CALIFORNIA STATE UNIVERSITY, SAN BERNARDINO

THE NATURAL PHENOMENA





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A MESSAGE FROM THE DEAN



Kirsten Fleming, Dean of the College of Natural Sciences

The 50th anniversary of the university has come and gone at a blistering pace. As always, I am proud of the accomplishments of our students and faculty, and would like to congratulate the newest graduates of CNS and CSUSB.

The College of Natural Sciences maintains its status as the largest college on campus with over 6,000 students having majors within CNS. In the past year we have welcomed ten new tenure-track faculty members to the college and ten new faculty members will join them in fall 2016.

I'd like to take a moment to acknowledge our outstanding CNS faculty, who have been deeply engaged in learning about and implementing teaching practices designed to be inclusive and to better support student success. The CNS award for excellence in teaching went to Dr. Rollie Trapp of the Department of Mathematics, excellence in research and scholarly activities to Dr. Paul Orwin of the Department of Biology, and excellence in service to Dr. Teresa Dodd-Butera of the Department of Nursing.

Dr. Tim Usher of the Department of Physics was named as the CSUSB Outstanding Researcher. He currently leads the largest research grant in the sciences ever awarded at CSUSB – a National Science Foundation funded *Centers of Research Excellence in Science and Technology*. This project includes six faculty investigators from both Physics and Chemistry & Biochemistry, as well as collaborations with the University of Nebraska and the University of Buffalo. The CREST grant supports dozens of research students each year at CSUSB, Nebraska, University of Buffalo, NASA, as well as early research experiences for students from the College of the Desert, Victor Valley College, and high school students through Upward Bound.

The Gerald M. Scherba lecture series featured Dr. Scott Sampson, or "Dr. Scott" as he is known to thousands of children. Dr. Scott is the host and science advisor of the Emmy nominated "Dinosaur Train," produced by the Jim Henson Company. He is a dinosaur paleontologist, science communicator, museum executive, and passionate advocate for connecting people with nature.

The 2016-2017 academic year will be exciting as we continue to build momentum in implementing the university's 2015-2020 strategic plan.

STAFF APPRECIATION DAY

On Monday, July 18, 2016, the dean hosted staff appreciation day at the Claremont Chef Academy. The staff members who attended were split into two teams and then participated in an Iron Chef Challenge, in which the two teams battled for main ingredients to craft their meals. The teams were led by dedicated local chefs who assisted in the planning and preparation of the meals and ultimately judged the team creations on taste and presentation. The two course meal included an entrée and a desert from each team, and the day ended with a family style meal for all attendees to enjoy.



DEPARTMENT ACCOMPLISHMENTS

Department of Biology

The Department of Biology continues to make strides forward in advancing its mission of faculty-led research. Dr. Jeremy Dodsworth recently received a four-year research grant from the National Science Foundation to study the biodiversity of Aigarchaeota, a group of microorganisms called archaea that are poorly understood. Dr. Nicole Bournias, director of the CSUSB California Institute of Regenerative Medicine (CIRM) Bridges to Stem Cells fellowship program, recently successfully renewed this \$2.8 million grant through 2021 to help support stem cell research for our students. The department has also continued to work hard to keep its research infrastructure on the cutting edge. Recently the Division of Information and Technology Services at CSUSB supported the acquisition of a scanning laser confocal microscope through the Vital Technology Initiative (VTI). And the College of Natural Sciences also helped the department upgrade to a new ultracentrifuge for cell organelle separation and other ultra-high speed applications.

Department of Chemistry and Biochemistry

The Department of Chemistry & Biochemistry was saddened this year by the passing of Professor Ralph Petrucci in November. Dr. Petrucci was a founding faculty member of CSUSB and served as chair of the Natural Sciences division and dean of Academic Planning. His textbook, "General Chemistry", was sold worldwide for ten editions. A gift from the Petrucci family has created an endowment to provide two student scholarships per year in his name. Dr. Andreas Beversdorf will join the faculty as a new assistant professor. Dr. Beyersdorf's area of specialty is analytical and environmental chemistry, in particular atmospheric chemistry. Alumnus Dr. Dario Gutierrez is now a senior scientist at Epiva Biosciences in Cambridge, MA. Dario visited us and gave a nice seminar for our speaker series. We had a visiting scholar, Daniel Miller, join us for the fall quarter as part of the CREST grant. Dan is a Ph.D. candidate at the University of Buffalo. Professor Kim Cousins was a keynote speaker at the Women in Physical Sciences at the University of Nebraska in October 2015.

School of Computer Science and Engineering

The School of Computer Science and Engineering began the Fall 2015 quarter with 1,007 enrolled students, the highest number of majors in its 31-year history. Leading up to this unprecedented number has been a doubling of majors through steady increments over the past five years. In the academic year 2015/16, 75 percent of the school's majors have been pursuing an ABET accredited BS degree in either computer science or computer engineering. Dr. Arturo Concepcion has been successful in securing a Vital and Enhanced Technologies Initiative grant in the amount of \$100,000 that is geared towards student success with emphasis on software engineering. The school is looking forward to starting the next academic year with one additional faculty member in the area of computer engineering. Dr. Yunfei Hou who comes from the University at Buffalo, NY, will join the school as assistant professor in Fall 2016. One of Dr. Hou's areas of expertise is cyber transportation and his hiring promises to open new avenues of collaboration between the school and CSUSB's Leonard Transportation Center.

Department of Health Science and Human Ecology

Students and Faculty in the HSCI Department were busy and productive in academic year 2015 to 16.

Dr. Nicole Henley on April 2016, chaperoned 11 HSCI students to attend the CSU Sacramento Health Policy Conference. Students learned about current health policy issues and met with legislators at the State Capitol. On April 2016, Dr. Henley served on the STEM panel at CSU Channels Islands, "Exposing African American girls to STEM related majors and careers."

From the Public Health Education Program and MPH Programs, student Maylen Jackson received the prestigious and very competitive Hispanic Association Colleges and Universities fellowship for summer. She will begin her fellowship at the Veterans Administration in Syracuse, NY summer 2016.

Alexa Reyes and Reacheal Sis-Medina published a peer-reviewed paper on food insecurity and mental health among Hispanics. Drs. Verissimo and Becerra received awards at Spring 2016 Faculty Showcase for their innovative course re-design projects. NTFS' Alternate pathway to dietetic internship program, ISPP program graduated its third cohort of 25 interns on July 28, 2016.

Department of Nursing

The Department of Nursing continues to offer four programs: the generic entry-intopractice program, the Master of Science in Nursing (MSN) program that includes an emphasis on Population Health, the RN-to-BSN online hybrid program and the Foreign Trained Nurse (FTN) program. We continue to have conversations regarding potential future programs such as a Seamless RN-to-BSN program pairing with community colleges, and the Doctor of Nursing Practice (DNP) program pairing with the Southern California CSU Consortium.

We are welcoming three new tenure-track faculty, one at the rank of associate professor. Some returning tenure-track faculty and lecturers competed for a CNS-sponsored award for Online Hybrid pedagogy training and several of our faculty will be participating.

We will begin a newly revised undergraduate curriculum that was approved by the California Board of Registered Nursing (BRN). It is hoped that a reduction in the number of nursing units required to complete the degree, along with plans to integrate simulation into each clinical course, will result in tangible improvement in select student outcomes.

Department of Physics

The department has had another exciting year. We are continuing to grow - in the number of students, the amount of research going on, and in the number of faculty. For those alumni out there from decades past, just imagine 65 students in Phys373. That's the enrollment for the fall, and it has Professor Paul Renteln a *little anxious*.

In addition to growing class sizes, the number of students doing research has sky-rocketed. With CREST, PRISM, and the work going on at the Murillo Family Observatory, we currently have ~20 students doing research on campus this summer, and ~15 at various NASA sites and doing REUs.

We are happy to announce that a new experimental solid state physicist will be joining the department in the fall. Dr. Sara Callori, a specialist in X-ray and neutron scattering analysis of functional materials, is our new assistant professor. Also, congratulations to Dr. Laura Woodney, who has been promoted to full professor. Alumni are encouraged to keep in touch.

Feel free to pop in any time, e-mail Dr. Dixon at <u>pdixon@csusb.edu</u>, or contact your favorite professor directly (for addresses check out our website: <u>physics.csusb.edu</u>).



THE NATURAL PHENOMENA DEPARTMENT OF GEOLOGY



Department Chair: Sally McGill

Professors: Joan Fryxell Erik Melchiorre Alan Smith

Associate Professors: Britt Leatham

Assistant Professors: Kerry Cato Codi Lazar

Department Office: Christina Palmer



Department Chair: Terry Rizzo

Professors: Bryan Haddock Hosung So

Associate Professors: Hyun-Kyoung Oh

Assistant Professors: Nicole Dabbs Guillermo Escalante Chris Gentry Jason Ng Jenevieve Roper Mandy Rymal

Department Office: Sarah Iarvis Betsy Bolanos

Equipment Techs: Ioe Liscano Ben Liscano

The Department of Geological Sciences is pleased to welcome two new faculty members. In Fall 2015 we were joined by Dr. Codi Lazar as a tenure-track assistant professor. Dr. Lazar earned his Ph.D. from UCLA in 2010, specializing in experimental petrology and geochemistry. His research interests include abiotic methanogenesis during serpentinization, methane in subduction zones, equilibrium measurement of stable Ni isotopes between experimental phases, influence of komatiite alteration on the early atmosphere, and thermodynamics of the hydrous nickel silicate system. At the 2016 Cordilleran Section meeting of the Geological Society of America (GSA), he presented preliminary measurements of inter-mineral nickel isotope fractionation in the Josephine peridotite. In early summer 2016 he took 20 students to Oregon for further study of the Josephine peridotite. Dr. Lazar also teaches mineralogy, optical mineralogy and igneous and metamorphic petrology.

-track assistant professor. Kerry brings to our department over 20 years of experience in engineering geology with both large engineering and small consulting firms; he has focused on geologic hazards and conditions affecting the built environment. He will teach courses in Engineering Geology and Site Investigation and will be experimenting with the use of new technologies and imagery techniques in site investigation. We are excited about how Kerry will help our geology majors prepare for careers. In his retirement, following 15 years of excellent leadership, Dr. Alan Smith is teaching geology courses at CSUSB's Palm Desert Campus. He and Dr. Joan Fryxell co-authored a presentation on the Caribbean island of Providencia at the 2016 Cordilleran Section GSA meeting, which Dr. Fryxell helped coordinate. She is also compiling her many years of geologic mapping in Nevada, and she continues to coordinate the Master's in Earth and Environmental Sciences program. Dr. Britt Leatham continues

joined by Dr. Kerry Cato as a tenure to mentor student research, resulting in presentations by students Sara Olsen and Madison Morris at the Southern California Academy of Sciences in 2015. Dr. Erik Melchiorre has had a productive sabbatical year, partly supported by a grant from NASA. In 2016 he presented a paper, co-authored by alumna Tera Ochart, at the annual meeting of the Mining History Association in Telluride, Colorado. Dr. Sally McGill served as interim department chair in 2015-16. She continues to involve students in her research on the neotectonics of the San Andreas, San Jacinto and Garlock faults, using field mapping, trenching and GPS. She and alumna Tania Rangel each presented research at the 2016 Cordilleran Section GSA meeting, and McGill is co-author on a paper on the slip rate of the Garlock fault, published in 2016. We are also pleased to have had several of our alumni teaching as part-time faculty this year: Shelby Barker, Sadie Kingsbury, Debbie Kunath and Matt Robles.

At the start of Fall 2016, we were

DEPARTMENT OF

Gandhi said: "be the change that you wish to see." Over the past 21 years, Kinesiology has changed significantly by strengthening its academic profile on campus, in the state, the region and nationally. We are known for effective teaching and mentoring our students, many of whom earned terminal degrees and now work in medicine, higher education, and have professional credentials in allied health fields. Faculty members and students have presented scholarly work at the state, region, national and international meetings. Similarly our faculty and students continually provide service to our local community, state agencies, regional and national organizations, and international organizations. In the past few years Kinesiology has built teaching and research laboratories for Motor Behavior, Biomechanics, Human Performance, Pedagogy, and Hemodynamics. Recently we officially opened the Applied Learning Laboratory for students and faculty. This laboratory represents a facility where teaching shifts to focus

responsibility of learning on learners. In this laboratory, faculty members can employ an array of instructional strategies as brief as a few minutes or for the entire class session. Kinesiology is a long-standing member of the American Kinesiology Association. Current faculty members are engaged in research focused on improving health and well-being across the lifespan with department-wide research initiatives in areas of ranging from aging to disability studies. A few faculty members were selected to receive honors accorded in the college and in their respective fields on national and international levels. Some faculty members serve in major leadership roles on state, regional, national and international committees giving extraordinary visibility to the department and CSUSB. We have hired a diverse group of faculty members who are effective teachers with scientific skills making each person capable of developing a vibrant line of research in their respective sub-field. The department culture is a quest for excellence.

KINESIOLOGY

Our students participate in the **Kinesiology Student Association** (KSA). This club offers students opportunities for networking, service, and professional development in the student's chosen field. KSA has offered student engagement opportunities in events ranging from the DisAbilities Sports Festival to All Star Swimming for individuals with disabilities. KSA has ventured into the community volunteering their time and service to Ronald McDonald's House to cleaning up local parks for community members. Since 1995 the department has grown from 148 majors to 852 majors in Spring 2016; about a 500% increase in the number of majors during this time. Finally, effective Fall 2016 Dr. Terry L. Rizzo will step-down as chair and return to the faculty leaving behind a robust academic unit with an excellent group of faculty and staff members who will move the department forward.

DEPARTMENT MATHEMATICS OF



Joseph Chavez

Nadejda Dyakevich

Davida Fischman

, Belisario Ventura

Laura Wallace

Gary Griffing

Zahid Hasan

John Sarli

Department Chair: Chuck Stanton

Professors

Susan Addington Corey Dunn Hajrudin Fejzic Chris Freiling Ilseop Han Yuichiro Kakihara Shawn McMurran Chetan Prakash Rollie Trapp Paul Vicknair Wenxiang Wang Min-Lin Lo

Associate Professors: Madeleine Jetter Giovanna Ľlosent

Assistant Professors: Jeremy Aikin Cory Johnson

Lecturers. Joyce Ahlgren

Department Office: Leeanne Richardson Allison Torres Ana Sanchez

We have had a number of accomplishments and another exciting year in the Department of Mathematics. To begin the 2016 academic year, we welcome two new full-time faculty members, Dr. Lynn Scow and Dr. Jeffrey Meyer. Dr. Scow is a model-theoretic logician who has several publications in highly regarded logic journals. She has taught across the undergraduate and graduate curriculum, and has incorporated innovative pedagogies into her courses, including flipped classrooms and inquirybased learning. Dr. Meyer's research is in the intersection of differential geometry, algebra, and number theory. He taught at the University of Michigan and at the University of Oklahoma prior to coming here. He too has an interest in inquiry based learning. We enthusiastically welcome Dr. Scow and Dr. Meyer to the department.

In the past year we have enjoyed a number of successes in the area of research. The paper titled "A Method of Computing the Constant Field Obstruction to the Hasse

Principle for the Brauer Groups of Genus One Curves," authored by Dr. Ilseop Han, will appear in the Journal of the Korean Mathematical Society. Dr. Davida Fischman and her coauthors will have published "Proclivities for Teaching Mathematics" in the Journal of Mathematics Teacher Education. She has also presented work at three conferences and has another paper under review. Dr. Min-Lin Lo published a paper titled "Radio Number for Fourth Power Paths" with one of our former students in the journal Involve. Dr. Garv Griffing will be submitting some joint work completed during his recent sabbatical in the area of abstract algebra in the near future, and Dr. Cory Johnson has authored "Nerve Complexes of Circular Arcs," to appear in Discrete and Computational Geometry.

The department has also been busy with grants. Two teams of math faculty were awarded a "Principles of Program Design Grant," offered through TRC. Dr. Johnson and Dr. Jeremy Aikin were awarded a grant from the Math Teachers' Circle Network to start a Math Teachers' Circle in the Inland Empire. Dr. Fischman has taken on the role of Interim TRC Director, while Dr. Aikin has will replace her as the director of the Center for **Enhancement of Mathematics** Education program. Dr. Corey Dunn and Dr. Rollie Trapp continue their work with the Summer REU program in mathematics, while Dr. Trapp continues his work in the PRISM program: both funded by the NSF and CSUSB. Finally, Dr. Susan Addington is part of a team at IllustrativeMathematics.org that is writing a free, open-source middle school math curriculum. This will be ready for schools to use in Fall 2017.

We are looking forward to another exciting year in the mathematics department as we welcome new faculty and look forward to more success.



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DEVELOPMENT CORNER



This year, the college did a great job of nearly reaching our fundraising goal, although we were without a director of develop-

ment for a large portion of the academic year. The College of Natural Sciences and CSUSB would like to sincerely thank the donors which gave to the students and various programs of the college this year. Every individual gift, pledge, and corporate partnership has strengthened our institution and provided an environment and opportunities for our students to excel.

The Ralph H. Petrucci Chemistry Scholarship

The family of founding faculty member and world renowned chemistry author Ralph H. Petrucci created a memorial scholarship in his honor after he passed late last year. This \$110,000 gift to the College of Natural Sciences also included Dr. Petrucci's extensive personal library and a number of "General Chemistry" textbooks, which he authored through ten editions. The endowed scholarship was developed to support junior and senior level chemistry students that have a passion for pursuing their discipline in graduate school and will be awarded to two students each year in perpetuity. This scholarship is the first in the Department of Chemistry and Biochemistry and will make a large impact on cultivating the next generation of chemists who have been inspired by Dr. Petrucci's work. The dean, College of Natural Sciences, and CSUSB greatly appreciate this generous gift and the Petrucci family's commitment to the university. vated space near the Chemical Sciences building. Grassroots fundraising efforts spearheaded by Dr. Owen and Maureen Murphy and various campus entities have shown an outpouring of support for this display of solidarity. We are on the road to seeing this vision completed, and would like to extend our sincerest thank you to CSUSB's anonymous donors that have given so generously to honor those who lost their lives.



Ralph Petrucci

The CNS Peace Garden

The CNS Peace Garden fund was established to support the building of a memorial garden in honor of those who lost their lives in the December 2, 2015 shooting in San Bernardino. Funds raised for this project will aid in the construction and maintenance of this reno-







College of Natural Sciences

2016 COMMENCEMENT

The College of Natural Sciences' commencement ceremony took place on June 18 at 4 p.m. at the Citizens Business Bank Arena in Ontario. Before a crowd of their families and friends, more than 494 students received their diplomas. Among those students were several who were singled out for various honors. Each year, the college chooses students it determines to be outstanding, both from the undergraduate and graduate populations. This year, the outstanding graduate students are Alicia Davis, from biology; Bir Sodhi, from computer science and engineering; Tania Quesada from health science and human ecology; Gwnedolyn Souza, from mathematics and Nashwa Darwish-Mostafa from nursing. These students have shown great promise in their chosen fields, and the college is proud to recognize them. The outstanding undergraduate students are Alex Cummins from biology; Geovanni Rangel, from chemistry and biochemistry; Brandon Ignatowski from health science and human ecology; Nicole Sauls, from kinesiology; Edward Folts, from mathematics; Elizabet Zapata-Roman from nursing and Daniel Winney from physics. These students have worked very hard and richly deserve the honors. Additional students received departmental honors. From the Department of Biology: Isabell Augenstein, Mohsen Baghchechi, Alex Cummins, Mark Dery, Lowell Iporac, Zahoor Sadiq, Linda Sanderman and Erik Wright; from the Department of Chemistry and Biochemistry: Michael Fane, Steven Merrill, Nathan Tierce and Geovanni Rangel; from the School of Computer Science and Engineering: Mark Baltes, Kristian Howard, Jr., Mark Martinez and Brandon Saunders; from the Department of Geological Sciences; Stephen Bryce; from the Department of Health Science and Human Ecology; Maylen Jackson and Abigail Lopez; from the Department of Kinesiology: Ernesto Bautista, Edward Bonilla, Jenai Castaneda, Abdiel Fuentes, Sarah Hanson, Felicia Hopkins, Hyun Kim, Sarah Leighton, Julie Nguyen, Crystal Patterson, Brennen Rodriguez, Cassandra Rosebeary, Nicholas Sauceda, Nicole Sauls, Billi-Jo Shirley, Jessica Tate, Veronica Velasquez, Andrew Zapata and Alice Zayer; from the Department of Mathematics: Alexandria Crespo, Gilbert Felix, Myles Gonzalez, Catherine Ou and Antonio Saucedo; from the Department of Nursing: Alex Addison, Amber Aguilera, Leah Amento, Kwabena Atuahene, Stephen Barrett, Kyndsey Bell, Deanna Bragg, Pamela Bucayu, Travis Burks, Rachel Castello, Diana Cervantes, Juliette Cicchini, Katherine Clark, Farrah Davis, Barbara Fisher, Yekaterina Flaksman, Tyson Frodsham, Elias Garay, Marlene Gonzalez, Dulce Gonzalez, Mary Gonzalez, Romina Gonzalez, Gina Grucelski, Sandra Hackett, Brandon Herlihy, Brittainy Hoffman, Natalie Joseph, Felicia Khoe, Michelle Li, Micaela Lieberman, Derek Magno, Nokubonga Matshazi, Erika Mendoza, Fernando Montelongo, Alexandra Muir, Kelsey Navarro, Luc Newlin, Nicholas Nguyen, Timothy Patterson, Caleb Pierce, Crystle Rajania, Jenna Roberts, Marieta Salazar, Hayley Salzarulo, Andrey Sendow, Andrew Sheriff, Amy Smith, Shayna Smith, Chelsea Smithfield, Donayre Trivino, Mariah Tropez, Jaime Vargas-Gomez, Isidra Vazquez-Munoz, James Vicario, Veronica Williams, Clayton Wong, Blake Wood and Elizapet Zapata-Roman; from the Department of Physics: Melissa Hannan, Luis Jauregui, Joseph Martinez, Francisco Ortega and Daniel Winney.

CNS OUTSTANDING

GRADUATE



CNS OUTSTANDING ALUMNUS

Mr. Eldon Heaston earned a B.S. in Health Science from Cal State San Bernardino and he is currently the

Eldon Heaston

executive director of the Mojave Desert Air Quality Management District. During his 25 years with the district, Eldon has worked to build and uphold its reputation as one of the most progressive and accessible air districts in the state.

As the deputy air pollution control officer, he managed the day-to-day operations including compliance, regulatory development, engineering, air monitoring and the small business assistance program. Prior to that, he was the environmental services manager and had responsibility for the development and implementation of the district's AB 2588 Toxic "Hot Spots" Program.

He recently served six years as a governor's appointee to the state's Inspection and Maintenance Review Committee, which evaluated the effectiveness of California's Smog Check Program and recommended program improvements.



Alicia Davis

ject focused on molecular virology to contribute to improving human health through molecular medicine. Alicia's research investigates aspects of the Influenza A virus. During her first year in the graduate program, Alicia published a review article as a first author in a peer reviewed journal. To share her research, Alicia has attended seven conferences and has won several awards, earning a scholarship and travel funds to additional conferences. She was recently awarded a Research Initiative for Scientific Enhancement fellowship. During high school, Alicia volunteered at Inland AIDS Project, a nonprofit health organization that provided medical and social support for those infected with HIV. That experience piqued her interest in the underlying basis of human disease and guided her to pursue a degree in biology. In the fall, Alicia will begin her Ph.D. training at the Irell & Manella Graduate School of Biological Sciences at City of Hope.



CNS OUTSTANDING UNDERGRADUATE

Nicole Sauls graduated with a Bachelor of Science in Kinesiology Allied Health Professions and a cumulative GPA of 3.82. Nicole was chosen by the

Nicole Sauls

kinesiology faculty as CSUSB's Society of Health and Physical Educator's Major of the Year and American Kinesiology Association's Undergraduate Scholar. Since fall 2014, she has worked on five different research studies in the Kinesiology Biomechanics Lab under her research mentor, Dr. Nicole Dabbs. Nicole has presented her findings as first and second author at various conferences, with an oral research presentation most recently at the CSUSB Research Competition discussing breakthrough baseline concussion test findings. Early in her freshman year, Nicole discovered she had a passion to serve in the medical field as a physician assistant. Since then, she has been an active volunteer at Loma Linda University Medical Center in the Emergency Department and the No One Dies Alone Program. Nicole is also a member of the Big Hearts for Little Hearts and volunteers at many Children's Hospital events.