ALAM HASSON
Named Associate Dean

TOP DOG
Dr. Raymond Rodriguez

HEALTH CAREERS OPPORTUNITY PROGRAM

Building the Capacity of THE NEXT GENERATION OF PHYSICISTS AND BIOLOGISTS

“MOVING THE NEEDLE” on Faculty Diversity

FRESNO STATE
College of Science and Mathematics
ELEMENTS Magazine

Publisher and Editor
Christopher R Meyer, Dean
College of Science and Mathematics

Alam Hasson, Associate Dean
College of Science and Mathematics

Production Coordinator
Christine Thibodeaux, Office of the Dean
College of Science and Mathematics

Art Director
Catherine Curry McNally, Graphic Designer
C. Curry Design

Contributing Writer
Kathleen Schock

Photography
Jeffrey D. Phillips - Cover Image (HCOP Story)

Contributing Photographers
Ric Tapia TapiaPhoto, LLC
Cary Edmondson
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IT IS TRULY A GREAT TIME TO BE A BULLDOG!

I am extremely pleased to present the seventh issue of ELEMENTS magazine from the College of Science and Mathematics. Once again, it has been an exciting and action packed year for the college as we continue to successfully advance our teaching, research, and service mission. I am very happy to be beginning my third year as Dean; it is a great honor to work with the talented and dedicated faculty, staff and students of our vibrant and diverse college. A major activity of the year was completing our new Strategic Plan – a process that engaged the entire college in data gathering, problem framing and ideas generation via surveys and brainstorming sessions. The Strategic Plan reaffirms our dedication to the holistic preparation of the next generation of scientists and mathematicians for vital and diverse careers in STEM using innovative High Impact Practices. We aspire to serve as a national model for comprehensive universities with a focus on the integration of teaching and research and STEM education for diverse students, providing regional and state leader in educational outreach and community service, and creating partnerships and networks to address industry and community challenges. We are continuing to improve our lab spaces with the generous support of the University, the Foundation Board of Governors, and donors. Plans for renovation of Biology, Earth and Environmental Sciences, and Chemistry labs are well underway. These enhanced spaces are ideal for active learning and collaboration which are so important to the STEM fields. We continue to excel in research with faculty and students presenting work at regional, national, and international meetings and publishing in high quality journals. The faculty have been extremely active in applying for and securing grant funding from the National Science Foundation (NSF), the National Institutes of Health (NIH) and many other funders to support research and education. This enables many of our students to participate in high quality research projects. One such grant shown in this issue is the $1 Million NSF award granted to a team of Mathematics faculty to recruit and retain majors from unserved groups. This year we also held our first fundraising dinner – Elements: An Evening of Discovery and Fostering Tomorrow’s Scientific Leaders - to support Course-based Undergraduate Research Experiences (CUREs), our Health Career Opportunities Program (HCOP), and outreach activities to our schools and community as shown in this issue. The event was a big success and we were honored by the attendance of President Castro.

Our priorities are reflected by the highlights presented in this issue. This begins with our cover story about the vital role of HCOP in supporting our future health professionals. We are extremely proud of Spring 2019 graduate Lemuel Rivera who will be enrolling at the University of California, San Francisco (UCSF) School of Medicine in the fall. Lemuel’s talent, dedication, true grit, and success is representative of the journey of so many of our students. This category also includes recent psychology graduate Selena Carbajal, now in a top Ph.D. program at the University of Arizona. The phenomenal success of Biology Alumna Carrie Tambo, now a graduate student at UC Santa Cruz, is also presented. We are also pleased to recognize the outstanding Dean’s Medalists from 2017-18 (Chee Her and Marjerle Reeves) and 2018-19 (Lilian Senn and Maria Diaz Perez). Catherine Mueller (a recent biochemistry graduate) earned the CSU Trustee’s Award for Achievement. I would not trade our students for any other university’s students! In accord with our Strategic Plan, we continue to expand opportunities for all students to “learn by doing” via Course-based Undergraduate Research Experiences (CUREs). We are also delighted with faculty achievements, which include Dr. Alejandro Calderon-Urrea receiving the prestigious 2018 Dunhuang Award, and Dr. Rajee Amarasinghe being awarded the CSU Faculty Innovation and Leadership Award for 2018-19. We know you will also enjoy reading about the exciting work of Dr. Krish Krishnan who is having such a positive impact on many students. We were also thrilled to welcome 10 new faculty members in 2018-19 who have hit the ground running! These and other stories and updates in this issue are representative of successes happening all over our college – it is truly a great time to be a Bulldog! We look forward to an outstanding 2019-2020. Excelsior!

Dean Meyer

CHRISTOPHER R MEYER,
DEAN,
COLLEGE OF SCIENCE
AND MATHEMATICS

Dean’s Message
Elements Magazine
Summer 2019
On the national level, it is well known that despite increased engagement of underrepresented and underserved students in STEM Ph.D. programs (including women, minorities, and first generation college students), these students are not making the transition to academic careers at the same rate as majority students. This situation perpetuates the status quo of STEM departments as less diverse, not reflecting the diversity of the student body, and leaving out talented individuals with great potential. Despite Fresno State’s strong emphasis on the recruitment of diverse and inclusive pools of tenure track candidates, our progress in diversifying candidate pools has been marginal in the College and system-wide.

In order to “move the needle” on faculty diversity, the College was one of eight CSU campuses to receive “Advancing Faculty Diversity” grants totaling more than $2M that support best practices in equal employment opportunity and enhance the diversity of CSU faculty.

The College of Science and Mathematics’ initiatives include two recently completed projects – Underrepresented Alumni Symposium and Finding Balance and Bounty at a Comprehensive Boot Camp.

Finding Balance and Bounty at a Comprehensive University
JULY 15-20, 2018

The College of Science and Mathematics at Fresno State hosted a week-long Summer Institute “Finding Balance and Bounty at a Comprehensive University” July 15-20th. The overarching goal of the workshop was to prepare diverse senior graduate students and postdoctoral scholars for careers as STEM faculty members at CSU campuses.

Thirty students and scholars were carefully selected to participate in the five-day workshop. The goals of the workshop include raising awareness about and preparation for academic careers at comprehensive universities and increasing faculty diversity in STEM at Fresno State and other CSU campuses.

The workshop was divided into two general parts: “Getting the Job” and “Keeping the Job” with respect to teaching, research, service, and work life-balance. Our agenda also included a number of guest speakers, including Dr. David Rockcliffe, a Program Director at the National Science Foundation, Dr. Madeline Rasche, a Professor of Biochemistry at California State University, Fullerton and Dr. Brad Goodner, a Professor of Biology, at Hiram College. This workshop is viewed as the beginning of a sustainable network to provide support and resources to future comprehensive university candidates.
Three College Faculty Awarded Outstanding Advisory Awards

College of Science and Mathematics faculty and staff were awarded three of the four campus-wide Outstanding Advisor Awards at the end of the Spring 2018 semester. They were selected from 29 individuals, all of whom were nominated by at least three faculty, staff, administrators and students.

Congratulations to Lilia De La Cerda, LSAMP, Dr. Krish Krishnan, Department of Chemistry and Dr. Marilyn Wilson, Department of Psychology, for the outstanding work they have done on behalf of the students in the College of Science and Mathematics.
The College of Science and Mathematics hosted its first ever Course-based Undergraduate Research Experiences (CURE) professional development institute for faculty. Dr. Erin Dolan, Professor of Innovative Science Education at the University of Georgia, facilitated the 2 ½ day institute that included faculty, staff and students from Fresno State as well as CSU Stanislaus.

While it is widely recognized that research experience is critical for the effective training and retention of STEM students, our capacity to provide research experiences in traditional labs and internships is limited. In response, we have begun to transform many laboratory courses into CUREs. This integration of teaching and research exposes all students to this high impact practice while making progress toward their degrees. Students engaging in undergraduate research report an improvement in their ability to think and work like scientists, and are more likely to further pursue education and careers in science and research, which drive the nation’s progress and economic prosperity.

Participants started the institute by examining data on undergraduate research experiences, discussing who gets access to research internships versus CUREs and evaluations of what makes CUREs distinctive from research internships and traditional lab courses. After establishing research goals for their CUREs projects and student goals, participants designed tasks that allowed students to make progress in the research and in their own learning and development, developed strategies to structure their CUREs course to provide students with an equitable experience and then collect and analyze data to determine the extent to which the research and student goals are achieved.

The college plans to continue this training opportunity to interested faculty in order to institutionalize best practices in CUREs courses for students to experience an “authentic research experience.”

The College of Science and Mathematics hosted a National Science Foundation funded bioinformatics and functional genomics workshop June 21-22, 2019. The workshop was attended by faculty and graduate students from Fresno State (from Biology, Chemistry, and Plant Science) as well as nearby institutions including CSU Bakersfield, Clovis Community College, Fresno City College and CSU Stanislaus.

Dr. Brad Goodner, Professor of Biology at Hiram College, facilitated the workshop through the Guiding Education through Novel Investigation Academic Collaboration Toolkit (GENI-ACT) system. GENI-ACT brings authentic research into the classroom; enhancing student learning and engagement; supporting instructor scholarship and teaching; facilitating collaboration; and answering relevant scientific questions.

Workshop participants gained hands on experience in cutting edge areas including gene annotation, sequence similarity searches and alignments, protein domain search, protein localization prediction, and horizontal gene transfer analyses using the GENI-ACT Web Platform. Participants also discussed possible functional genomics projects and connecting functional genomics data to genome annotation. The workshop was a great brainstorming and networking opportunity for stakeholders to develop modern curriculum that leverages the vast amount of data available from genomics projects as part of the NSF Research Coordination Network (RCN) for Undergraduate Biology Education (UBE).
DR. NATHAN TINTLE SPEAKS  
AT COLLEGE OF SCIENCE AND MATHEMATICS  
FALL ASSEMBLY

The College of Science and Mathematics was honored to host Dr. Nathan Tintle as the keynote speaker at the Fall Academic Assembly on August 21, 2018. Dr. Tintle is a Professor of Statistics at Dordt College and is a trained statistical geneticist/biostatistician. He has worked with over 90 undergraduate research students on a mix of methodological and applied work in genetics, medicine, microbiology and plant biology leading to over 60 peer-reviewed publications and sustained funding from NSF, NIH, HHMI etc. over the last 12 years. He has also been teaching introductory statistics to a wide variety of STEM students for over 15 years, and, with his co-authors, recently published Introduction to Statistical Investigations (John Wiley and Sons, 2016). He has recently won national awards for teaching, research, journal articles and his textbook.

Dr. Tintle spoke to the college assembly on “Science at the Interface of Disciplines.” One of the College’s strategic plan goals is to enhance interdisciplinary research and integration of teaching and research. Dr. Tintle spoke about his experiences leading multiple interdisciplinary science research teams, with a focus on maximizing both scientific impact and undergraduate students’ educational outcomes. He highlighted some of his interdisciplinary science research projects including: (a) a national network of thousands of statistics and biological educators discussing and sharing best teaching practices, resources and assessments of students’ statistical thinking, (b) systems biology research to develop integrated metabolic and regulatory models of all microbial life, (c) an international undergraduate research project to utilize population based mental health survey data in a developing country, (d) a multi-national research collaboration to investigate the genetic and environmental components of fatty acids and their relationship to complex cardio-metabolic diseases, and (e) an industry-academic partnership to biologically and epidemiologically assess water quality interventions in third world countries to eradicate waterborne illnesses globally. He also highlighted some of the common structural and personal elements of these interdisciplinary collaborations, which have led to successful outcomes, and identified common pitfalls and challenges to conducting interdisciplinary research. We are privileged to benefit from his career experiences, guidance and insights.

DR. IRA CLARK SPEAKS  
AT COLLEGE OF SCIENCE AND MATHEMATICS SPRING ASSEMBLY

The College of Science and Mathematics was honored to host Dr. Ira Clark of UCLA as the keynote speaker at the Spring Academic Assembly on January 15, 2019. In addition to his work with the Department of Molecular, Cell, and Developmental Biology at UCLA, Dr. Clark also serves as the Associate director and program Administrator Minor in Biomedical Research, a vertically integrated undergraduate research training program that has trained over 600 students to date. Dr. Clark spoke to the college assembly on “research deconstruction”, a pedagogical strategy that he co-developed that leverages in-depth analysis of current, cutting-edge research projects to teach beginning undergraduate students fundamental scientific concepts and the process of scientific inquiry. His engaging seminar entitled “Beyond the CURE: leveraging discovery to create a path to STEM excellence” stimulated considerable discussion among the faculty that led to collaborative work on a proposal. External assessment and STEM retention data from over 10 years of implementation at UCLA suggest the approach is effective at teaching students the process of science and increasing persistence in STEM. Because it requires no laboratory infrastructure, research deconstruction offers a low-cost, highly scalable approach that could complement and extend our work with CUREs.
Dr. Hasson was interim associate dean in the college since August 2016. Previously, he served as the Chemistry Department Chair from 2014 to 2016. Dr. Hasson served as professor in the Department of Chemistry as well as the Graduate Coordinator of the Department.

As a faculty member since 2001, Dr. Hasson’s accomplishments include several successful research and administrative initiatives that have benefitted the college. He has been awarded 16 external grants totaling $4.5M from four federal agencies: National Science Foundation (NSF), National Institute of Health (NIH), United States Department of Agriculture (USDA) and National Oceanic and Atmospheric Administration (NOAA), including a $1.4M NSF grant Geoscience METRO Center to increase number of under-represented students in the Geosciences. He was recognized with several awards, including the inaugural Provost’s Award for Promising New Faculty in 2006, and the Provost’s Award for Distinguished Achievement in Research, Scholarship or Creative Accomplishment in 2013. As Chemistry Department chair he helped to implement the new B.S. Biochemistry degree program as well as broadening student access to General Chemistry.

Dr. Hasson earned his Ph.D. degree in Physical Chemistry from the University of Birmingham (UK) and was a Postdoctoral Research Fellow at UCLA. He has published over 30 peer reviewed journal articles, 15 of which include Fresno State student co-authors, and over 140 conference presentations. He has served as a panel reviewer for the NSF and as an ad-hoc proposal reviewer for agencies including NSF and USDA.

“I am thrilled to continue working with Dr. Hasson in his role as Associate Dean. Dr. Hasson’s talent, dedication, work ethic, experience, and demonstrated accomplishments as an administrator make him an ideal fit for the position. I greatly appreciate his transparent, objective, and data-informed decision making process – he is a thoughtful person with a great deal of integrity,” says Dean Christopher Meyer.
Melissa Perez
Assistant to the Dean
Administrative Analyst

Melissa was raised in Fresno and graduated from Fresno State with a Bachelor of Arts in Spanish. She is currently working on her degree in Master of Public Administration. Melissa worked for the Piccadilly Inn Hotels prior to starting at Fresno State. Before joining the college, Melissa held positions in International Student Services and Programs, the Department of Sociology, the Department of Chicano and Latin American Studies and the Department of Geography and Africana Studies. Melissa is passionate about helping others and building her extensive set of administrative and analytical skills. In her leisure time, Melissa enjoys reading, traveling, and spending time with loved ones.

Sonia Romero
Administrative Assistant
BOND Program

Sonia was raised in Parlier and Fresno and graduated from Edison High School. Sonia graduated from Fresno State with a Bachelor of Arts in Psychology and will be graduating with a Master of Science in Counseling with the option in Student Affairs and College Counseling alongside a PPS Credential. Sonia enjoys working with a diverse student population at all education levels. On campus, Sonia is part of the professional staff in the College of Science and Mathematics Advising and Resources Center (ARC) and BOND Program. Off campus, she is involved with Fresno Unified School District and the Migrant Program. In her leisure time, Sonia enjoys spending time with her family and playing with her dogs and cats.

Selene Kinder
Communication Specialist

Selene was raised in Dinuba and graduated Fresno State with a Degree in International Business. Selene previously served as Marketing Manager at CargoMall and a Public Relations and Investor Specialist for the Fresno County Economic Development Corporation. In 2017, she was recognized with a “40 under 40” award by Business Street Online which celebrates the accomplishments, work ethic, and leadership of outstanding young business professionals in the private and public sectors in Central California. Selene brings a wealth of knowledge and skills to her position that will be extremely valuable to the college as we elevate our communication strategies and social media presence. Selene enjoys taking walks with her two dogs and spending time with her friends and family.
Associate Professor to PROFESSOR

JAI-PIL CHO
PROFESSOR OF CHEMISTRY

TAMAS FORGACS
PROFESSOR OF MATHEMATICS

PEI-CHUN HO
PROFESSOR OF PHYSICS

MING LI
PROFESSOR OF COMPUTER SCIENCE

CHRISTOPHER PLUHAR
PROFESSOR OF EARTH AND ENVIRONMENTAL SCIENCES

LARRY RILEY
PROFESSOR OF BIOLOGY

OSCAR VEGA
PROFESSOR OF MATHEMATICS

JASON BUSH
PROFESSOR OF BIOLOGY

HWAN YOUN
PROFESSOR OF BIOLOGY

Effective August 20, 2018
2018-2019

Congratulations to our newly tenured and promoted faculty

We want to extend our warmest congratulations to all faculty members receiving promotions.

Assistant Professor to ASSOCIATE PROFESSOR

MARA BRADY
ASSOCIATE PROFESSOR OF EARTH AND ENVIRONMENTAL SCIENCES

JOSEPH ROSS
ASSOCIATE PROFESSOR OF BIOLOGY

MARA BRADY
ASSOCIATE PROFESSOR OF EARTH AND ENVIRONMENTAL SCIENCES

JOSEPH ROSS
ASSOCIATE PROFESSOR OF BIOLOGY

KARINE GOUSSET
ASSOCIATE PROFESSOR OF BIOLOGY

ROSA TORO
ASSOCIATE PROFESSOR OF PSYCHOLOGY

Effective August 19, 2019
2019-2020

Effective August 19, 2019
2019-2020
THE COLLEGE OF SCIENCE AND MATHEMATICS IS EXCITED TO WELCOME THE FOLLOWING

New TENURE-TRACK FACULTY

2018-2019

**EARVIN BAIDERAMA**
DEPARTMENT OF MATHEMATICS
Specialty: Biostatistics
Ph.D.: University of California, Los Angeles

**MARIO BANUELOS**
DEPARTMENT OF MATHEMATICS
Specialty: Applied Mathematics
Ph.D.: University of California, Merced

**ALEXANDRIA RANSEN**
DEPARTMENT OF BIOLOGY
Specialty: Science Education
Ph.D.: University of California, Santa Barbara

**CHRIS MILLER**
DEPARTMENT OF PSYCHOLOGY
Specialty: Neuroscience
Ph.D.: Stanford University

**ALJA MUJIC**
DEPARTMENT OF BIOLOGY
Specialty: Microbiology (Mycology)
Ph.D.: Oregon State University

**MATIN PIROUZ NIA**
DEPARTMENT OF COMPUTER SCIENCE
Specialty: Big Data
Ph.D.: University of Nevada, Las Vegas

2019-2020

**ATHANASIOS PANAGOPoulos**
DEPARTMENT OF COMPUTER SCIENCE
Specialty: “Internet of Things” Technology
Ph.D.: University of Southampton (UK)

**MASAKI UCHIDA**
DEPARTMENT OF CHEMISTRY
Specialty: Inorganic Chemistry
(Materials Chemistry)
Ph.D.: Kyoto University (Japan)

**ETTORE VITALI**
DEPARTMENT OF PHYSICS
Specialty: Computational Physics
Ph.D.: University of Milan (Italy)

**MORGAN HAWKER**
DEPARTMENT OF CHEMISTRY
Specialty: Surface Modification of Naturally Derived Polymers
Ph.D.: Colorado State University

** JOEL SLADE**
DEPARTMENT OF BIOLOGY
Specialty: Avian Ecological Immunology
Ph.D.: University of Western Ontario

MATIN PIROUZ NIA
DEPARTMENT OF COMPUTER SCIENCE
Specialty: Big Data
Ph.D.: University of Nevada, Las Vegas

**ELLEN WOO**
DEPARTMENT OF PSYCHOLOGY
Specialty: Neuropsychology
Ph.D.: Washington State University

**EARVIN BAIDERAMA**
DEPARTMENT OF MATHEMATICS
Specialty: Biostatistics
Ph.D.: University of California, Los Angeles

**MARIO BANUELOS**
DEPARTMENT OF MATHEMATICS
Specialty: Applied Mathematics
Ph.D.: University of California, Merced

**ALEXANDRIA RANSEN**
DEPARTMENT OF BIOLOGY
Specialty: Science Education
Ph.D.: University of California, Santa Barbara

**CHRIS MILLER**
DEPARTMENT OF PSYCHOLOGY
Specialty: Neuroscience
Ph.D.: Stanford University

**ALJA MUJIC**
DEPARTMENT OF BIOLOGY
Specialty: Microbiology (Mycology)
Ph.D.: Oregon State University

**MORGAN HAWKER**
DEPARTMENT OF CHEMISTRY
Specialty: Surface Modification of Naturally Derived Polymers
Ph.D.: Colorado State University

** JOEL SLADE**
DEPARTMENT OF BIOLOGY
Specialty: Avian Ecological Immunology
Ph.D.: University of Western Ontario

**ELLEN WOO**
DEPARTMENT OF PSYCHOLOGY
Specialty: Neuropsychology
Ph.D.: Washington State University
BOLD
IS FIRST IN CLASS

What does being the first mean? For nearly 70 percent of our students, it’s being first in their families to go to college. It’s being the first to defy the odds stacked against them and being the first to exceed all expectations. It’s being first to walk across the stage at graduation as trailblazers, paving the path for a new generation.

So it’s fitting that Fresno State is the first in the nation to receive four American Association of State Colleges and Universities (AASCU) awards. To us, these awards are more than a number of trophies – they signify our commitment to putting students first.

“The programs for which these universities are being honored will inspire not only their AASCU colleagues, but all of higher education.”

— Muriel A. Howard, AASCU President

AASCU AWARDS
American Association of State Colleges and Universities

2017 Student Success and College Completion Award

2015 International Education Award

2014 Leadership Development and Diversity Award

2014 Christa McAuliffe Excellence in Teacher Education Award

See how we put students first at fresnostate.edu/bold

Where bold begins.
FRESNO STATE.
Discovery: Diversity: Distinction.
Dr. Raymond Rodriguez was named the College of Science and Mathematics 2018 Outstanding Alumnus at the Top Dog Alumni Awards Gala in October. The gala is a signature event where alumni are honored for accomplishments in their fields and commitment to service in the community.

Dr. Rodriguez graduated with a bachelor’s degree in biology in 1969 before earning a Ph.D. in Biology from the University of California, Santa Cruz in 1974. Ray has recently retired after many distinguished years as a professor in the Department of Molecular and Cellular Biology at the University of California, Davis. Ray’s postdoctoral experience at University of California, San Francisco laid the foundation for the modern biotechnology industry. He continues to serve as an incredible role model to others through his service on the College’s Advisory Board, his continuing support of Fresno State and his leadership of the Global HealthShare Initiative at the University of California, Davis.

Dr. Rodriguez credits his exposure to research at Fresno State as well as the mentoring he received from outstanding Professors for launching his amazing career.
EVERY DROP of Life

Walking through the McLane Hall courtyard feels a little brighter since Every Drop of Life was painted on an outdoor staircase. Talking with the artist Casey Supple, a 24 year-old art student, about what the mural means to him makes you feel a sense of pride in our community and in Fresno State!

As he points to each part of the mural and explains what it represents to him, it is clear that Casey takes great pride in the harmonizing diversity of our campus. The veins, which represent the diverse people of our region, coming together as a unified community in an abstract heart overflowing with passion. The sun on the horizon shows us rising above adversity, “whether it’s tough times in life or the next big test, we can achieve what we want if we have the drive for it…”

Casey grew up in Fresno and has always wanted to leave his mark. A mark which both brought an “inspirational message” for the community and to give back to Fresno State. Because, Casey says, he’s grateful for all the opportunities that Fresno State has given him: from working with impassioned professors and life-long friends to employment and inspiration from the perpetual message to ‘Be Bold.’

Casey hopes the mural will brighten someone’s day and reinvigorate them. So the next time you pass through the courtyard of McLane Hall take this artists advise and take a moment to “Appreciate the color” in the mural and the Central Valley!

Tom Breen RETIRES

“Tom Breen is an inspiration to his students and his fellow faculty alike. His dedication to his students and his discipline has been unwavering across more than 50 years. His cheerful and sparky presence never fails to uplift the department. He reflects what is best about the Cal States: bright, personable, creative, caring faculty interacting with dedication and individually with hard working (his classes are hard!) and motivated (I repeat, his classes are hard!) students.”

CONSTANCE JONES
PROFESSOR AND CHAIR,
DEPARTMENT OF PSYCHOLOGY
A team of Mathematics faculty led by Dr. Oscar Vega and his colleagues Dr. Tamas Forgacs, Dr. Carmen Caprau and Dr. Jenna Tague were awarded a $1 million from the National Science Foundation to recruit and retain Math majors from under-represented groups. The Mentoring Math Scholars for Success (M2S2) program provides scholarships for academically talented, low income students and implements a set of interventions designed to support students in the program. These include an intense, 18 credit STEM-course taking pathway in the first year, a “pre-research” experience consisting of problem-solving challenges designed to strengthen mathematical proficiency and individual problem solving skills, and career and professional development. Students in the program will also benefit from faculty and peer mentoring. The project is carefully designed to measure the effectiveness of both the individual interventions and of the whole suite of the interventions to improve the enrollment, retention, and graduation rates of academically gifted low-income students at a minority-serving public university. The results will be useful at similar institutions nationwide, moving us closer to the goal of supporting the nationally available pool of mathematics talent.
Lemuel Vince Rivera was in high school when his family received unimaginable news. His mother had been diagnosed with cancer. Fortunately, her journey to recovery was managed by an oncologist who left a lasting impression on Lemuel. “He was great, very knowledgeable and really made her feel comforted. That always resonated with me and was one of the reasons I wanted to pursue medicine.”

Now a recent graduate at Fresno State, Lemuel will enroll at the University of California San Francisco (UCSF) School of Medicine in the fall as part of the San Joaquin Valley Program in Medical Education. It is an accomplishment he attributes in large part to the support he received from the Health Careers Opportunity Program (HCOP), which offers Fresno State students the academic and professional support necessary to successfully apply to and complete health professional programs.
“It’s been super helpful in my career as a college student, as well as a premed, mostly because of the mentors I’ve had in this program,” Lemuel says. “They told me what classes to take, who are the best teachers, when to take the MCAT, how to write a personal statement and when to get a letter of recommendation. There is a whole world of information from my mentors in HCOP.”

Through HCOP Lemuel was introduced to Dr. Rene Ramirez, an emergency room physician at Community Regional Medical Centers who was also active with HCOP as an undergraduate. “When I heard he was an HCOP alumni I got really excited because it kind of shows that people like me, people who are in this program, can make it in that field and be successful,” Lemuel says.

Ramirez grew up in Kerman and like Lemuel was inspired to pursue medicine after seeing his stepfather deal with a major health crisis. But while his goal was clear, the steps to achieve it remained a mystery. “Nobody in my family had gone to college before me, so it was kind of like walking in the dark. But HCOP lights up the path,” he says.

Established in 1981, HCOP provides comprehensive support to students interested in health care though enhanced academic advising, mentors, standardized test preparation, undergraduate research opportunities, and personalized assistance with graduate school applications. The program also provides students travel funds to attend health professional conferences. Ramirez says this support, coupled with the relationships he developed with fellow students and local physicians, helped him develop a strategy to achieve his professional goals.
Health CAREERS

After graduating from Drexel University College of Medicine in Philadelphia, Ramirez returned to Fresno to complete his residency. “The goal is really to grow our own, because it has been shown that students tend to return back to their roots when they go into practice,” says Lilia De La Cerda, who not only directs HCOP and LSAMP for the College of Science and Mathematics at Fresno State, but is also an alumna of the program.

The oldest of seven children, De La Cerda’s family migrated to the United States from Mexico when she was 2-years-old.

De La Cerda became the first in her family to attend college when she enrolled in the Public Health program at Fresno State in the early 1990s. She says her experience with HCOP played a vital role in her academic and professional success. “I found HCOP to be a home away from home,” she says. “I was able to look up to some of the older students as role models.” De La Cerda says it was an alumnus who was working at the health department that helped De La Cerda secure an internship that helped launch her professional career. “I think it was the best decision I ever made to stay here locally and come to Fresno State,” she says.

De La Cerda assumes leadership of HCOP at a critical moment in the program’s long history. Initially funded through a federal grant, in 1999 Fresno State partnered with UCSF to keep the program going as federal funds decreased. Last year, management and funding of the program returned to Fresno State. She views this moment as a time to reimagine the program to best meet the needs of today’s students.
When it was established in the 1980s, HCOP was designed to serve low-income and underrepresented student populations, student groups that De La Cerda points out now comprise the majority of the University’s students. “UCSF was following a cohort model, and so only a certain number of students were being accepted. At this point we’d like to open it up and allow students into the program independent of their background,” De La Cerda says. In the past, HCOP has supported roughly 130 students a year. This year it has grown to more than 200 and the University set a goal to triple its capacity.

As someone who experienced first-hand the life-changing opportunities that HCOP offers, De La Cerda is passionate about ensuring that the program continues to thrive. “I see myself in so many of the students,” she says. “It was such a positive experience that I was happy to come back and help.”

The spirit of giving back to the community is a central principle of HCOP and has inspired Lemuel to return to the Valley after completing medical school. “I don’t know what kind of doctor I want to be yet, but I know I want to come back to Fresno and work with the underserved population.” Lemuel also plans to maintain his connection to HCOP as a mentor to the next generation of health care professional. “I’m a fan of the idea of paying it forward, so the knowledge that was shared with me from my mentors I can pass down to others.”
Alumni NEWS

BIOLOGY ALUMNA CARRIE TAMBO RECEIVES PREDOCTORAL FELLOWSHIP AT UC SANTA CRUZ

Carrie Tambo, Fresno State Biology alumni and UC Santa Cruz graduate student, is working on a recently funded $935,000 grant for research on lung cancer led by John MacMillian, professor of chemistry and biochemistry, and a $550,000 grant for research on COPD led by Dr. Susan Carpenter, assistant professor of molecular, cell, and development biology at UC Santa Cruz. In addition to the research grants, Carrie, was awarded a National Institutes of Health 3-year Predoctoral fellowships of $180,000.

Carrie will use her funding to support her research project involving-related lung cancer. Carrie’s project focuses on understanding the molecular mechanisms involved in the Rb signaling pathway, specifically the activation step necessary for cell division. By determining structures of Rb protein complexes, she aims to help identify new inhibitors for treatment of tobacco-related lung cancer.

Carrie graduated in 2015 with a Bachelor of Science in Biology. While attending Fresno State, she was an active member in Dr. Jason Bush’s research lab.

“Because of Carrie’s terrific lab hands, she was a pivotal part of two project teams in the Bush laboratory: she worked with our stem cell project investigating the molecular switches that turn on muscle development; and, she worked on the third-hand smoke project in collaboration with Hasson group to better define the role of smoke combined with atmospheric chemistry on the health of lung cells in culture,” said Jason Bush. “In addition, Carrie spent a summer in La Jolla, CA as part of the NCI-funded Cancer Scholars research internship with the Sanford-Burnham-Prebys Medical Discovery Institute and she spent another summer doing research in Thailand as part of the CSU Fullerton program.”
Donor NEWS

Dean Meyer provided the group with a stimulating presentation entitled “Advancing the Integration of Teaching and Research for Student Success”. He highlighted the college’s long history of students ‘learning by doing’ and our effort to integrate teaching and research early in the student’s academic career.

The PSCC is a leadership cadre of Fresno State alumni committed to supporting Fresno State, advancing President Joseph Castro’s strategic plan, fostering networking opportunities among members, and sponsoring other general university dynamics in the Southern California region. Specifically, the PSCC has three distinct areas of focus: Engage, Give and Mentor.

DEAN MEYER IS GUEST SPEAKER AT PSCC LUNCHEON MEETING

Dean Christopher Meyer was the KEYNOTE SPEAKER at the spring President’s Southern California Council (PSCC) meeting on February 20, 2018.

Dean Meyer provided the group with a stimulating presentation entitled “Advancing the Integration of Teaching and Research for Student Success”. He highlighted the college’s long history of students ‘learning by doing’ and our effort to integrate teaching and research early in the student’s academic career.

The college had the opportunity to display approximately 30 posters highlighting student research projects in the areas of Cancer, Alzheimer’s, and Genetics Research, Course Based Undergraduate Research Experiences, the Building Opportunities Through Networks of Discovery (BOND) program, and CSM’s newly remodeled labs – all promoting the college’s research integration of teaching and research and high impact practices for student success. Both students and faculty had the opportunity to present and discuss their research with invited guests and university officials.

COLLEGE OF SCIENCE AND MATHEMATICS IS HIGHLIGHTED AT UNIVERSITY DONOR RECEPTION

THE COLLEGE OF SCIENCE AND MATHEMATICS WAS FEATURED at the March 13, 2018 Fresno State Donor Appreciation Reception. The annual reception recognizes donors that gift throughout the year to Fresno State.

The college had the opportunity to display approximately 30 posters highlighting student research projects in the areas of Cancer, Alzheimer’s, and Genetics Research, Course Based Undergraduate Research Experiences, the Building Opportunities Through Networks of Discovery (BOND) program, and CSM’s newly remodeled labs – all promoting the college’s research integration of teaching and research and high impact practices for student success. Both students and faculty had the opportunity to present and discuss their research with invited guests and university officials.
The College of Science and Mathematics hosted its inaugural benefit dinner “Elements – An evening of Discovery and Fostering Tomorrow’s Scientific Leaders” on November 2, 2018. The evening was hosted by Master of Ceremonies, Dr. Stephen Rodemeyer and was attended by Dr. Joseph I. Castro, President as well as numerous College of Science and Mathematics alumni and supporters.

Over 90 guests enjoyed the cool fall evening in the Science II Courtyard and heard impactful stories and videos from students and alumni about the positive impact of their experiences in the college on their lives and career pathways. The evening highlighted the college’s efforts in developing Course-based Undergraduate Research Experiences (CUREs) for students, providing more access and support for our future heal professionals through our Health Careers Opportunity Program (HCOP), and outreach to our schools and community on science literacy – raising in excess of $10,000 during the initial benefit dinner.

We are grateful for our supporters’ engagement and financial support that allow us to continue graduating the next generation of scientists, mathematicians, teachers, and highly skilled technicians and doctors for the Central Valley and beyond.
The Central Valley Community Foundation offered to highlight the College of Science and Mathematics on June 27 at their quarterly “Friends of the Foundation” dinner. Ashley Swearingen and her team invited a diverse group of members from all around the Central Valley. Our students showcased their projects and had an incredible opportunity to share their research with attendees. Our student Parenet Saran, shared, “It feels incredible when people from different fields come together and provide you first-hand insight that went beyond journal articles and textbooks. This event showed me that people from different backgrounds appreciate my research and knowledge. Some of the business executives gave me their business card and provide me the opportunity to extend my project perspectives for the future. This event has motivated me beyond measure.”

Dean of the College of Science and Mathematics, Dr. Christopher R. Meyer, reminded guests of our central role in fostering the next generation of scientists and providing our community with the tools to make informed decisions about science and technology in their lives. Our very own physics professor, Dr. Raymond Hall was asked to be the guest speaker for the event. He shared that learning about science can be fun. His love for science has made him an internet sensation with over 1.5 million Instagram followers. “My goal is to share the wonder of science, and I’m thrilled that so many have followed me for a daily post on physics and other curiosities of nature and design,” says Hall.

Our unique environment allows for interdisciplinary partnerships with other colleges, universities, and industry. We are well-positioned in the Central Valley to be part of the national conversation on science and education and contribute to solving societal challenges that include food, water, energy, health, and the environment. We are grateful to have had the opportunity to partner with the Central Valley Community Foundation.

The Fresno State Bulldogs took on the San Diego State Aztecs February 6, 2018. Approximately 120 faculty, staff and their families attended the game. The college was highlighted in a video that spotlighted our programs, faculty and students. Professor Emeritus Howard Ono, Department of Chemistry, served as the Honorary Coach for the evening.

Dean Meyer attended the Fresno Football Club game on August 18, 2018 as a guest of the Chevron Corporation. The Chevron Corporation partners with the College of Science and Mathematics and Fresno State to support science, technology, engineering and math programs.

On September 25, 2018, many of our staff members attended the annual Central California Women’s Conference. This year’s conference, “Be the Difference”, included Award-Winning Journalist, Bestselling Author, Former First Lady of California and Founder of The Women’s Alzheimer’s Movement, Maria Shriver as the luncheon keynote speaker. The one-day conference educates and facilitates idea-sharing about how to succeed personally and professionally in life while juggling the increasingly complex and diverse demands of family and community. Fresno State is a major sponsor of the Central California Women’s Conference.
Dr. Alejandro Calderon-Urrea

IS RECOGNIZED WITH PRESTIGIOUS AWARD

Dr. Alejandro Calderon-Urrea, professor of Biology, was recently presented with the 2018 Dunhuang Award, the highest honor awarded by the government of China’s Gansu Province. Dr. Calderon-Urrea received the Dunhuang Award, given to foreign individuals, at a special ceremony held in October 2018 in Lanzhou, the capital city of Gansu in Northwestern China. Ms. Kang Hongmei, the Secretary of the Gansu Province Foreign Experts Affairs Bureau, presented the award to Dr. Calderon-Urrea.

Dr. Calderon-Urrea received the award for his outstanding service and remarkable contributions to the economic, scientific, academic development and education programs in Gansu Province. Dr. Calderon-Urrea was the only American honored this year.

Dr. Calderon-Urrea has a close collaboration with Gansu Agricultural University (GAU) where he is an adjunct faculty member and collaborates with his colleagues on biological control of nematodes as well as training of junior faculty, post-doctoral and doctoral students. He also established a program in 2017 through Continuing and Global Education to bring Fresno State students to GAU for two weeks to engage in cultural exchange with their Chinese counterparts.

The College is playing a leading role in an NSF AGEP [Alliance for Graduate Education and the Professoriate] grant award. The NSF AGEP California HSI Alliance brings together four Hispanic Serving Institutions in California: Fresno State; UC Merced; UC Santa Barbara; and CSU Channel Islands; with the specific goal of developing, implementing and testing a model for creating a more diverse STEM faculty workforce. The Alliance focuses on pedagogical training and career mentoring to prepare dissertating doctoral students for teaching-focused careers at a broad range of colleges and universities. CSM will host three of the five AGEP Fellows from UC Merced in Fall 2019 who will engage in teaching and research with Fresno State faculty mentors Dr. David Lent (Biology), Dr. Joshua Reece (Biology) and Dr. Ettore Vitali (Physics). This program serves as a model for California and the nation for training the next generation of STEM Professors for careers that integrate teaching and research.
Dr. Rajee Amarasinghe, Chair of the Department of Mathematics, has been selected as Fresno State’s recipient of the 2018-19 Faculty Innovation and Leadership Award. This new CSU award recognizes one individual or team from each CSU campus that has demonstrated extraordinary innovation and leadership to advance student success. Dr. Amarasinghe received the award at the CSU Graduation Initiative 2025 Symposium Oct. 17-18, 2018 at San Diego State University.

Dr. Amarasinghe has led several initiatives and programs that the Math department has implemented recently to support math literacy for all students. The Integrated Math Program is an accelerated degree program launched in Fall 18 that will enable students to earn both their Math degree and teaching credential in four years. In addition to completing coursework a year earlier than previously possible, the 17 student teaching scholars in the cohort receive financial support. Fresno State’s Math department has also been a model for the CSU system in their approach to addressing Executive Order 1110, which removed math remediation and required changes in the 2017-18 academic year. This has necessitated the redesign of the math curriculum to bring Fresno State’s quantitative reasoning general education math courses into compliance. Dr. Amarasinghe has led the department’s creative approach to redesigning the curriculum to meet student needs while working within the constraints of Fresno State’s limited physical facilities. A busy year has also seen the launch of a new B.S. Mathematics degree program and the redesign of a number of lower division Math courses to improve student outcomes.

Dr. Amarasinghe’s work has impressed campus leaders. “Dr. Amarasinghe has proven unfailingly that he can meet the most pressing challenges with creative solutions,” said Dr. Lynnette Zelezny, Fresno State’s former provost who nominated him for the distinguished award.

“The current level of math skills among students, including STEM majors, and the general population is a major societal problem,” said Dr. Christopher Meyer, dean of the College of Science and Mathematics at Fresno State. “I view Rajee as a transformative national leader and scholar in addressing this critical issue.”

Dr. Amarasinghe notes that he feels lucky to have very energetic and supportive colleagues. “I have enthusiastic groups of faculty who are working on many initiatives to improve our programs and help students, including a lot of outreach activities to reach early our future generation of mathematicians.”
Dr. Reece's lab is working with the Sequoia and Kings Canyon National Parks Service to help monitor bats in Kings Canyon National Park. The first trip consisted of camping within a few hundred yards of the General Sherman tree, the largest organism on the planet. Dr. Reece's research team was able to record sonograms from several species and help mist-net capture and release a Pallid Bat. Students Shelby Moshier, Saramae Parker, Robert Seward, and Chriisionna Graves participated in the project.
Dr. Katherine Waselkov, Assistant Professor in the Department of Biology, is using digital images to investigate flowering time shifts in the California flora. Dr. Waselkov has received a collaborative Thematic Collection Network (TCN) grant through the National Science Foundation (NSF) to study the most diverse native flora of any state in the U.S., containing more than one-third of all U.S. plant species. The Capturing California’s Flowering (CCF) RCN will record flowering times from and create images of over 90,000 herbarium specimens from the oldest records, the most diverse families, and the most threatened families in California. Twenty-two institutions spanning the state, including public universities (Fresno State), state agencies, museums, and botanic gardens, will participate in these efforts. The project will generate data that will increase the understanding of flowering time shifts—a critical need for agriculturalists, conservation biologists, plant taxonomists, land managers, and wildlife biologists.
It is finals week as Dr. Krish Krishnan, Fresno State Professor of Physical Chemistry in the College of Science and Mathematics, makes his way through the hallways of the Science I building. In route to his laboratory Krishnan spots a group of his students, huddled around a dry erase board deep in concentration. Their furrowed brows soften as they notice their professor, who offers a smile and nod of encouragement as he passes by.

In every interaction it is evident that Krishan views his students’ success as a measure of his own. “Exposing students to research opportunities that are locally available and showing them that they are capable of doing work, it really is a great feeling,” he says.

Inside the lab, Krishnan shows off two nuclear magnetic resonance (NMR) spectrometers, which are at the heart of much of his research. The instruments, purchased as part of a $5 million National Institute of Health (NIH) grant Krishnan awarded in 2007, are used to understand the structure of organic molecules. By observing life at a molecular level, Krishnan and his student assistants are making discoveries that have practical implications for how we live our lives. Krishnan’s publications contribute to research on topics like how the Western diet and the use of artificial sweeteners affect health.

It is the hands-on research experience his students receive working side-by-side with faculty that Krishnan says is key to their learning. Roughly thirty-five percent of the Fresno State students he works with on research projects are undergraduates, and nearly all of his graduate students started as undergraduates in the lab. He says the experiences bring classroom learning to life and plays a critical role in success after college. “I think there is a disconnect between what students learn in the class and what they see in the outside world,” he says. “Without research experience, when they take a job at a company or start a Ph.D. program, they have no idea how to apply what they have learned in the class.”

This commitment to advance both science and education was not something Krishnan could have predicted, growing up in a middle-class family in India. Despite an interest in science that started at an early age, after graduation he was forced to take a job rather than enter graduate school. But ultimately when an opportunity emerged, Krishnan enrolled at the Indian Institute of Science, one of the country’s premier academic institutions. “That changed everything for me. It was there I learned there was a world of intellectual debate and analytical skills and tools that I could actually be a part of,” he says.

After earning his Ph.D., Krishnan came to the Scripps Research Institute in La Jolla, California for his post-doctrate work during which he shifted focus to the applications of techniques designed to have real world implications. He then spent nearly a decade as a working scientist at the Burnham Institute and the Lawrence Livermore National Laboratory before joining the faculty at Fresno State in 2006. His transition to the classroom was fueled by a desire to advance scientific discovery for generations through both research and education.

“We are supporting the infrastructure, which is not just instruments, but also the students,” Krishnan says. Through education, he is building the capacity of the next generation of physicists and biologists, which is what will ultimately keep the work sustained over time. To that end, Krishnan establish a pipeline to help support students to pursue graduate degrees in science. He directs an NIH funded Research Infrastructure for Minority Institutions (RIMI) program, designed to encourage underrepresented minority students in the Central Valley to pursue careers in biomedical research.

In addition to the research and teaching Krishnan does at Fresno State, he also holds a position as an adjunct professor in the Department of Pathology and Laboratory Medicine at UC Davis where he studies large-scale data analysis and modeling for biomarker detection.

Krishnan emphasizes the collaborative nature of his research. “I use the skills I have with the NMR and computational methods to work with other faculty,” he says. “I have an open lab policy.” He works with students from a variety of academic fields, including biology, biotechnology and chemistry, helping them discover topics that will inspire their future research. The relationships he has cultivated are so strong he was recently nominated by students as an Outstanding Advisor.

Krishnan says that working with students at Fresno State provides a level of satisfaction he could not find at a larger research institution. Thinking back on the students he has worked with over the years brings a smile to his face. “That feeling that you really helped someone, the one that really needs the help, is a great feeling,” he says. “I feel that at the end of the day, I have done something good.”
DEAN’S MEDALISTS

MAJERLE REEVES

Majerle Reeves, of Fresno, completed two of the most challenging programs on campus: Mathematics and Mechanical Engineering with a GPA of 3.87. As a Smittcamp Family Honors Scholar, she has served in several leadership roles, provided academic support to her peers, made meaningful contributions to promoting and supporting young women in science and math fields, and engaged in meaningful research projects in Applied Mathematics. In the words of her professors, she is tenacious and has seemingly inexhaustible energy. Majerle’s professors describe her as an exceptional, talented, and conscientious student, where she consistently ranks at the top of her classes. Majerle was actively involved in professional organizations and student groups including Tau Beta Pi, the American Society of Mechanical Engineering, the Society of Women Engineers, Institute of Electrical and Electronics Engineers, and the Society of Industrial and Applied Mathematics. She served on the executive committees of several student groups, including a term as President of Tau Beta Pi. She was a leader in a number of outreach efforts to promote Engineering and Mathematics, and to encourage more young women to follow in her footsteps. She volunteered for Math Field Day, several MESA (Math, Engineering, and Science Achievement) days, and Sonia Kovalevsky Day (to engage young women in Math activities). Majerle entered a Ph.D. program in Applied Mathematics at UC Merced in the Fall 2018, supported by a distinguished Chancellor’s Graduate Fellowship.

CHEE HER

Chee Her, of Fresno, completed his M.S. in Chemistry with a GPA of 3.90. He enrolled at Fresno State as a B.A. Chemistry major and the first member of his family to attend college. In his Junior year, a meeting with his academic advisor, Dr. Krish Krishnan, changed the course of his career. He switched his major to B.S. Chemistry and joined Krish’s research group, where he immediately excelled and found his academic ‘family’. Chee remained at Fresno State to pursue graduate studies. He has performed at an extremely high level in the classroom, performing at the top of his class in a notoriously difficult program. In addition to his thesis work, Chee has made significant contributions to three other projects that utilize NMR spectroscopy as a tool, any one of which could have been a M.S. thesis in its own right. Chee has become an invaluable resource for the many faculty and students at Fresno State that use NMR spectroscopy. He has served as a superb Teaching Associate in the department and was recognized as the 2016 Outstanding Graduate Student. His professors describe him as humble, an inspiration to his classmates, and a role model for his siblings and the Hmong community. Chee’s will begin a Ph.D. program at UC, San Diego in Fall 2019 and his career goal is to eventually become a university professor.
TWO ABA STUDENTS WIN RESEARCH AWARDS
FROM THE CALIFORNIA ASSOCIATION FOR BEHAVIOR ANALYSTS

Two Applied Behavior Analysis graduate students were presented research awards from the California Association for Behavior Analysts (CalABA) during the February 2018 CalABA Conference.

Geoff Browning received the Julie Vargas Award for his thesis entitled, "On Being a Social Climber: The effects of a rock climbing intervention on the social skills of individuals with Autism Spectrum Disorder."

Nicolas Vitale was recognized with the B.F. Skinner Award for his thesis entitled, "Dishabituation of Operant Responding in Children with Autism Spectrum Disorder."

Dr. Marianne Jackson is the thesis advisor for both students.

FRESNO STATE CHEMISTRY DEPARTMENT HOSTS PROJECT SEED STUDENTS

Project SEED is a summer research program run by the American Chemical Society. The program provides economically disadvantaged high school students with the opportunity to work alongside scientists in a research laboratory. For 8 to 10 weeks, the students experience working in a real research laboratory, collaborating on research projects, and receiving mentoring by scientists.

In summer 2018, five Chemistry faculty hosted and mentored a Project SEED student. The group included high school juniors and seniors local to the Central Valley (Reedley, Parlier, Fresno, and the Clovis area). Each student commuted to Fresno State every day throughout the 10-week summer program. Two of the participating student had just graduated high school and were preparing for college. Lorena Orozco, entered Stanford as a freshman this fall, and Raymond Garcia is now a Chemistry major at Fresno State. Their research projects addressed problems in computational chemistry, organic synthesis, green chemistry, and biochemistry.

FACULTY MENTORS AND THEIR SEED STUDENTS WERE:

- Dr. Cory Brooks/Grizelda Aguilar
- Dr. Qiao-Hong Chen/Lorena Orozco
- Dr. Kristi Closser/Ravinder Singh Johal
- Dr. Kalyani Maitra/Raymond Garcia
- Dr. Hubert Muchalski/Aliyah Riyan Lerma

UNDERGRADUATE MATHEMATICS STUDENTS ATTEND CONFERENCE ON WOMEN IN MATHEMATICS

Mathematics undergraduate students, Ariana Cavazos and Abigail Dirdak, attended the 20th Annual Nebraska Conference for Undergraduate Women in Mathematics January 26-28, 2018. Both students presented posters on their research. The conference’s overall goal is to arm participants with knowledge, self-confidence and a network of peers to help them become successful mathematicians. The focus of Nebraska Conference for Undergraduate Women in Mathematics is to encourage and mentor undergraduate women to pursue graduate study in mathematics and seek mathematics careers.

MATHEMATICS STUDENT JUMPS RIGHT INTO GRADUATE PROGRAM

Edward Sichel joined the graduate program in the Department of Mathematics in Spring 2017 and hasn’t slowed down since. From his first day, he has been actively pursuing research in Function Analysis under the guidance of Dr. Marat Markin. Edward has made great progress in his first year as a graduate student; completing several graduate courses and presenting his research 8 times at college, local and regional conferences and events. In June 2018, Edward tirelessly helped Dr. Markin to prepare his book manuscript “Elementary Functional Analysis” for publication. Edward will be using results from the publication for his Master’s Thesis.
Biomedical Physics

STUDENT DOUBLE MAJORS

Biomedical Physics undergraduate student Summer Al-Hamdani is pursuing a double major in Biomedical Physics and Mathematics. The past year and one-half, she has been working on several research projects with Dr. Mihai Gherase in the Department of Physics. During this same time, she presented an impressive 5 posters and one oral presentation at six local, regional, and national conferences. She is the co-author of a published paper in 2018 and a second manuscript that will be submitted soon for publication. This summer she presented a poster at a national conference and acquired data at the Canadian Light Source (CLS) - the Canadian synchrotron facility. In the summer of 2017, Summer completed a 2-month undergraduate research experience at UC Merced where she did research in Biochemistry.

JORDYN KAMITONO PRESENTS

at National American Chemical Society Meeting

March 2018

Undergraduate chemistry student, Jordyn Kamitono, presented her research at the American Chemical Society National Meeting and Exposition in New Orleans March 18-22, 2018. Jordyn’s research project, “A pilot investigation of zoo inquiry projects for introductory chemistry laboratories” was presented with her advisor, Dr. Dermot Donnelly.

DONUTS WITH THE DEAN

April 2018

Dean Meyer hosted the Spring “Donuts with the Dean” with College of Science and Mathematics students on Wednesday, April 18, 2018. Dean Meyer was greeted by over 200 CSM students from all seven departments in the college. Students were able to meet and engage with Dean Meyer as well college department chairs while enjoying refreshments. This event is held each semester.

31ST ANNUAL CSU BIOTECHNOLOGY SYMPOSIUM

The College of Science and Mathematics had a remarkable presence at the 31st Annual CSU Biotechnology Symposium hosted by the CSU Program for Education and Research in Biotechnology (CSUPERB) in Orange County, January 3-5, 2019.

The college’s students and faculty presented 22 posters and college biology alumnus and CSM Advisory Board Member, Dr. Raymond Rodriguez presented to the CSUPERB Faculty Consensus Group members.

The annual CSU Biotechnology Symposium is designed to bring CSU students, faculty and administrators together, along with biotech professionals, and broaden exposure to cutting-edge biotechnologies, product-focused innovation and the spectrum of career paths available in the life sciences.

The California State University Program for Education and Research in Biotechnology (CSUPERB) mission is to develop a professional biotechnology workforce by catalyzing and supporting collaborative CSU student and faculty research, innovating educational practices, and partnering with the life science industry. CSUPERB provides seed funding, organizes an annual biotechnology symposium, support biotechnology-relevant curriculum redesign efforts, and serves as a liaison for the CSU with biotechnology partners.
Dr. Reece, Assistant Professor of Biology, and students at Fresno State are leading a field study funded by the Sequoia Science Learning Center with partners at the Sequoia and Kings Canyon National Parks. Collaborating with a former Fresno State graduate, Erik Meyer, they are using cutting edge environmental DNA (eDNA) techniques to survey the biodiversity in streams within and just outside of the park boundaries on the North, Middle, and South Forks of the Kaweah River. These rivers have never been assessed for fish, amphibian and reptile diversity in any systematic fashion. Environmental DNA techniques use water samples from the river, which are filtered to remove organic particles, including shed skin cells from the critters that are in the water. DNA from those organic particulates are then isolated and tested for the presence of DNA markers for target species. Students in Dr. Reece’s Macroevolution course and directed study students in his lab, are participating in the field work and molecular analyses. In addition to the water samples, students conduct visual surveys by snorkeling in the water to confirm the presence of species such as newts, trout, minnows, suckers, pike-minnows, turtles, sunfish, and other species. Course-based and directed study research opportunities like this one allow Fresno State students to get meaningful and impactful experience in the field that complements their coursework. Pictured above are Dr. Reece and some of his students with a Western Pond Turtle sampled from the North Fork of the Kaweah River in August.

Catherine Mueller EARNs CSU TRUSTEES’ AWARD FOR ACHIEVEMENT

For the second year in a row, a College of Science and Mathematics student has been chosen by the California State University to receive the CSU Trustees’ Award for Outstanding Achievement.

Catherine Mueller, a recent Fresno State biochemistry graduate from Fresno, is one of 23 students chosen by the California State University for the CSU system’s highest recognition of student achievement. Catherine is the Trustee Emeritus Peter Mehas Scholar.

Each year, one student from each campus in the system, is given the award. The student must demonstrate superior academic performance, personal accomplishments, community service, and financial need. The award is accompanied by a donor-funded scholarship ranging from $6,000 to $12,000.

Catherine grew up surrounded by substance abuse and violence. She knew she wanted more for herself and that an education could help her achieve her dreams. While attending Fresno State, she decided to combine her dedication to serving the community with her love for science to pursue a career in pharmacy.

Catherine served as the President of the Pre-Pharmacy Club in the College of Science and Mathematics. She is an active member and peer-mentor for the Health Careers Opportunity Program that is dedicated to serving students from economically and/or educationally disadvantaged backgrounds that have an interest in pursuing a career in the health and allied health professions. Catherine conducts biochemistry research in Dr. Joy Goto’s lab and volunteers in the pharmacy at Valley Children’s Hospital.

Catherine plans to obtain a doctor of pharmacy degree with the goal of becoming a clinical pediatric pharmacist. She is currently enrolled at UCSF School of Pharmacy.

Biology Researchers Survey Biodiversity in nearby National Parks

Dr. Reece, Assistant Professor of Biology, and students at Fresno State are leading a field study funded by the Sequoia Science Learning Center with partners at the Sequoia and Kings Canyon National Parks. Collaborating with a former Fresno State graduate, Erik Meyer, they are using cutting edge environmental DNA (eDNA) techniques to survey the biodiversity in streams within and just outside of the park boundaries on the North, Middle, and South Forks of the Kaweah River. These rivers have never been assessed for fish, amphibian and reptile diversity in any systematic fashion. Environmental DNA techniques use water samples from the river, which are filtered to remove organic particles, including shed skin cells from the critters that are in the water. DNA from those organic particulates are then isolated and tested for the presence of DNA markers for target species. Students in Dr. Reece’s Macroevoolution course and directed study students in his lab, are participating in the field work and molecular analyses. In addition to the water samples, students conduct visual surveys by snorkeling in the water to confirm the presence of species such as newts, trout, minnows, suckers, pike-minnows, turtles, sunfish, and other species. Course-based and directed study research opportunities like this one allow Fresno State students to get meaningful and impactful experience in the field that complements their coursework. Pictured above are Dr. Reece and some of his students with a Western Pond Turtle sampled from the North Fork of the Kaweah River in August.
Jack was one of two students working with Prof. Forgács, Department of Mathematics, studying convergence properties of series with recursively defined terms. Their work has been accepted for publication in the American Mathematical Monthly, a peer reviewed and widely read mathematics journal. In addition, Jack has presented these results on a number of occasions, including the Central California Research Symposium, the Northern California Undergraduate Mathematics Conference, and the CSU System-wide research competition. Forgács describes Jack as “a hard-working student with a lot of talent and potential. He has great insight, and stamina to work on problems that may be unique and challenging. It was a real pleasure working with him”.

Jack has spent the summer participating in a Mathematics Research Experiences program at Kansas State University, working on a project focusing on differential equations. More precisely, he was working on understanding explicit solutions to the Total Variation Flow PDE in R^n, an equation that has applications to image processing and preventive policing. His research group proved that for radial initial data one we can approximate the solution via a converging sequence of simple functions.

We recognize Jack for his contributions and hard work to date, and look forward to seeing him fulfill his dreams at Fresno State.
The competitive application process included over sixty applications from students attending Hispanic-Serving Institutions (HSIs) from across the country. Selena’s ability as a scholar and leader and her potential to contribute long-term to the HSI community and to the success of the students they exist to serve, were visible in her application.

Selena is an undergraduate Honors student with a triple major in Psychology, Women’s Studies and Chicano Studies. She is an exceptional scholar who has pursued every opportunity available to grow as an intellectual. Her impressive list of academic achievements speaks to the vastness of her research abilities, theoretical mind, and potential to be an academic. As a McNair scholar, a Sally Casanova Pre-doctoral Scholar, and a senior research assistant in Dr. Rosa Toro’s NIH-funded Latino Family Dynamics Project, Selena has honed an academic identity while supporting herself as a supervisor in the Writing Center and Staff Reporter for La Voz de Aztlan, and while mentoring her peers.

As a daughter of Mexican immigrants, Selena has had to balance the demands of an academic career and her family’s lack of knowledge of the educational system. Selena is acutely aware that this is not a measure of her family’s lack of interest but, rather, an indicator of how elusive this process is to parents. With this in mind, Selena has excelled in her course work and academic pursuits in all of her three academic majors. Selena’s brilliance is reflected in her 3.97 cumulative GPA and 4.0 GPA’s in all three of her majors.

Selena has the ability to use her experiences and transform them into a viable line of research. Her research interest centers on how youth in similar situations as hers navigate these seemingly discrepant social contexts, with the end goal of identifying successful strategies which, in turn, can inform on ways to provide support for those that are having difficulties. Her desired outcome for this research is that it lends itself to improving communication between the university and families about what it means to be a university student and that it broadens our ideas of what constitutes an educational space so that families can make adjustments to support their university student. This work is significant, particularly for our CSU population, which consists of mostly post-traditional and commuter students. “As a researcher with overlapping interests and from my various conversations with Selena, I can say that the level of sophistication in her empirical thought process is none that I have seen to date in an undergraduate student. As an undergraduate research assistant in my Latino Family Dynamics Project, she has been able to comprehend the nuances of on-field research and has served as a leader among her peers of student researchers. It is because of these reasons that I quickly identified her as a prominent student research assistant and offered her a paid Senior Undergraduate Research Assistant position in my lab and support her as her faculty mentor for our department’s Honors program. Her ability to fuse her experience with an active interdisciplinary empirically driven research agenda, with the end goal of enacting a positive influence in the educational pursuit of other first-generation college students, is nothing short of stellar and one that is far-reaching” says Dr. Toro of Selena.

All of these pursuits and endeavors have resulted in Selena being accepted, with full funding, to a Ph.D. programs in Psychology and Family Studies at one of the top programs in her field at the University of Arizona. Selena has completed her first year of her program.
While it is widely recognized that research experience is critical for the effective training and retention of STEM students, our capacity to provide research experiences in traditional labs and internships is limited. In response, we have begun to transform many laboratory courses into Course-Based Undergraduate Research Experiences, or CUREs. This integration of teaching and research exposes all students to this high impact practice while making progress toward their degree. Students engaging in undergraduate research demonstrate an improvement in their ability to think and work like scientists and are more likely to further pursue education and careers in science and research, which drive the nation’s progress and economic prosperity.

Research experiences and projects, presented at symposiums, challenge students to apply course concepts to solve problems in our disciplines and communities. A critical part of these projects and research experiences is a public forum where students share their work and conclusions with the community.

The College of Science and Mathematics hosted its Spring 2018 Course Based Research and Projects Symposium for CUREs and Celebration of Research, Achievements and Awards on May 11th and its Fall 2018 Symposium on Friday December 14th. The event showcased over 100 student authored posters across the seven disciplines in our Colleges – Biology, Chemistry, Computer Science, Earth and Environmental Sciences, Mathematics, Physics and Psychology. The celebration also recognized scholarships recipients, outstanding students in the departments and faculty and staff members who have exemplified service to the college and the university.

This spring and fall, the college hosted symposia to recognize the outstanding student work on these research projects.

STEM AND CURE SYMPOSIUMS

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Student HIGHLIGHTS
Drs. Reece and Lent from the Fresno State Biology Department taught a course in Tropical Biodiversity and Conservation in Belize in late May. A total of 18 students participated in the course. Belize is a country of about 8,800 square miles and a population of fewer than 370,000. By contrast, Fresno County is 6,000 square miles and has a population of 975,000! The class started in the hot and humid coastal lowlands of northern Belize. The evenings consisted of jaguar growls and the calming serenade of Howler monkeys. Mornings provided toucans, parrots, parakeets, and in total nearly 200 species of birds. After two nights in the sweltering and humid northern lowlands, which is a mix of tropical lowland rainforest and pine savannah, the class traveled south to the more remote and wetter southern border with Guatemala. The class visited Mayan ruins, witnessed local conservation efforts, and learned how to survive when lost in the jungle, including partaking of freshly roasted heart of palm, bamboo shoots, and boiled freshwater snails. The last few nights were spent on the central coasts snorkeling along coral reefs and watching manatees graze on seagrass beds. Students learned about the biodiversity of the tropics and the complicated conservation issues that arise when human resource needs meet high levels of endemism and biodiversity.
2018/19 UNDERGRADUATE DEAN’S MEDALIST
MARIA DIAZ PEREZ

Maria graduated with a Bachelor of Science in Mathematics with a 3.93 GPA. In addition to her academic accomplishments, she is an outstanding researcher, a dedicated peer mentor, and a strong advocate for mathematics education. It is notable that her research was recognized with an award at a major international conference.

Her numerous and varied activities on behalf of the college and department include her service as Math Club Secretary and President, Math Outreach Fellow, organizer for the Northern California Undergraduate Mathematics Conference, volunteer for Math Field Day, facilitator for Math Circle and Math Kangaroo, and tutor for the NSF funded Mentoring Math Scholars for Success program.

Maria was born in Guadalajara, Mexico where, in her words, “the idea of being someone in life always seemed unattainable and distant.” She moved to the Central Valley with her family and continues to be motivated by the sacrifices that her parents made to provide her with better educational opportunities. The following quotes from Maria’s Professors are representative of the positive impact she has: “She is a natural leader and she has used her ‘power’ to help new students to enter the math major world” and “Not only is she an incredible student, the culture of our undergraduate program has been strengthened by her leadership.”

Maria plans to earn her M.S. and then her Ph.D. in Mathematics and become a Professor; she hopes “to live on through others by making a change in their lives.” She dreams of building a school back in Guadalajara to provide others with the same opportunities that have nurtured her extraordinary abilities. She is a wonderful role model for not only our mathematics majors but all of our diverse students in the college.

2018/19 GRADUATE DEAN’S MEDALIST
LILLIAN SENN

A Magna Cum Laude graduate with a B.S. in Biology from our program in 2016, Lillian graduated in May with an M.S. in Biology with a focus on education. In addition to her accomplishments as a student, researcher, and Teaching Assistant, Lillian serves as an outstanding mentor and role model for other students. Lillian’s academic career arc is even more impressive considering the challenges that she has overcome as a first generation college student from a rough neighborhood who was also acting as a caregiver for a seriously ill family member. Lillian shares the following about her service as a peer mentor: “through this position, I found my passion for helping students...I found meaning in helping other fish find their slipstream in the big sea that was our institution.”

Lillian’s impressive research centers on exploring levers and barriers to STEM faculty implementing and sustaining active learning strategies in the classroom. This is a critically important area given that only 40% of students intending to major in STEM fields graduate and that over 1 million jobs in STEM need to be filled over the next decade. Lillian’s work directly addresses the need to provide high quality teaching and training to large numbers of underserved students in the Central Valley and beyond. Lillian has been highly productive as a graduate student with one accepted publication and eight presentations, including a poster at a national meeting. She will also be a co-author on two forthcoming manuscripts from her research group.

Lillian’s intellectual ability and personal qualities clearly led to her recent acceptance to a prestigious Ph.D. program at Cornell University at the cutting edge of STEM education research. After completing her Ph.D., Lillian aspires to return to the Central Valley as a faculty member to serve our vibrant and diverse community.
In Memoriam

DR. FRANK POWELL

Professor Emeritus of Psychology, died November 24, 2018, at the age of 92 years old. Dr. Powell served during WWII, rising to the rank of master sergeant in the U.S. Army, then served as a psychologist in the Army Reserve for nearly 20 years. Dr. Powell met his wife, Alice, of nearly 57 years when he joined the Fresno State faculty in 1955. During his early years at Fresno State as a professor of psychology, he became a Peace Corps leader training director at the university. Dr. Powell served as president of the Academic Senate, and chair of the university’s Board of Publications, Personnel Committee, and Board on Retention and Promotion, along with serving on a statewide California State University Academic Senate. Dr. Powell is recognized as an influential pioneer among psychologists. He was one of the first non-medical doctors to locally perform court-ordered psychiatric evaluations, and was among the first group of 500 California psychologist to receive a state certification. He served on boards for health planning that ranged across counties and served as president of the board of directors for several hospitals. Dr. Powell was a man of character with a wonderful sense of humor.

He is survived by his wife Alice Powell, his son Jevon and his daughter-in-law Darcy; son Gregory and his daughter-in-law Meredith; and grandsons, Eli, Spencer and Max.

DR. JOSEPH ROBERT MCCLINTIC

Professor Emeritus Robert McClintic of Biology, died March 9, 2018, at the age of 89. Dr. McClintic was born in Fayette, Missouri and upon graduating high school, went to San Diego College where he received his Bachelor of Arts degree in Zoology and Chemistry. After graduating, he served as an Assistant Instructor of Anatomy and Physiology at San Diego State University and then studied at UC, Berkeley, obtaining his PhD in Physiology in 1954, specializing in Human and Cellular Physiology, Gross Anatomy, and Histology. At age only 26, Bob commenced an authoritative career as a Biology professor at Fresno State College in 1954, later California State University, Fresno, instructing numerous pre-med education courses including Anatomy, Physiology, Histology, Neurology, and purposefully extending these areas of learning to the Nursing field.

In 1971, Bob began publishing college textbooks, revisions, and accompanying lab manuals dedicated to better student organization and preparation of pre-med education. These were used in over 200 colleges and universities statewide and circulated worldwide in all English-speaking countries, and translated for audiences in Mexico, Italy and Spain. He also reviewed manuscripts for authors and publishers of textbooks. In 1971, he received the U. S. Graphics Arts Award for original sketches and artwork in his textbooks, compiling his own hand-drawn artwork and photography, some being reviewed and adopted by the University of London, with reviews of “admirable” content and ranking superior to other acclaimed texts at the time. In 1972, Bob was nominated for the CSUF Distinguished Lectureship Award.

In 1976, Bob was nominated as one of only eight candidates for the California Universities and Colleges Outstanding Professor Award, being honored with glowing letters of recommendation from his colleagues and former students who advanced to educational and practice roles in medicine, including those at Valley Medical Center. Bob retired from Fresno in 1991 to spend more time with more time with family and the outdoors.

He is survived by his daughters Cathleen Anne McClintic, Mary Colleen Pendergrass and Marlene Ann Hubbell and several grandchildren.

DR. ROBERT LEVINE

Professor Emeritus of Psychology, Robert V. Levine, passed away, June 22, at the age of 73 years old. Dr. Levine received a bachelor’s degree in psychology from the University of California, Berkeley, a master’s degree in clinical psychology from Florida State University and a doctoral degree in personality/social psychology from New York University. After earning a Ph.D. in personality and social psychology from New York University in 1974, he began teaching at Fresno State. He spent his whole career at Fresno State, taking emeritus status in 2008 but continuing to teach and lecture. He was also a visiting professor at universities in Brazil, Japan, Sweden and Britain. Dr. Levine was devoted to the University, he served admirably as chair of the Department of Psychology and associate dean for the College of Science and Mathematics. He also represented the Department of Psychology well in the community, serving on numerous boards, most notably for the Poverello House. He was also a fellow in the American Psychological Association. His research was creative and applicable to a variety of field. He published numerous articles and five books. In the mid-1990s he made the news with research that addressed civility and kindness – running tests in cities, large and small, looking for differences in responses to everyday help—a stranger moments. Dr. Levine served as a role model to friends and family around the world, living a rich life as an exemplary university professor and involved community member. He will be deeply missed.

He is survived by his wife Trudi Jean Thom, his sons Andy and Zach; a sister, Alice Levine; and a brother, Dan Levine.
THE COLLEGE OF SCIENCE AND MATHEMATICS (CSM) IS ONE OF THE LARGEST COLLEGES ON THE FRESNO STATE CAMPUS WITH OVER 4200 UNDERGRADUATE AND GRADUATE STUDENTS IN 21 BACHELOR’S AND MASTER’S LEVEL PROGRAMS ACROSS THE SEVEN DISCIPLINES IN THE COLLEGE. THE COLLEGE OF SCIENCE AND MATHEMATICS HAS 118 TENURED/TENURE-TRACK FACULTY, 155 PART-TIME FACULTY AND 38 STAFF.

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