Biology Newsletter

California State University Channel Islands

Spring 2025

Contents

Chair's welcome

Hello everyone!

This newsletter highlights the incredible work and accomplishments achieved by our biology students and our faculty and staff over the last year. The contents represent thousands of hours of laboratory research, literature review, data analysis and hard labor conducted by dedicated and passionate individuals. I welcome you to take a look at all we have done, and enjoy!

Dr. Erich Fleming

Chair, Biology Department, CSUCI

Biology garden update

The Modoc Garden at CSUCI is an important space for sustainable food production and hands-on learning and research. It also provides key habitat for wildlife like pollinators and birds of prey. The garden is growing through our partnerships with local nonprofit organizations and help from students and staff. Learn more in pages 7–8.

We want to hear from you! Invitation to alumni

We invite CSUCI Biology alumni to share your news—current endeavors, work, projects, and/or studies. We would love to hear about your journey since completing your degree. Please contact Biology and/or Laura Lugo, Academic Program Analyst, to share your news for the next newsletter!

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Student Accomplishments

Presentation awards

CSUCI Biology majors won awards for their research presentations at the National Diversity in STEM Conference hosted by the Society for the Advancement of Chicanos/Latinx and Native Americans in Science (SACNAS) in Phoenix, Arizona, October 2024.

Pictured from left to right: **Alexa Murillo** (Biology), **Selene Lopez** (Biology), **Emmanuel Caballero** (Biology), **Irene Ochoa** (Biology), and **Willow Jackson** (ESRM). Congratulations!

Biology students win awards for their research

CSUCI Biology majors **Julia Moffa** and **Liz Ayala** received a best research presentation award at the West Coast Biological Sciences Undergraduate Research Conference, held at CSU San Marcos in April 2025. Their poster, '*Worms like Coffee too: Mapping the Sensorimotor Circuits That Coordinate Coffee Sensation*,' featured work done in the lab of Associate Professor Dr. Gareth Harris. Congrats Julia and Liz!

CSUCI Biology majors **Xochitl Roque Villalobos** and **David Ross** received a Student Research Scholarship award from the STEM-NET Edison program for Spring 2025. Xochitl's research focuses on the link between disruptions in cellular pathways and disease, and David's research focuses on cell culture studies of pathological biomarkers. Both Xochitl and David are mentored by Professor Dr. Nitika Parmar. Congrats Xochitl and David!

CSUCI Biology major **Emily Chang** received a best oral presentation award at the 39th Annual CSU System Competition held at California State Polytechnic University, Humboldt in April 2025. Her presentation, '*Dissecting the Mechanisms Underlying Attraction to Cat Sensed Cues: Worms and Cats Aren't Much Different*,' featured the research she conducts in the lab of Associate Professor Dr. Gareth Harris. Congrats Emily!

Students recently accepted to graduate programs/ professional programs

Addalie Thiessen (Class of 2025) was accepted to the Master of Science in Biology program at California State Polytechnic University, Humboldt. Congrats Addie!

Amanda Desfosses (Class of 2025) was accepted to various nursing programs and will join the Nursing Program at CSU Channel Islands. Congrats Amanda!

Alejandra Arroyo (Class of 2024) was accepted to the Biomolecular Science and Engineering Doctoral Program at the University of California, Santa Barbara. Congrats Alejandra!

Leniha Lagarde (Class of 2024) was accepted to the Integrated Plant Sciences Doctoral Program at the University of Georgia, Athens, Georgia. Congrats Leniha!

Nils Boberg (Class of 2025) was accepted to the Master of Environmental Science and Management (MESM) program at the Bren School at University of California, Santa Barbara. Congrats Nils!

Ryan Brener (Class of 2025) was accepted to the Cell and Molecular Biology PhD program, BioMolecular Science, at Michigan State University. Congrats Ryan!

Biology Alumni Spotlight

Siomara Zendejas (Class of 2023) joined the University of California Cooperative Extension (UCCE) Ventura County in 2023. The UCCE operates under the UC Agriculture and Natural Resources (UC ANR) division, and Siomara is currently working as Staff Research Associate. Congrats Siomara!

Sheila Ferer (Class of 2023) joined the Tapia lab at CSUCI as a full-time research scientist in Summer 2023. Congrats Sheila!

Nona Marvian Safarzadeh (Class of 2023) joined the University of California, San Francisco (UCSF) Dental Program in Fall 2023. Congrats Nona!

Chase Anderson (Class of 2024) recently joined Agilent Technologies. Congrats Chase!

Ashley Vega (Class of 2024) joined Thermofisher in Fall 2024. Congrats Ashley!

Sandra Rodriguez (Class of 2024) joined the Ventura County Public Health Agency in 2024. Congrats Sandra!

Alexis Chua (Class of 2024) joined the manufacturing department at Amgen in summer 2024. Congrats Alexis!

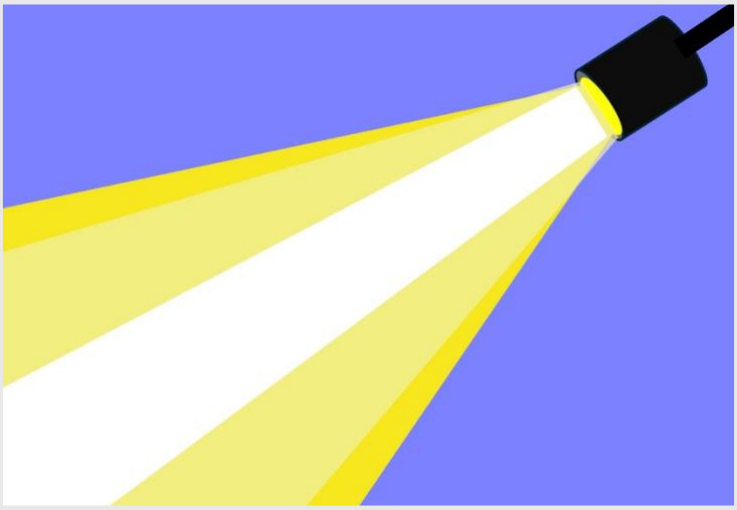
Lendin Stell Santiago (Class of 2023) joined Agilent in Fall 2023. Congrats Lendin!

Griselda Padilla (Class of 2024) joined FUJIFILM Diosynth Biotechnologies in Fall 2024. Congrats Griselda!

Mason Henry Avelar (Class of 2023) joined the Western Foundation of Vertebrate Zoology in 2023, Point Blue's Palomarin Field Station in 2024, and Southern Sierra Research Station in 2025. Congrats Mason!

Lord Forde (Class of 2023) has been working with the Ojai Raptor Center and as a Biological and Environmental Consultant since 2023. Congrats Lord!

Shane Stoyko (Class of 2022) joined the California Department of Fish and Wildlife in 2022. Congrats Shane!



Delyar Khosroabadi (Class of 2024) joined the Yale University graduate program in Fall 2024 and is a PhD student in the Chemistry Department. Congrats Delyar!

Spooner Greenbird (Class of 2024) joined the Utah State University graduate program in Fall 2024 in a clinical psychology lab as a doctoral student. Congrats Spooner!

Jayden Jackson (Class of 2024) joined the PhD program in Biochemistry and Molecular Biology at the University of Georgia in 2024. Congrats Jayden!

Annabelle Tran (Class of 2023) joined the ophthalmology research labs at the Jules Stein Institute (UCLA) in Fall 2023. Congrats Annabelle!

Bryant Cruz (Class of 2022) joined the ophthalmology research labs at the Jules Stein Institute (UCLA) in Fall 2022. Congrats Bryant!

Corinne Capitonoff-Sullivan (Class of 2022) joined BioMarin Pharmaceutical in Fall 2022. Congrats Corinne!

Duncan Tanner (Class of 2022) joined Midwestern University Medical School. Congrats Duncan!

Trevor Wolf (Class of 2022) joined Caltech in the neuroscience program as a PhD student in Fall 2022. Congrats Trevor!

Biology Alumni Spotlight (continued)

Italia Weaver (Class of 2022) was recently accepted to the School of Medicine at the University of California, Irvine and will begin in Fall 2025. Congrats Italia!

Mariano Bedoya (Class of 2022) has offers from various medical schools and will begin in Fall 2025. Congrats Mariano!

Patricio Ruano (Class of 2021) is a medical student at Michigan State University, Grand Rapids. Congrats Patrick!

Camryn Finkenbeiner (Class of 2021) joined the Optometry program at Southern College of Optometry, Memphis, Tennessee, in 2022. Camryn received a Board of Trustees Endowed Scholarship to pursue her studies in optometry. Congratulations Camryn!

Berenice Jauregui (Class of 2021) is a pharmacy student in the School of Pharmacy at the University of Michigan. Congrats Berenice!

Brianna Ramos (Class of 2021) is a doctoral candidate in the Neuroscience Doctoral Program at the University of Michigan, Ann Arbor. Congrats Brianna!

Chase Baker (Class of 2020) joined CSU Northridge for his Master's degree with a focus in neuroscience and inflammation. Congrats Chase!

Nikolas Burkevics (Class of 2020) joined Amgen in Fall 2022. Congrats Nik!

Andrew Guevara (Class of 2020) joined AstraZeneca in Fall 2024. Congrats Andrew!

Angelica Salaverria (Class of 2020) joined Brown University's PhD program in Fall 2023. Congrats Angelica!

Chase Khemadtogozar (Class of 2020) is a doctoral candidate in Microbiology, Immunology, and Pathology at Colorado State University. Congrats Chase!

Ruby Berin (Class of 2020) joined the Media M.S. program at Indiana University Bloomington in 2023, and she is pursuing her studies in the Media School with an emphasis in Documentary and Nonfiction Production. Congrats Ruby!

Rachel Richardson (Class of 2020) is a doctoral student in Microbiology, Genetics, and Immunology at the Michigan State University, East Lansing. Congrats Rachel!

Bianca Salazar (Class of 2020) is a doctoral student in the Quantitative Systems Biology program at the University of California, Merced. Congrats Bianca!

Vivian Garcia (Class of 2017) is a PhD Student in Biological Sciences at Harvard University. Vivian is also a Graduate Teaching Fellow and recently presented her research in a Faculty-Student Seminar Series in the Developmental and Regenerative Biology program. Congrats Vivian!

Jessica Maldonado (Class of 2019) earned a Master of Science in Biology at CSU Northridge in 2022 and currently works as a Forensic Scientist in the Forensic Biology section at the Ventura County Sheriff's Office. Congrats Jessica!

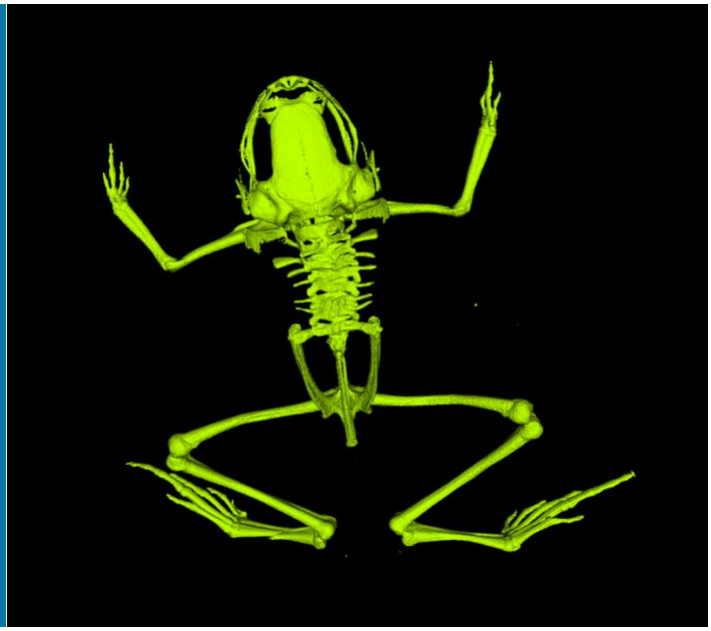
Research Highlights

Krisha Algoso (Instructional Support Technician) defended her M.S. thesis titled '*Nature's Pharmacy: the Antibacterial Potential of California Native Plants*' on December 13th, 2024. Krisha examined the effect of plant extracts of bacterial growth and identified different phytochemicals in native plants growing in Southern California, including the CSUCI campus. The study was part of her M.S. degree at CSU Los Angeles, and her thesis committee included **Dr. Caryl Ann Becerra** (Research Advisor, CSUCI) and Drs. Kirsten Fisher and Susan Cohen (CSULA). Congratulations Krisha!

Selene Lopez (ESRM and Biology student) started a new project sponsored by the California Native Plant Society (CNPS) - Channel Islands Chapter. Selene's project is titled '*Antibacterial Effects of Chumash Plants*' and was presented to CNPS in March 2025. Congratulations Selene!

Biology department laboratory technician and CSUCI alumna Krisha Algoso presenting her research at the California State University Los Angeles (CSULA) Annual Student Symposium on Research, Scholarship, and Creative Activities.

Biology students **Addalie Thiessen** and **Nickolas Burdick**, along with faculty **Dr. Allison Alvarado** and **Dr. Rudi von May**, participated in a workshop focusing on X-ray micro-computed tomography (microCT) scanning at Utah State University (USU) in May 2024. The workshop was organized by Dr. Molly Womack (Cornell University) and the activities were co-led by graduate students Julia Soares Parreiras and Jack Phillips (Cornell University). The previous year (May 2023), CSUCI student **Ren Bennett** and Drs. Alvarado and von May participated in the first iteration of this workshop at USU. In both workshops, the participants learned how to use a microCT scanner and software programs for processing and analysis of 3D images. The students generated images of frogs' skeletons to study morphological traits of Andean frogs. Both workshops were organized with support from a research grant from the National Science Foundation (BRC-BIO, DBI-2218191).



Teaching Highlights

Caryl Ann Becerra, Ph.D., Assistant Professor, teaches Medical Microbiology (BIOL 217) and Independent Research (BIOL 494) in the Spring and Fall.

Ashley McCarley, M.S., teaches Medical Microbiology labs (BIOL 217) and General Biology labs.

Krisha Algoso, M.S., Instructional Support Technician level 2, provides support to Medical Microbiology, General Microbiology, Marine Biology, and Invertebrate Zoology.

Gareth Harris, Ph.D., Associate Professor, teaches Cell Biology (BIOL 300) in the Fall and Spring, Cellular and Molecular Neuroscience (BIOL 423) in the Fall, Special Topics (Pharmacology and non-pharmacological therapeutics to treat brain disease, BIOL 490) in the Spring, and Independent Research (BIOL 494) in Spring/Summer and Fall.

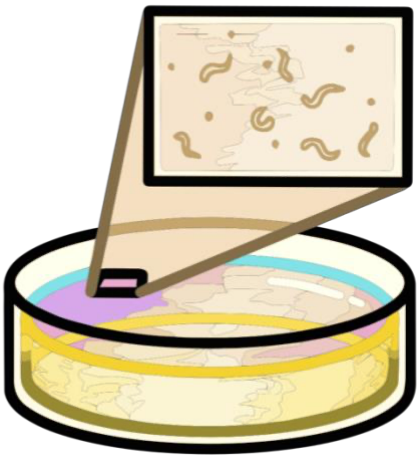
Research Highlights (continued)

Using worms to understand sensation of coffee (Harris Lab)

Biology students **Ashley Vega**, **Alexis Chua**, **Emily Chang**, **Liz Ayala**, **Amber Seader**, and **Adriana Torres** have been working in the lab of Associate Professor Dr. Gareth Harris on a project for the last 2.5 years that studies how the brain detects human sensed cues like coffee (project title: '*Worm like coffee too! Dissecting the mechanisms underlying sensation to a human sensed cue*'). This has involved characterizing the genes and neural pathways that control olfactory behavior. They have presented their work at various Southern California and national conferences between 2023 and 2025, including SACNAS (Society for Advancement of Chicanos/Hispanics and native Americans in Science, Arizona), NCUR (National Congress for Undergraduate Research), SCCUR (Southern California Conference for Undergraduate Research, CSU San Bernardino), WCUBR (West Coast Undergraduate Research Conference, CSU San Marcos), and the CSU Biotech conference in California. These projects surrounding coffee sensation are currently being led by **Liz Ayala**, **Julia Moffa**, **Jacki Thacker**, and **Stephanie Linares**.

Worms and cats are not much different! (Harris Lab)

A senior Biology student in the Harris Lab, **Emily Chang**, has been working on understanding the mechanisms of the brain involved in odor sensation, and uses worms to understand how organisms sense odors originating from catnip. Interestingly, worms like the smell of catnip. This has allowed our students, like Emily, to present their work at lots of conferences and are about to submit a paper for publication on how worms of different species show variation in their sensation of catnip related odors, and how this may link to cats showing varied responses to different catnip (paper title: '*Characterizing behavioral variation in response to mammalian sensed odors*'). Congratulations to **Emily Chang**, **Amber Seader**, and **Annabelle Tran** in presenting work in these conferences, and submitting a potential publication on how organisms vary in their responses to mammalian sensed smells. Emily Chang with help from **Leslie Suarez** are continuing dissecting the behaviors involved in catnip sensation and attraction.



Depiction of assay plates with worms used in lab experiments.

Image: DataBase Center for Life Science
(Creative Commons, CC BY 4.0, via Wikimedia Commons)

Using worms to study multisensory behavior (Harris Lab)

In the Harris lab, Biology students **Julia Moffa**, **Lily Yered**, **Emily Ridino**, and **Spooner Greenbird** were successful in identifying new genes involved in processing different sensory cues from good (food) and bad odors (chemical repellents). They have also been able to identify examples of different worm species that originate from distinct geographical locations that respond to food cues and danger variably. In addition, a recent project lead by **Lily Yered**, **Natalie Leon**, and **Olivia Fagnani** ('*Characterizing the mechanisms involved in sensation of simultaneous presented cues to coordinate behavior*') are currently investigating different types of escape responses to distinct danger related odors, and have identified potential genes and specific nerves in the worm's brain that are required for these escape responses.

Using worms to study antidepressants (Harris Lab)

Biology students **Leslie Suarez** and **Stephanie Linares** have been working on characterization of a known antidepressant, Vortioxetine, and its brain targets using worms as a model system. They presented their work in Spring at the West Coast Biological Sciences Undergraduate research meeting 2025.

Happenings at Modoc Garden

The Garden is growing again through our partnerships with **Calthrive Community Agriculture** (http://calthrive.org), a newly formed nonprofit to promote sustainable, regenerative, hands-on local agriculture, as well as our continued relationship with **Native Monarchs** (http://nativemonarchs.org), a nonprofit dedicated to restoring and protecting monarch butterfly habitats. Together with Basic Needs, they are helping the Biology Department transform the Modoc Garden into a thriving space for sustainable food production and hands-on learning and research.

Photo: Chris Amendt

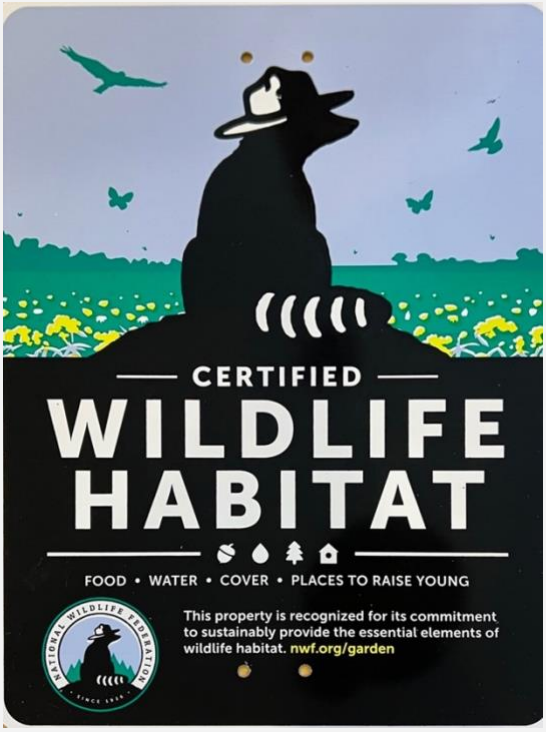
Calthrive President, Austin Dent, is an ESRM student, who along with his partners, Karl Yost, Daniel Smithson, and Gabriel Murray, volunteered at the Ventura County Area Agency on Ageing Service Nutrition Garden in Oxnard, where they helped produce food for people experiencing food insecurity. However, the funding was eliminated, and the garden was shut down, so Austin approached Biology Professor Dr. Ruben Alarcon in November of 2024, to ask about volunteering in the Modoc Garden. After hearing about Austin and his colleagues plans to one day operate their own nonprofit to sustainably produce food for people in need, Austin was introduced to Dr. Maria Ballesteros-Solas in the School of Business, who helped navigate the process of gaining their 501-c(3) nonprofit status. Calthrive will soon be a CI Community Partner, where they will be able to work with students. Calthrive's goal is to produce over 1000 lbs. of fresh fruit and vegetables this season to donate to CI's Dolphin Pantry and help Modoc Garden to become a tour site for the Ventura County Farm Day on November 8th.

Calthrive Community Agriculture members (L-R) Karl Yost, Austin Dent, Daniel Smithson, and Gabe Murray.

Chris Amendt, the founder of Native Monarchs, has been working to transform Modoc Garden to a pollinator and wildlife habitat. Over the last several years she has helped Apiculture & Bee Biology (BIOL 407) students install pollinator gardens and worked with Dr. Rudi von May to create a milkweed research plot.

Chris Amendt, Native Monarchs

Chris recently got Modoc Garden certified as Wildlife Habitat, by the National Wildlife Federation, as it offers food, water, cover, and places for wildlife to raise their young.



New wildlife habitat sign for Modoc Garden.

Happenings at Modoc Garden (continued)

Chris Amendt also worked with the National Park Service to install a Raptor Perch and camera in the garden and partnered with the Barn Owl Box Company and Associate Professor Dr. Allison Alvarado to install an owl box. And with the help of students and the Center for Community Engagement's Trail Corps, she planted a wildflower cover crop in the garden to help suppress weeds. Kudos to Chris and Native Monarchs!

The Biology Department is looking forward to having more students participate in education and volunteer activities in Modoc Garden, as well as donations to help support current and future activities, such as the installation of irrigation system, an avocado orchard, and more owl boxes and raptor perches.

Pictured above, Associate Professor Dr. Allison Alvarado (right) with Biology students (L-R) Oliver Booth, Oasis Garcia, and Riley McDonough, preparing to install the owl box in Modoc Garden.

Modoc raptor perch in use

Plot of Narrow-leaved milkweed in Modoc Garden.

New garden table, reproposed from a cable spool.

Biology's Apiary is moving to UC Hansen Farm

On January 23, 2025, the Laguna Fire erupted at the intersection of Laguna and Hueneme Rds., at the base of Sat'wiwa, or Round Mountain. Fortunately, firefighters were able to put out the fire before it reached the apiary on the other side of Sat'wiwa. However, to prevent the fire from spreading firefighters bulldozed a firebreak adjacent to the apiary, which disturbed Argentine ant colonies, that then attacked the hives and resulted in the loss of half of our honeybee colonies. To save the rest of the honeybee colonies, they were moved to an apiary at a neighboring ranch.

The good news is that after nearly eight years of living with the fear of fire, the Biology apiary will be moving to the UC Hansen Agricultural Research and Extension Center (UC HAREC) farm, in Camarillo. A cargo container was donated by Nutrien, a local fertilizer company, which will serve as onsite storage. A bee-themed mural is currently being painted by Art majors, Jane Aurthur and Monica Estrada. The site is being prepared with weed barrier and gravel with the goal of moving colonies in by the end of March. Over the next two years, we plan to expand the apiary from ~10 honeybee colonies to 80, for the purpose of research and education programs. We will also be partnering with UC Davis's California Master Beekeeping Program, in offering science-based beekeeping education to the public.

Biology's campus apiary following the Laguna Fire. Note the bulldozer tracks. The area was previously occupied by native shrubs.

Site of new apiary at UC Hansen farm. Container will be used for storage. Pictured (L-R) Dr. Annemiek Schilder, Director of UC HAREC, and CSUCI Art majors Jane Arthur and Monica Estrada, who painted a mural on the container.

Mural on the cargo container painted by CSUCI Art majors Jane Arthur and Monica Estrada.

Conference Presentations

Biology students in the Harris Lab presented their projects on using worms to study sensory behavior and neural mechanisms underlying brain functions, in two conferences:

- CSU Biotech conference in Anaheim, CA, Spring 2025
- Southern California Conference for Undergraduate Research (SCCUR) at CSU San Bernardino, November 2024.

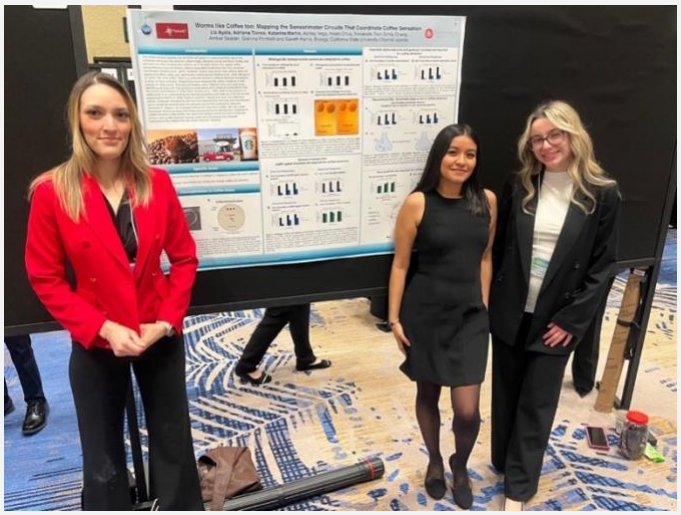
Liz Ayala, Adrianna Torres, Emily Chang, Katarina Martin, Youseff Awad, Annabelle Tran, Gianina Pontrelli, Amber Seader, Gareth Harris. '*Worms love Coffee too! Characterizing the neuronal substrates that coordinate responses to a human sensed odor.*' CSU Biotech, 2025 & SCCUR, 2024.

Julia Moffa, **Lily Yered**, **Emily Ridino**, **Spooner Greenbird**, Gareth Harris. '*Investigating genes and natural variation in a multisensory behavior.'* CSU Biotech, 2025.

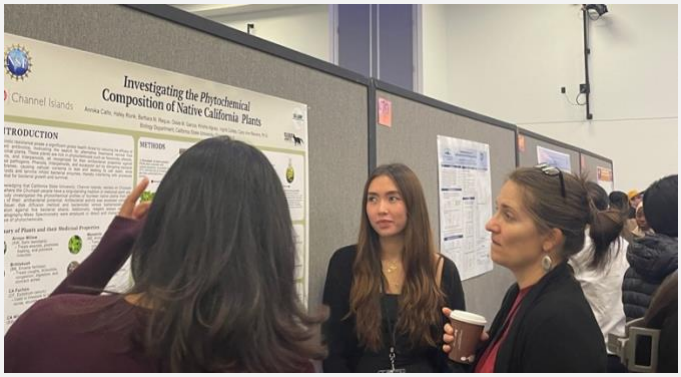
Lily Yered, **Julia Moffa**, **Emily Ridino**, **Spooner Greenbird**, Gareth Harris. '*Investigating genes and natural variation in a multisensory behavior.'* SCCUR, 2024.

Emily Chang, **Amber Seader**, **Annabelle Tran**, **Brianna Ramos**, **Gianina Pontrelli,** Gareth Harris. '*Dissecting the mechanisms that underlie attraction to mammalian sensed cues: Worms and cats are not much different!*' SCCUR, 2024.

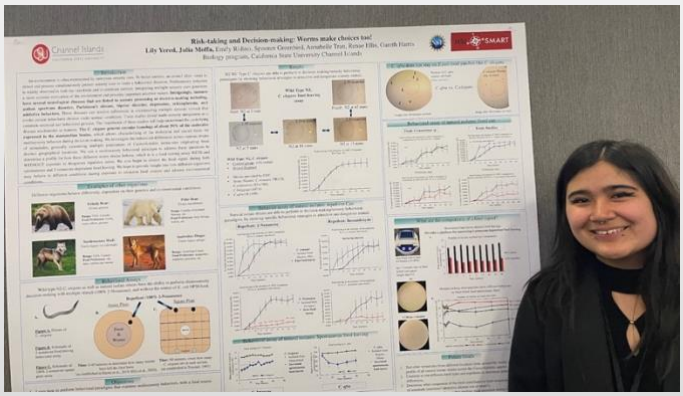
Harris lab at CSU San Bernardino after presenting at SCCUR, Fall 2024.



Biology students Liz Ayala, Adriana Torres, and Katarina Martin presenting at CSU Biotech 2025.



Biology student Haley Ronk (center) with co-presenter Annika Callo present their poster at SCCUR.



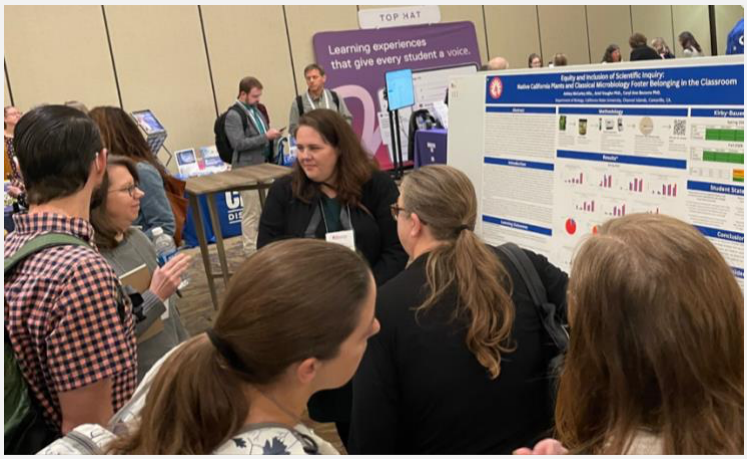
Biology student Lily Yered presents her poster at SCCUR.

Conference Presentations (continued)

Dr. Hugo Tapia presented '*Drying without Dying: understanding desiccation tolerance in Saccharomyces*' at the National Diversity in STEM (NDiSTEM) Conference hosted by the Society for the Advancement of Chicanos/Latinx and Native Americans in Science in Phoenix, Arizona, October 2024.

Dr. Hugo Tapia (at the podium) presents at NDiSTEM.

Prof. **Ashley McCarley** presented a collaborative education research project with **Dr. Caryl Ann Becerra** and Ariel Vaughn at the American Society of Microbiology Conference for Undergraduate Education (ASM-CUE) in Pittsburgh, Pennsylvania, in November 2024. The presentation was titled '*Equity and Inclusion of Scientific Inquiry: Native California Plants and Classical Microbiology Foster Belonging in the Classroom*.' The project was funded by Project AYUDAS STEM-EMP Grant.



Prof. Ashley McCarley (in the center) presents to other microbiology faculty at ASM-CUE.

CSUCI students present their research at NDiSTEM

The largest number of CSUCI students presented their research at the National Diversity in STEM Conference hosted by the Society for the Advancement of Chicanos/Latinx and Native Americans in Science in Phoenix, Arizona in October 2024. Biology students were most of the students selected to present. Listed below are the research students and the titles of their research presentations (continued in next page). Congratulations to them!

1. **Ryan Brener** (Biology) — *Transcriptome Analysis Using Next Generation Sequencing to Understand Resistance to Herbicides in Resistant and Susceptible Strains of the Weed Species Erigeron canadensis*
2. **Nicholas Burdick** (Biology) — *Geographic Variation in Birdsong of North American Horned Larks (Eremophila alpestris): Exploring the Influence of Habitat and Climate*
3. **Emmanuel Caballero** (Biology) — *Connecting Curriculum to Lived Experiences: Evaluation of Student Responses to Weekly Homework Assignments in General Chemistry I*
4. **Annika Callo** (Biochemistry) — *Investigating the Phytochemical Compositions of Native California Plants Traditionally Used in Chumash Medicine*
5. **Oasis Garcia** (Biology) — *Persistence of Soil Enzyme Activity in Grassland Soil Under Different Soil Moisture Percentages*
6. **Joy Gendy** (Chemistry) — *Chemistry Beyond the Classroom: How Engagement Mediates Student Understanding of Material*
7. **Grace Hart** (Biology) — *Can Students' Explain the Chemistry They Witness?: Analysis of Student Observation of Chemistry for Correctness*
8. **Isabella Jackson** (ESRM) — *Students are Scientists Too: Students' Use of Scientific Language in a General Chemistry Weekly Homework Assignment*
9. **Willow Jackson** (ESRM) — *Climatology of Aerosol Source Regionas Impacting Palmer Station, Antarctica*

Conference Presentations (continued)

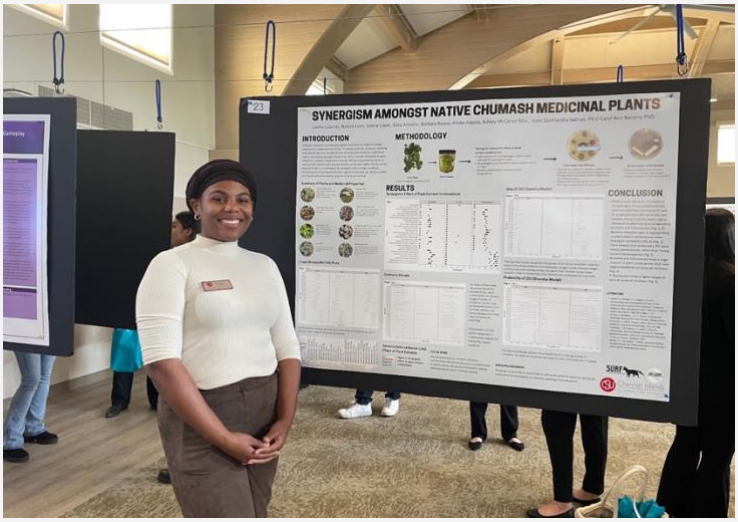
[CSUCI students present their research at NDiSTEM, cont'd]

10. **Noleen Kirya** (Biology) — *Going the Extra Mile: Analyzing Student Responses in General Chemistry I Homework Assignments*
11. **Natalie Leon** (Chemistry) — *Connecting with Science: An Evaluation of the Types of Real-World Chemistry Applications Identified by General Chemistry I Students and the Connection to Course Material*
12. **Selene Lopez** (Biology) — *Spatiotemporal Patterns & Abiotic Influence on Bat Activity on Santa Rosa Island*
13. **Christell Martinez** (Biology) — *From Lab to Life: Evaluation of General Chemistry I Student Responses in a weekly homework Assignment for Engagement with Material*
14. **Alexa Murillo** (Biochemistry) — *Eureka or Confusion? Unveiling General Chemistry I Student Explanations and Language Through Weekly Homework Assignments*
15. **Irene Ochoa** (Biology) — *Investigating Microbial Decomposition of Dead Plant Roots: A Systematic Review*
16. **Heather Torgerson** (Chemistry) — *Synthesis of Conformationally Constrained di Amino L-Proline Analogues: Potential Central CNS Pharmacophores*
17. **Cassandra McCambridge** (Biology) — *Characterization of serotonergic pathways in nematodes*

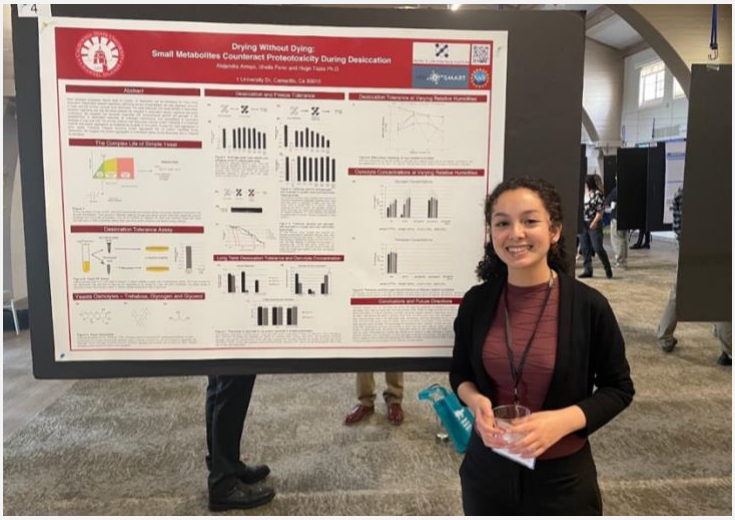
Pictured above are most of the CSUCI students, faculty, and alumni who attended the SACNAS 2024 conference.

Conference Presentations (continued)

Biology majors **Alejandra Arroyo** (mentor: Hugo Tapia), **Leniha Lagarde** (mentor: Caryl Ann Becerra) and **Emily Chang** and **Amber Seader** (mentor: Gareth Harris) won awards for their research at the CSUCI Student Research Conference, held in May 2024. Congrats to all!



Pictured above is Biology student Leniha Lagarde, who was a recipient of a presentation award.



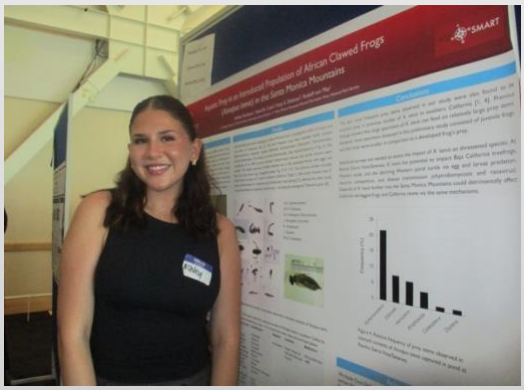
Pictured above is Biology student Alejandra Arroyo, who was a recipient of a presentation award.

Biology students **Emily Ridino**, **Spooner Greenbird**, **Emily Chang**, **Amber Seader**, **Ashley Vega** and **Alexis Chua** presented their research from the lab of Dr. Gareth Harris at the National Congress on Undergraduate Research (NCUR) conference in Long Beach, CA, April 2024. Posters presented:

- Julia Moffa, Lily Yered, Emily Ridino, Spooner Greenbird, Gareth Harris. '*Investigating genes and natural variation in a multisensory behavior*.'
- Liz Ayala, Adrianna Torres, Emily Chang, Katarina Martin, Youseff Awad, Annabelle Tran, Gianina Pontrelli, Amber Seader, Gareth Harris. '*Worms love Coffee too! Characterizing the neuronal substrates that coordinate responses to a human sensed odor*.'
- Emily Chang, Amber Seader, Annabelle Tran, Brianna Ramos, Gianina Pontrelli, Gareth Harris. '*Dissecting the mechanisms that underlie attraction to mammalian sensed cues: Worms and cats are not much different!*'

Biology Lab Technician, **Krisha Algoso** won an oral presentation award at Cal State LA Annual Student Symposium on Research, Scholarship, and Creative Activities and was invited to compete at the 38th Annual CSU Student Research Competition at Cal Poly San Luis Obispo later in April 2024. Her presentation is titled '*Investigating the Antibacterial Potential of Native Chumash Medicinal Plants*' and is mentored by Dr. Caryl Ann Becerra. Congrats Krisha!

Biology student **Ashley Pacheco** (pictured on right) presented a poster at the West Coast Biological Sciences Undergraduate Research Conference, held at CSU San Marcos in April 2025. Ashley Pacheco, Rivaldo Rodriguez Gonzalez, Heidi B. Cutia, Katie S. Delaney, Rudolf von May. '*Aquatic prey in an introduced population of African clawed frogs (Xenopus laevis) in the Santa Monica Mountains*.' Congrats Ashley!



Community Outreach

Biology and Geology at STEAM Carnival

The School of Arts and Sciences STEAM Carnival (Science, Technology, Engineering, Arts/Humanities/Social Science, and Mathematics) was held on campus in both 2024 and 2025. Biology faculty Caryl Ann Becerra, Lorna Profant, Ruben Alarcón, Hugo Tapia, and Rudi von May, and Geology faculty Renee French, along with students participating in research, offered hands-on activities during the Arts & Sciences 2024 STEAM Carnival. CSUCI students helped develop teaching materials and supported hand-on activities offered to PK-12 grade students and their families. The 2024 STEAM Carnival had over 2,500 attendees, and visitors learned about different majors on campus and future career paths. The faculty listed above also participated in the 2025 STEAM Carnival, which included additional Biology faculty Nitika Parmar, Allison Alvarado, and their students.

Picture Above, Dr. Hugo Tapia's research students presenting Tardigrade Hunting activity at 2024 STEAM Carnival.

Pictured above, from left to right, research students Diana Lopez, Lauren Bennett, Joshua Sarmina, Alfonso Velazquez, and Ethan Ernst presenting hands-on activity at 2024 A&S STEAM Carnival (von May Lab).

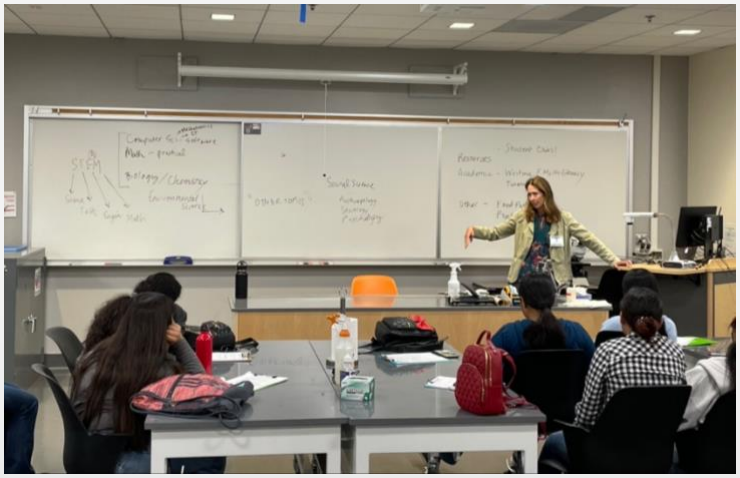
Visit/Tours to Ventura County Sheriffs Crime Lab, Ventura

Dr. Gareth Harris connected with members of the Ventura County Sheriffs Crime lab two years ago. As a result, CSUCI students have been frequently touring the Crime lab to give students experience in the careers potentially available in the crime labs covering six areas: (1) Toxicology lab, (2) Controlled Substances lab, (3) Alcohol/Breath testing lab, (4) Firearms lab, (5) Genetics/DNA Crime lab, (6) Crime Scene Investigation lab. Members of these labs kindly talk about their respective departments during the tour and students get to hear about the goals of each lab, working on real life cases in each department, testifying in court, using biology/analytical/chemistry related lab techniques to solve a variety of crimes. In addition, Dr. Harris met at least four members of their departments who are CSUCI alumni. Students ranging from having their bachelor's or/and master's from CSUCI or are still attending CSUCI and are currently gaining lab experience through internships (for example, internships in the toxicology department). The department heads also discuss course requirements and preferred experience at the degree level that is essential for future careers in forensics, so overall very informative on many levels.

Community Outreach (continued)

STEM Outreach Workshops for high school students

Biology faculty Allison Alvarado and Rudi von May hosted two STEM workshops for high school students from Oxnard, CA. The first workshop took place in May 2023 and included 19 students from three schools (Pacifica High School, Channel Islands High School, Hueneme High School), who visited the CSUCI campus for the day. To maximize the impact of the participants' time, the workshop coincided with the undergraduate Student Research Conference. The students attended poster sessions where they met current undergraduate students in STEM. They also toured campus and participated in guided activities designed to engage them in science and reflect on their personal strengths and goals. Dr. von May gave a talk about a current project and Dr. Alvarado discussed campus resources and the application process for university admission. Students had opportunities during Q&A sessions to ask about career options in STEM.



Dr. Alvarado discussing career opportunities in STEM.

Biology student Ethan Ernst presenting his research poster.

The second workshop took place in November 2024 and included 20 students from Pacifica High School, who visited campus with their Science Teacher, Hania Angeles—who is a CSUCI Biology alumna! As stated by the teacher, "[the] *primary goal for this field trip is for students to experience science outside of the classroom, fostering both academic curiosity and personal growth*." The students participated in guided activities and visited the lab of Dr. Hugo Tapia, who gave an overview of the research conducted in his lab. Additionally, they learned about undergraduate research presented by Biology students Ethan Ernst, Nicholas Burdick, and Addalie Thiessen. Both workshops were organized with support from a research grant from the National Science Foundation (BRC-BIO, DBI-2218191).

Dr. Tapia (left) showing samples in microscope.

Biology student Nicholas Burdick presenting his poster.

Publications

Biology faculty, **Ashley McCarley** and **Caryl Ann Becerra** published a peer-reviewed article in the *Journal of Microbiology and Biological Education*, which is an American Society of Microbiology journal.

- **McCarley, A., Becerra, C.A**. (2025). Cultural incorporation of the Kirby-Bauer method in introductory microbiology lab. *Journal of Microbiology and Biological Education* 26:e00014-25. DOI: doi.org/10.1128/jmbe.00014-25

Biology faculty **Dr. Caryl Ann Becerra** and CSUCI chemistry faculty published a peer-reviewed article in the journal *Microorganisms*. Additionally, Dr. Becerra and CSUCI students and faculty in chemistry, math, and physics published an article in *IEEE*.

- **Becerra, C. A.**, Murphy, B., Veldman, B. V., Nüsslein, K. (2024). Biogenic Sulfide-Mediated Iron Reduction at Low pH. *Microorganisms* 12(10): 1939. DOI: doi.org/10.3390/microorganisms12101939
- Ruiz, T., Seligman, M., Espinola, D., Rasnow, B., McDonough, P., Cisneros, I., Flores, C., Sanchez, P., Veldman, B., **Becerra, C.A.**, C. Hauck (2024). Mapping electric potential fields for aerospace corrosion assessment using an array-driven SRET platform. *IEEE* 1–10. DOI: 10.1109/AERO58975.2024.10521210

Biology faculty **Dr. Charles Sackerson** and **Dr. Rachel Cartwright** and CSUCI Biology alumni **Vivian Garcia**, **Nicole Medina**, **Jessica Maldonado**, and **John Daly** published a peer-reviewed article in the journal *PLOS ONE*.

- **Sackerson, C.**, Garcia, V., Medina, N., Maldonado, J., Daly, J., Cartwright, R. (2023). Comparative analysis of the myoglobin gene in whales and humans reveals evolutionary changes in regulatory elements and expression levels. *PLOS ONE* 18(8): e0284834. doi.org/10.1371/journal.pone.0284834

Biology Faculty **Dr. Gareth Harris** published recent papers with CSUCI students and collaborations with Harvard University and University of Basel in *Science Advances*, *PloS ONE*, and *the Journal of Micropublications in Biology*.

- Vega, A., Chua, A., Tran, A., Chang, E., Seader, A., Pontrelli, G., **Harris, G.** (2024). Worms love Coffee too! Characterizing the mechanisms that control sensation of a human sensed odor. CSUCI. *Journal of Micropublication in Biology*. 10.17912/micropub.biology.001242
- Ramos, B., **Harris, G.** (2022). Dissecting the mechanisms underlying attraction to cat sensed cues: worms and cats aren't much different. Journal of Micropublication in Biology. 10.17912/micropub.biology.000568
- Wasson, J.A., **Harris, G.**, Keppler-Ross, S., Brock, T. J., Dar, A.R., Butcher, R.A., Fischer, S.E.J., Kagias, K., Clardy, J., Zhang, Y., Mango, S.E. Neuronal control of maternal provisioning in response to social cues. *Science Advances*. 7: 34. DOI: 10.1126/sciadv.abf8782.
- Tanner, D., Carigo, D., Sevilla, C., Lewis, M., **Harris, G.** (2022). Sex differences in a multisensory behavior in *C. elegans*. *Journal of MicroPublication Biology*. 10.17912/micropub.biology.000594

Biology faculty **Dr. Hugo Tapia** published peer-reviewed articles in the journals *Comprehensive Reviews in Food Science and Food Safety* and *Biophysical Journal*, and *G3* (*Genes, Genomes, Genetics*).

- Kc, S., Nguyen, K., **Tapia, H.**, Boothby, T. C. (2023). Functional synergy between disordered proteins and sugars in desiccation protection. *Biophysical Journal* 122(3): 202a.
- Chen, A., **Tapia, H.**, Goddard, J. M., Gibney, P. A. (2022). Trehalose and its applications in the food industry. *Comprehensive Reviews in Food Science and Food Safety* 21(6): 5004-5037.
- Chen, A., Smith, J. R., **Tapia, H.**, Gibney, P. A. (2022). Characterizing phenotypic diversity of trehalose biosynthesis mutants in multiple wild strains of *Saccharomyces cerevisiae*. *G3* 12(11): jkac196.

Publications (continued)

Biology faculty **Dr. Ruben Alarcón** published peer-reviewed articles in the journals *Biological Invasions* and *Insect Science*.

- Etter, K. J., Junquera, G., Horvet-French, J., **Alarcón**, R., Hung, K. L. J., Holway, D. A. (2022). Interspecific pollen transport between non-native fennel and an island endemic buckwheat: assessment of the magnet effect. *Biological Invasions* 24: 139–155. doi.org/10.1007/s10530-021-02626-0
- Smith, G. P., Davidowitz, G., **Alarcón**, R., Papaj, D. R., Bronstein, J. L. (2022). Sex differences in the foraging behavior of a generalist hawkmoth. *Insect Science* 29(1): 304–314. doi.org/10.1111/1744-7917.12926

Biology faculty **Dr. Geoff Dilly** published a peer-reviewed article in the *Journal of Zoo and Wildlife Medicine*.

- Krol, L., Dunker, F. H., LaDouceur, E., Biswell, E., **Dilly, G. F.**, Delbeek, J. C., Albright, R., López-Nandam, E.H., Reinbold, N., Igel, A., Larkin, L., Hill, J. (2023). Milbemycin oxime (Interceptor) treatment of pycnogonid sea spider infestation in three species of corals. *Journal of Zoo and Wildlife Medicine* 54(2): 292-300.

Biology faculty **Dr. Allison Alvarado** published peer-reviewed articles in the journals *Ecology Letters* and *Evolutionary Applications*.

- Somveille, M., Bossu, C.M., DeSaix, M.G., **Alvarado**, A.H., Gómez Villaverde, S., Rodríguez Otero, G., Hernández-Baños, B.E., Smith, T.B., Ruegg, K.C. (2024) Broad-scale seasonal climate tracking is a consequence, not a driver, of avian migratory connectivity. *Ecology Letters* 27: e14496. doi.org/10.1111/ele.14496
- **Alvarado**, A. H., Bossu, C. M., Harrigan, R. J., Bay, R. A., Nelson, A. R. P., Smith, T. B., Ruegg, K. C. (2022). Genotype–environment associations across spatial scales reveal the importance of putative adaptive genetic variation in divergence. *Evolutionary Applications* 15: 1390–1407. doi.org/10.1111/eva.13444

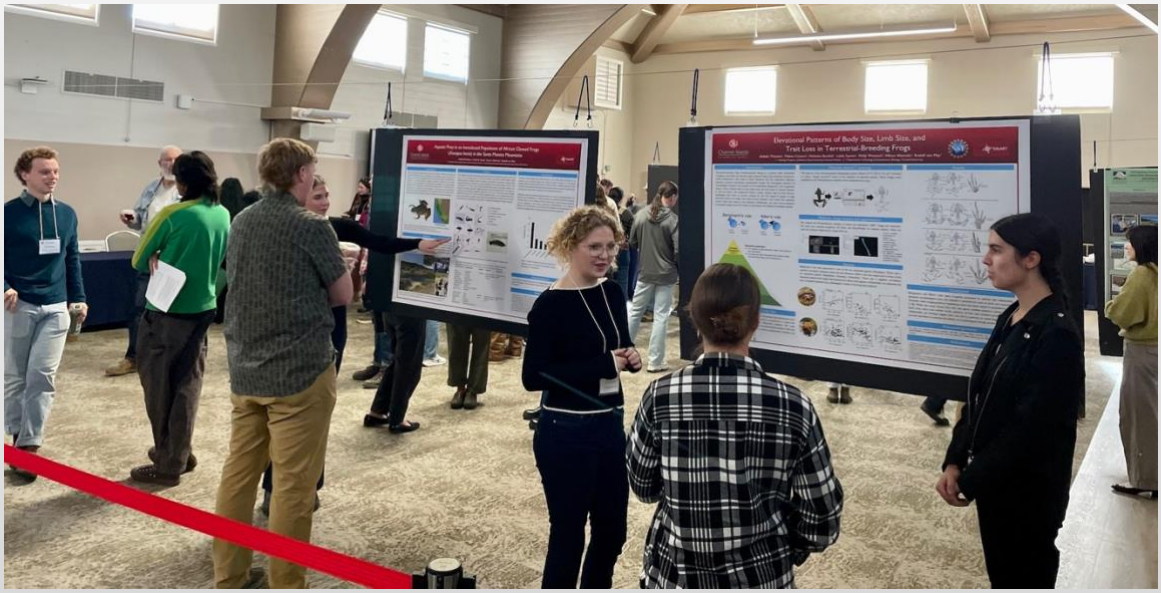
Biology faculty **Dr. Rudi von May** published peer-reviewed articles in the journals *Diversity*, *Salamandra*, *Nature*, and *Communications Earth & Environment*.

- **von May**, R., Diaz, M. I., Ttito, A., Santa-Cruz, R., Catenazzi, A. (2024). The rediscovery of *Noblella peruviana* after more than 115 years helps resolve the molecular phylogeny and taxonomy of *Noblella* (Amphibia, Anura, Strabomantidae). *Diversity* *16*(10): 613. doi.org/10.3390/d16100613
- Canazas-Teran, A., Meza, G., Mestas-Valdivia, B., Morales, A., Oceguera-Figueroa, A., Catenazzi, A., **von May**, R., Santa-Cruz, R. (2024). Leeches (Hirudinea: Glossiphoniidae: *Maiabdella batracophila* and *Helobdella* sp.) associated with Andean water frogs (Anura: Telmatobiidae: *Telmatobius*) in southern Peru. *Salamandra* 60(1): 94–103.
- Luedtke, J.A., Chanson, J., Neam, K., Hobin, L., [...], **von May, R.**, et al. (2023) Ongoing declines for the world's amphibians in the face of emerging threats. *Nature* 622: 308–314. doi.org/10.1038/s41586-023-06578-4 [123 authors in total]
- Lötters, S., Plewnia, A., Catenazzi, A., Neam, K., [...], **von May, R.**, et al. (2023) Ongoing harlequin toad declines suggest the amphibian extinction crisis is still an emergency. *Communications Earth & Environment* 4: 412. doi.org/10.1038/s43247-023-01069-w [100 authors in total]

Recent Events

The **California/Nevada Amphibian Populations Task Force (APTF) 2025 Meeting** was held in the Grand Salon at CSUCI on January 9–10, 2025. The meeting was organized by the Amphibian and Reptile Conservancy and was sponsored by the Biology Program and the School of Arts and Sciences at CSUCI, the Cheadle Center for Biodiversity and Ecological Restoration at UC Santa Barbara, and the Ventura Fish and Wildlife Office, U.S. Fish and Wildlife Service. Researchers from different institutions presented their work on amphibians and turtles in California, Nevada, and more broadly. The meeting had nearly 200 attendees, including 12 CSUCI students. Four Biology students, Ashley Pacheco, Addalie Thiessen, Malena Cantoni, and Nicholas Burdick, presented posters featuring their research.

Picture above: APTF 2025 conference presentation in the Grand Salon, CSUCI.



Pictured above, left to right: Biology students Ashley Pacheco (pointing at poster on the left), Addalie Thiessen and Malena Cantoni presenting their research posters at the APTF 2025