The improvement in his GPA was motivated by the goal of obtaining a better future for his son. During his senior year, Efrain researched with Dr. Elvin A. Alemán and Dr. Melanie J. Martin on improving the usability of the software used by Dr. Alemán's research group, which aided them in studying the reparation mechanisms of different enzymes. Efrain's research focused on modifying existing programming scripts and creating a plugin, or software component, used by the Micro-Manager open source microscopy software that would aid in the capturing of the reactions of the enzymes. Efrain is proud of graduating in spring 2018. It has been a long road for him, but he hopes to help future students from underrepresented backgrounds, by sharing his own experience with them. Efrain also hopes to someday be able to further his education, studying mathematics and physics, and incorporating his computer science knowledge. His immediate goal is to find work in database management.

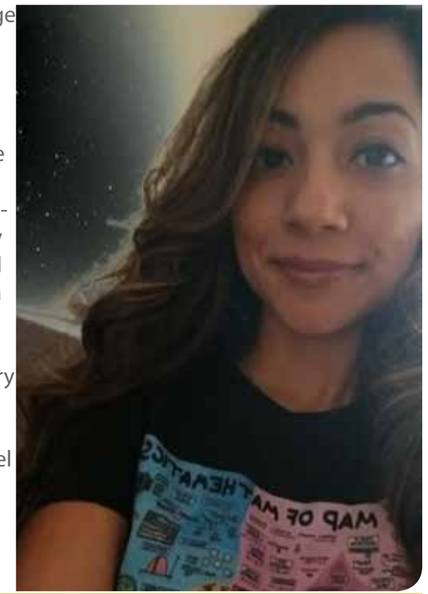
OUTSTANDING RESEARCH IN STEM
JONATHAN DANIEL · PHYSICS

Jonathan graduated with a BS in physics in May 2018. Jonathan was awarded a One Purpose Physics Scholarship and was a Cal-Bridge scholar. Jonathan joined Dr. Wing To's research group, where their focus was to analyze data from the Large Underground Xenon experiment, a dark matter detector located at the Sanford Underground Research Facility (SURF) in South Dakota. Jonathan's research focused on utilizing machine learning techniques to isolate contaminating background signals that would otherwise cloud the data with false detections. His focus on research and academic success led to a summer research internship at Stanford where he worked at SLAC National Accelerator Laboratory as part of the LUX-ZEPLIN research group. Jonathan presented his research at two different science conventions, PHYSCON 2016 and American Astronomical Society (AAS) 2018 meeting. Jonathan also enjoys outreach work and has organized many students to participate in STEM outreach activities. Jonathan was active in the Society of Physics Students Chapter. As Chapter President, he led the organization to participate in events such as Stan State's annual Science Day, monthly Science Saturdays and PG&E grant funded "We Share Solar" project. Along with off campus work Jonathan strove to help his peers on campus as well, by organizing and leading many group tutoring sessions for the undergraduate physics courses. Jonathan is on his way to pursue his lifelong goal of obtaining a PhD, as he started the PhD program in physics at the University of California, Merced in fall 2018.

OUTSTANDING ALUMNA
ZOILA ESTRADA-TOBAR · MATHEMATICS

Zoila (Zoe) graduated with a dual BS in chemistry and biology in 2014. Zoe worked with Dr. Michael D. Drake as part of the Roanld E. McNair Postbaccalaureate Achievement Program and later as a CSU-LSAMP Research Intern. Zoe examined (2R, 3R)-butanediol in different solvents using 13C nuclear magnetic resonance (NMR) spectroscopy and investigated its conformational preferences and solvent effects (i.e., hyperconjugation). In 2012, Zoe participated in the Summer Research Opportunity Program at the University of Illinois at Chicago, in Dr. Leslie Wo-Mei Fung's laboratory using circular dichroism (CD) spectroscopy to monitor the secondary structures of recombinant PurE in the microbe Bacillus anthracis. Zoe's interest in working on projects involving structural aspects of biochemistry led her to apply to the LSAMP Global Awareness Program at Chiang Mai University, Thailand, where she worked in Dr. Kanchana Dumri's lab modifying bentonite clay with berberine (created an "organoclay") to increase its adsorption of organophosphate pesticides (OPs) in water. In 2018, Zoe completed her master's in chemistry at Cal State LA working with Dr. Cecilia Zurita-Lopez as a CSU-LSAMP Bridge-to-the-Doctorate Program fellow. Zoe's project examined the fundamental electrostatic interactions in the protein histone H3 within an RKS (arginine-lysine-serine) motif. She developed NMR spectroscopy techniques to understand how histone H3 serine-10-phosphorylation overexpression is affected and perhaps regulated by the neighboring arginine residue within the RKS motif. Zoe actively promoted diversity in STEM as president of the SACNAS Student Chapter at Cal State LA. She is currently attending the University of Michigan, Ann Arbor for her PhD in chemical biology.

OUTSTANDING ACADEMIC
MARISOL MIRADA · MATHEMATICS



Marisol was born in Turlock, California and is a first-generation college student who graduated in May 2018. She majored in mathematics with a minor in computer science. Marisol was an active student. In high school she was a member of the California Scholarship Federation, at Modesto Junior College she was a member of the Honor Society Club Alpha Gamma Sigma and was the Inner Club Council representative for the Astronomy Club. At Stanislaus State she was a member of the CSU-LSAMP program, Pi Mu Epsilon National Mathematics Honor Society, Chicanos Unidos for Academic Achievement (CUAA), American Association of University Women (AAUW), and the honor society Phi Kappa Phi. Marisol volunteered for Stan State's annual Science Day, Career/College day at Dena Boer Salida Elementary School, and loves to tutor math in her spare time. In her senior year, Marisol was a researched with Dr. Kenneth Hoover on Archimedes Work on Floating Bodies. In Summer 2018, she did research on graph theory with Dr. David Martin. She received a Certificate of Outstanding Academic Performance from Stanislaus State Student Engagement in Research, Scholarship, and Creative Activity (SERSCA). She also received SERSCA travel grants to attend the Nebraska Conference for Undergraduate Women in Mathematics in Lincoln, Nebraska and the Joint Math Meetings of the AMS and MAA in San Diego, California. She plans to travel for a year and then to further her education to pursue a career in the technology industry.

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