CSUSB Geology Newsletter!

Fall 2025

CALIFORNIA STATE UNIVERSITY SAN BERNARDINO
Department of Geological Sciences

Hello CSUSB Geology Friends!

We have so much excitement and accomplishment to report from the last year!

In this issue, you can check out some of the many accomplishments of our students (p 2-8), faculty (p 9-14), and ways that you can join the fun (p 15)!

We also have two requests!

- **Support our students**! Our **fall fundraiser runs through Tuesday, December 2nd**. Make a donation of any size to support training and professional development opportunities for students. We appreciate contributions big and small, all of which increase our ability to support field travel, conference fees, supplies for student research, and gear for students new to field work. **Scan the QR code below to make a donation**!

- **Save the Date**! On **Thursday, April 9th, 2026**, we will mark our **35th Anniversary** on campus with daytime activities like student presentations and department tours, and a dinner celebration in the evening. Don't miss it! More details coming early 2026.

There's so much to be proud of in our department! Enjoy this year's news and keep in touch - we love to hear from our friends and alums!

With best wishes for the holiday season and gratitude for our amazing community,

Claire, Department Chair

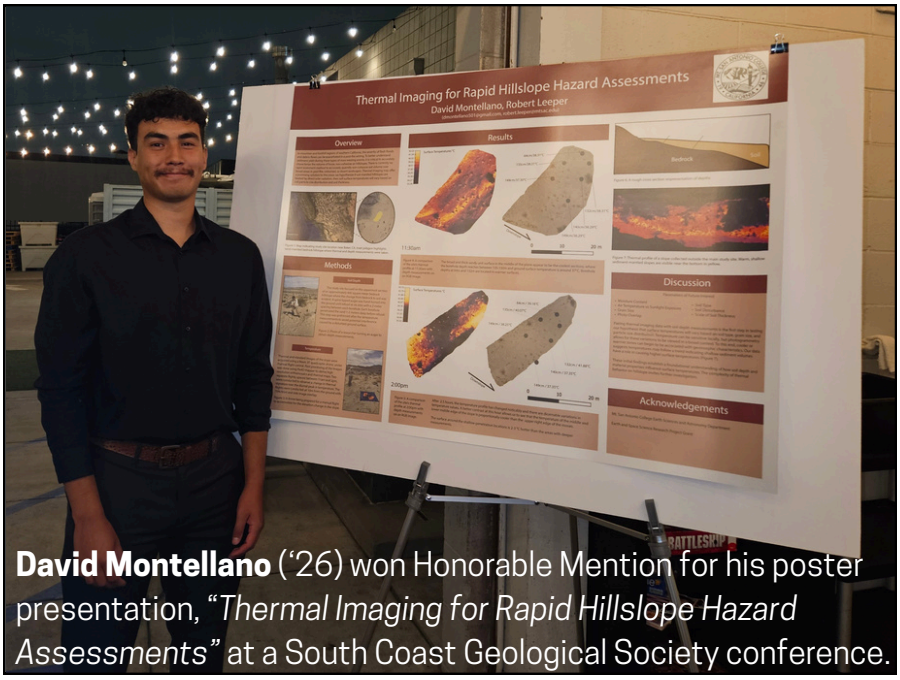
Support CSUSB Geology Students!

Give to our annual fundraiser through Tuesday, December 2nd!

100% of donations support field work and professional opportunities for students!

Our Amazing CSUSB Geology Students!

There's not enough room in a newsletter to share all of their accomplishments, but here's an impressive list!



David Montellano ('26) won Honorable Mention for his poster presentation, "*Thermal Imaging for Rapid Hillslope Hazard Assessments*" at a South Coast Geological Society conference.

CJ King ('26) received a grant from the CSU Council on Ocean Affairs, Science, & Technology for his project: "What is the Effect of Increased Air Temperatures and Glacial Melt on Coastal Environments?"

Cristal Patino ('25, right) was awarded the Martin L. Stout Scholarship from the Association of Environmental and Engineering Geologists. Her senior research project, "*Determining site conditions that influence post wildfire hydrophobic soil formation and documenting the site erosive performance*," was mentored by Dr. Kerry Cato.

Sarah Grebenok ('26, left) was awarded the prestigious Science, Mathematics, and Research for Transformation (SMART) scholarship from the Department of Defense. This nationwide honor includes a scholarship and post-graduation employment in the Department of Defense. Sarah will begin her employment after her graduation in May 2026!

Our Amazing CSUSB Geology Students!

Miranda Owen ('26, above) won the California Collegiate Athlete Association's Elite 13 award, given to the student-athlete who reached the conference championship in their sport, while also attaining the highest cumulative GPA among their peers. Miranda is also our current department tutor; read more about her work on page 5.

Maria Mendoza Gutierrez ('26, left) received a STEM-NET Edison Student award in spring 2025 for her project "*Geology and seismic hazards of the Etiwanda Avenue fault, Rancho Cucamonga, California*." She is mentored by **Dr. Sally McGill**.

Maria writes:

For my senior project, I will be estimating the uplift rate of the Etiwanda Avenue fault in Rancho Cucamonga, CA to provide insight into its potential seismic hazards. This will be done by importing San Bernardino County's 2022 LiDAR imagery of the area into ArcGIS and using the elevation profile tool to create topographic profiles along the fault scarp. Using these data, I will conduct a seismic hazard analysis for the Etiwanda Avenue fault, including the potential sizes of earthquakes it could generate, their frequency, and their impact on the surrounding communities. I will also attempt to learn why approval was given for housing developments to be built in this area.

Students helping Students!

Two programs provide opportunities for Geology majors to give back to students through **tutoring** and **supplemental instruction**!

Our tutoring program was founded by **Syunsuke "Sunny" Hasuka** ('24) who saw a need and an opportunity for advanced Geology majors to support students in introductory and General Education geology classes. When asked about his experience as the first Geology Department tutor, Sunny wrote:

"It's been really fun to say the least. Being a tutor has been a rewarding challenge for me. It is a test of knowledge and a test of your communication skills, but rewarding in the sense that you've helped someone. Being able to provide support to others has been really fulfilling and has even made some meaningful connections. One thing that I did not anticipate as a tutor, was how much I was going to be learning as well. In this ecosystem, everyone benefits and it has been a great experience."

Because of Sunny's initiative, the Geology tutoring program launched fall 2023 and continues today - read more about our current tutor on page 5!

Our Supplemental Instruction program supports students in GEOL 1000 Introductory Geology. We offer multiple sections of this course serving hundreds of CSUSB students. **Karina Ramirez** ('25, below) served as our Supplemental Instructor for the 2024 - 25 academic year, and shared this about her experience:

For two semesters, I had the incredible opportunity to serve as the Supplemental Instructor (SI) for Introduction to Geology. When the position opened, I was super excited to apply. Geology 1000 had been my favorite class at Riverside City College and ultimately inspired me to pursue a degree in Geology.

As an SI, I had two key goals: (1) helping students succeed in the course while building up strong academic habits, and (2) sharing the excitement and adventure of studying Geology! While reviewing course material was the priority, I always made time to highlight what makes this field so special. Whether discussing the impacts of natural disasters or exploring the politics of rare earth elements, I wanted students to see the real world relevance of their studies. This role allowed me to share my passion for the geosciences while growing my skills as an educator, mentor, and leader. I'm deeply grateful for this experience and can't wait to apply everything I have learned in future endeavors.

Brock Gedik ('26, left) is our 2025-26 Supplemental Instructor. Thanks, Brock!

The Life of a Student Athlete!

Miranda Owen ('26), our current department tutor, offers her perspective on the life of a student athlete! (and a decorated one at that - see page 3!)

A typical day includes 3–4 hours of training, lifting, and recovery; attending lectures and labs; tutoring students in geology and math; then coming home to complete homework, prepare balanced meals, and try to get enough sleep. Still, this schedule reminds me that even on my busiest days, I'm fortunate to be building a life I care about and to have the opportunity to chase my goals.

Being a student-athlete has especially taught me to appreciate the process, not just the outcome, and to find meaning in the day-to-day effort. I enjoy going to practice and weights every weekday, seeing students come back for tutoring, and attending class throughout the week. These daily habits have shown me that the most significant wins happen in the small, ordinary moments. It's not always about the final score or grade, but about what you learn or who you become along the way.

Most of all, I'm grateful that I get to throw for the women's track and field team, support others as a tutor, and pursue a college degree all at once. Not everyone gets to do these things, especially with everything else life demands, so I consider myself very lucky.

And shout-out to my family, coaches, teammates, professors, classmates, and peers – they've definitely taught me the value of community and the importance of building a pack culture.

Geology Club News!

It's been a particularly active year for the Geology Club! In September, we welcomed our new officers, pictured below:

President - **David Montellano**
Vice President - **Gabriela Alvarado**
Treasurer - **Diana Pimentel**
Secretary - **Maria Mendoza Gutierrez**
Historian - **Freya Hendrickson**

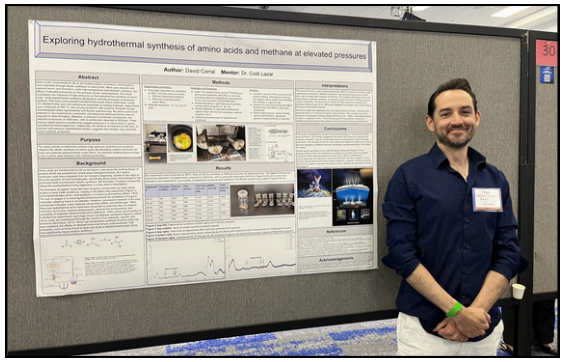
*Do you like the Geology Club logo? It was designed by **Jovanna Moya**, one of our Geology minors ('24)! Check out more of her work at @SciArt.Jovanna on IG!*

@CSUSBGEOLOGYCLUB

Geology Club activities this fall included the Great Shakeout earthquake awareness event, a **Geolloween** party and costume contest, a field trip to Owens Valley, a rock swap, the Fall Potluck and Gratitude Grams event (writing thank you cards!), and a Cocoa and Cram study party!

Undergraduate Research!

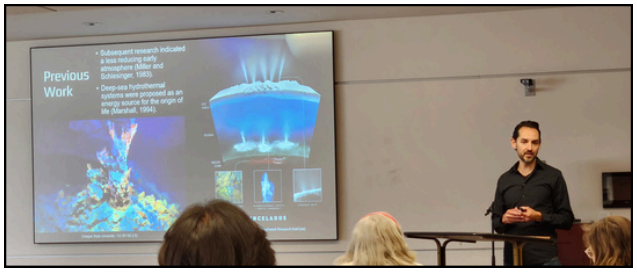
We are so proud of our seniors! In spring 2025, 10 seniors presented their research projects in poster and oral formats! We asked **David Corral** ('25) to share his undergraduate research experience:



David and **Garrett Belt** ('25) in Dr. Codi Lazar's experimental laboratory!

Want to join the fun next year? senior poster presentations are on April 9th - the day of our 35th Anniversary Celebration!

Completing this project was a challenging and rewarding experience that allowed me to dive deeper into two of my core interests: geochemistry and the origin of life. I have been fascinated by the question of how life began ever since I first learned about the Miller-Urey experiment, which showed that organic molecules could form under early Earth-like conditions. It was exciting to discover a research opportunity that allowed me to explore this myself in a geologic context. Guided by a fantastic mentor (ed. note: **Dr. Codi Lazar**!)*, I gained valuable technical skills through designing and conducting high-pressure hydrothermal experiments and using analytical tools like GC-MS and Raman spectroscopy. One of the most meaningful aspects of this experience was learning how to carry a research project from the initial proposal stage all the way through to presenting the final results. Writing a clear and feasible proposal, managing materials and timelines, troubleshooting unexpected issues, and ultimately communicating my findings to an academic audience helped me grow not just as a scientist, but as a problem-solver and science communicator.*



Congratulations to our MS class of '25!

Andy Suarez: Sediment and Debris Flow Resulting from the 2020 El Dorado Wildfire, San Bernardino Mountains, California (Committee Chair: Dr. Kerry Cato)

Jose Jimenez: Degradation of Martian Glacier-Like Forms in Relation to the Observed Evolution of Emmons Glacier on Mount Rainier, WA (Committee Chair: Dr. Claire Todd)

Bryan Seymour: A mineralogical and geochemical investigation of the influence of tectonic setting on accessory mineral assemblages in serpentinites along the western North American margins (Committee Chair: Dr. Codi Lazar)

Dylan Terry: Evaluation of the portable Niton XRF instrument and Geochemistry of the Inyo Volcanic Chain (Committee Chairs: Dr. Sally McGill and previously Dr. Joan Fryxell)

Gideon Skye El-Rahi: Geometry, Kinematics, and Slip History of the Elsinore Fault in the Northern Santa Ana Mountains, California (Committee Chair: Dr. Tandis Bidgoli)


Gideon Skye El-Rahi

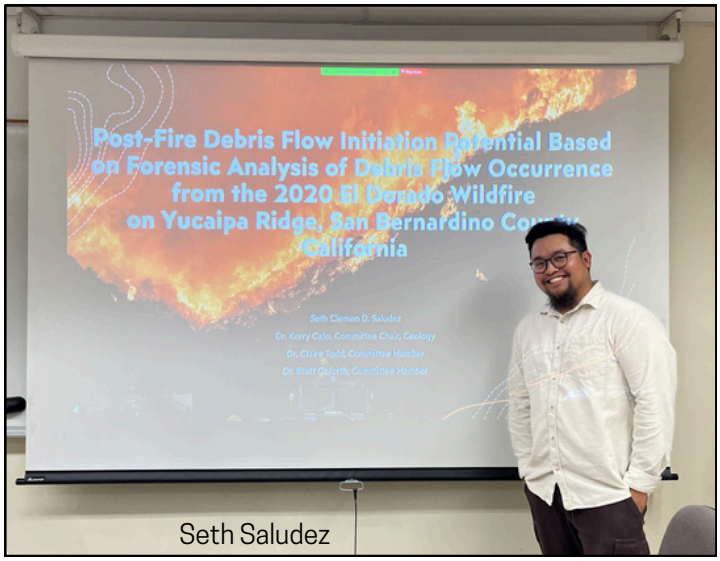
Seth Saludez: Post-Fire Debris Flow Initiation Potential from the 2020 El Dorado Wildfire on Yucaipa Ridge, San Bernardino County California (Committee Chair: Dr. Kerry Cato)

Sevag Injean: Using Geomorphic Change and Sediment Modeling to Calculate Debris Flow Volumes from the 2020 El Dorado Wildfire in the Southern San Bernardino Mountains, California (Committee Chair: Dr. Kerry Cato)

Dalila Boice: Groundwater Arsenic Contamination in the Oro Grande Wash (Committee Chair: Dr. Andreas Beyersdorf)

Jacob Baker: East Antarctic Ice Sheet History at the Outback Nunataks using GIS and Cosmogenic Dating (Committee Chair: Dr. Claire Todd)

Jacob Baker



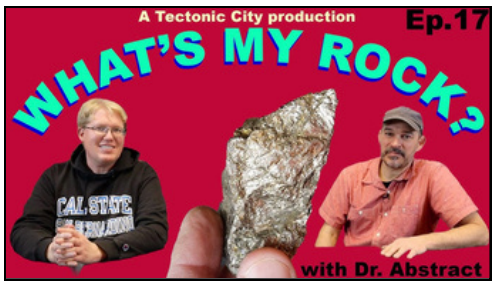
Seth Saludez

Dalila Boice

Faculty News!

Dr. Kerry Cato was awarded the prestigious Floyd T. Johnston Service Award from the Association of Environmental and Engineering Geologists (AEG). The award, named after the Association's first executive director is bestowed on one member each year who has contributed exemplary service to the Association for at least nine years. Cato's decades of service to AEG in Texas, North and South Carolina, and, since 1995, in California earned him the honor.

Dr. Codi Lazar received the American Geophysical Union's national Athelstan Spilhaus Award in recognition of his public engagement with earth and space sciences. Dr. Lazar is active on social media, sharing geologic content with followers extending far beyond our CSUSB community. Check out his What's My Rock YouTube series where, with the help of lecturer **Dylan Terry**, he helps community members identify their geologic finds!



Dr. Erik Melchiorre received a Sustainable Food Systems Grant for his project: "*Impact of Organic and Biodynamic Farming Practices on Carbon Sequestration: Development of Classroom and Laboratory Exercises for Sustainable Food Systems Courses and Student-Based Research.*"

Faculty Spotlight: Dr. Tandis Bidgoli!

We asked **Dr. Tandis Bidgoli** to share a little bit about her life as a CSUSB Geology faculty member!

At left, you can see Dr. Bidgoli and her kids (center left) with the Structural Geology class, exploring the Mission Creek strand of the San Andreas fault!

*After a long and enriching professional journey, I am thrilled to share that I have been **awarded tenure and promoted to Associate Professor**! Since joining CSUSB in 2022, I have had the privilege of teaching a diverse range of geoscience courses, leading and contributing to impactful research, securing competitive funding to support an outstanding group of undergraduate and graduate students, and engaging in service that strengthens our department and academic community. None of this would have been possible without the support of my incredible colleagues and students—the heart of **my CSUSB family**. I am deeply grateful for their encouragement, as well as for the broader geoscience community.*

*While much of my focus over the past three years has been on refining my courses— including developing new field sites such as the Old Dad Mountains in the Mojave Preserve and the Indio Hills in the Coachella Valley—I have also worked alongside **Dr. Susana Henriquez** to build new lab spaces for mineral separation, microscopy, and computer-based structural and thermal modeling. I am excited to report that all three labs are now actively used by our students, equipping them with new technical skills and research opportunities.*

*My research group has also been growing! Seven undergraduate and five graduate students are currently working on projects centered on active faults in southern California. Over the past three years, the research team has been supported by grants from the U.S. Geological Survey, National Science Foundation (NSF), and CSUSB Office of Student Research, leading to **29 presentations** at Geological Society of America and American Geophysical Union conferences. We've also worked hard to compile our findings into several manuscripts, the latest of which, "A free and open-source tool for the assessment of induced fault slip hazards from deep fluid injection," was **published in Computers & Geosciences** at the end of 2024.*

Finally, I'm thrilled to announce that our CSUSB team has been awarded funding from the NSF for a new Research Experiences for Undergraduates (REU) site: "DEsigning Sedimentation and Tectonics Research Experiences for Student Success (DE-STRESS)." This collaboration with the University of Cincinnati will provide junior-level university students and sophomore-level community college students with geologic research experiences and professional development training. The research will focus on reconstructing the movement history of the southern San Andreas fault system. offering a unique opportunity to deepen our understanding of this important plate boundary while highlighting the societal importance of geoscience research and careers. Stay tuned—there's much more exciting news to come!

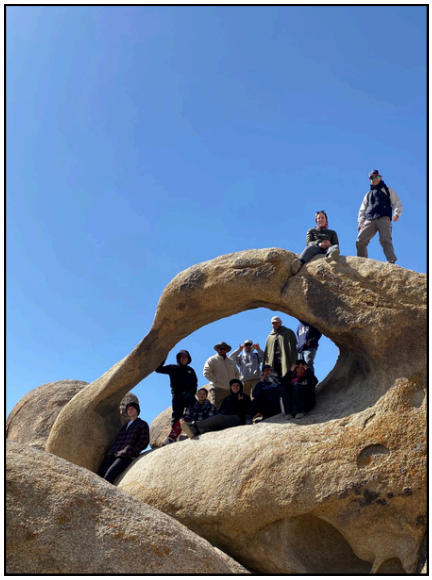
Updates from the field - our classroom!

GEOL 2000: Earth Systems History with our Lecturer **Sadie Kingsbury**!

Each spring, lucky students get to travel through time, this year in Owens Valley! I asked Sadie to give us a run down of their stops:

*The Cenozoic: The Coso Volcanic Field where the **students hiked to view 400,000- to 20,000-year-old lava flows** that were carved by floodwaters produced as glacial meltwater from the Tioga glaciers in the Sierra Nevada flowed through Owens Valley near the end of the last ice age around 20,000 years ago.*

*The Paleozoic: Mazourka Canyon where students walked back in time as they hiked through the canyon. They **investigated fossils of Paleozoic reefs** in limestones and dolostones. In other layers they observed deposits of shale and chert. Their assessment? Based on the rocks and fossils, during Paleozoic Era, between 541 million years to at least 325 million years ago, Owens Valley was covered by an ancient ocean. The changing rock types indicate fluctuating sea-levels. They learned about this phenomenon in class, but they got to see it in the field!*



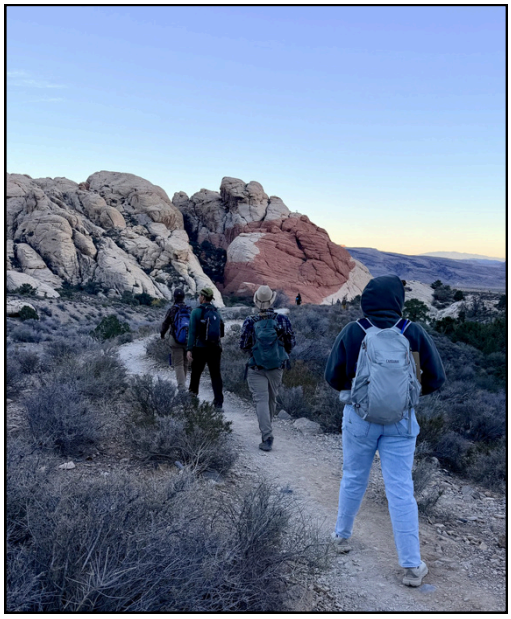
*The Mesozoic: The famous Alabama Hills! It is a well-known movie location and countless car commercials are filmed there, too. As geologists, the students **observed exposed spheroidally weathered granites** that intruded into the Paleozoic rocks we saw in Mazourka Canyon... What a connection! We hiked to Mobius Arch and in the distance saw the jagged edges of the Sierra Nevada Mountains. The students **viewed the tallest peak in the lower 48 states: Mt. Whitney**! They discovered that the rocks high up in the Sierra Nevada are very similar in age and lithology to those in the Alabama Hills. The big difference is that about 5 million years ago the Sierra Nevada peaks started to uplift to their soaring heights and Owens Valley dropped!*

*Students also **enjoyed camping in Bishop, California** at Brown's Town Campground. Some had never camped before, so setting up tents and making dinners was an adventure all on its own. They sat by the fire at night, shared stories and laughed into the evening, but they were ready early each morning to head out into the field.*

Updates from the field - our classroom!

GEOL 3903: Advanced Field Geology with **Dr. Susana Henriquez**!

An accomplished field geologist, **Dr. Henriquez** (left) trains our majors in advanced field techniques - classes required by the state of California to qualify for professional licensure! This fall, students and Dr. Henriquez traveled to Red Rock Canyon National Conservation Area outside of Las Vegas, Nevada!



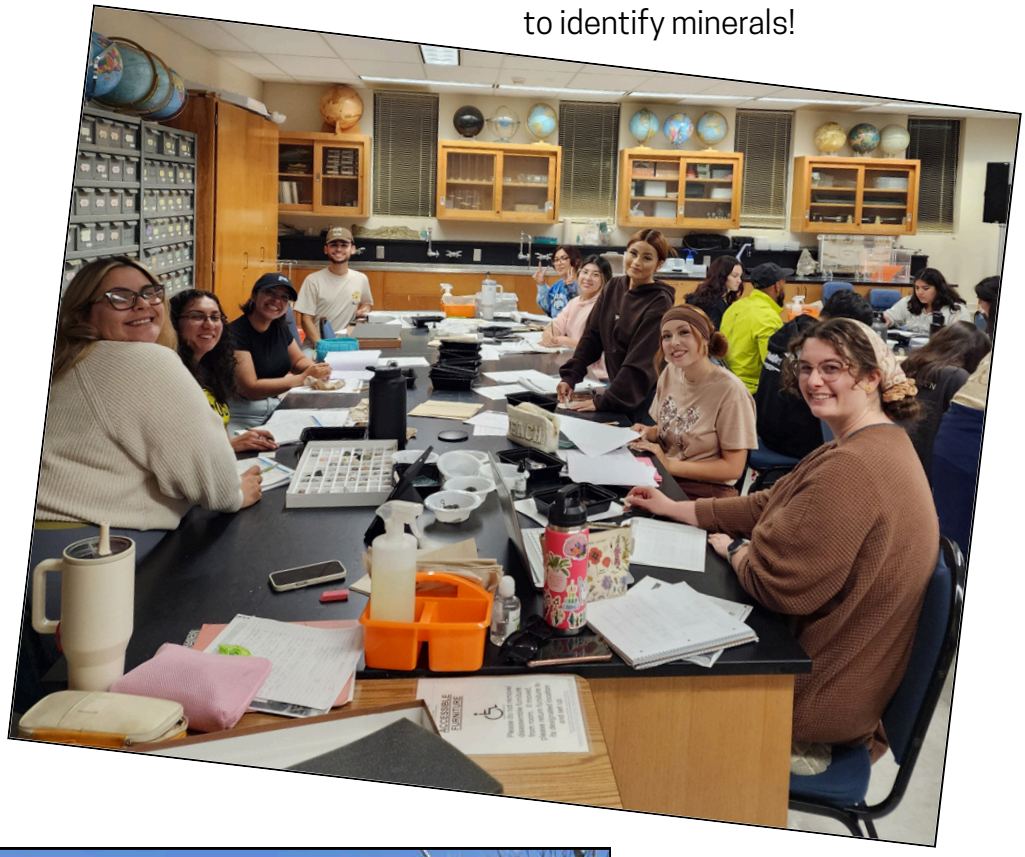
Teaching the Next Generation of Teachers!

GEOL 1090: Earth: The Blue Planet with Lecturer **Debbie Leatham**!

Debbie Leatham is committed to training the next generation of science teachers! In her GEOL 1090 classes, students learn how the Earth works, applying concepts in lectures and lab, and through collaborative activities.

Debbie exploring rocks along the Jurassic-Cretaceous boundary during a recent trip to Utah!

GEOL 1090 students learning to identify minerals!



Debbie also serves as our department's laboratory coordinator!
Thanks, Debbie!

Here she is leading a GEOL 1000 Laboratory class on a hike to the San Andreas Fault behind campus!

Welcome Back, Dr. McGill!

After years serving as the Associate Dean for the College of Natural Sciences, we are thrilled that **Dr. Sally McGill** has returned to research and teaching in our Department!

Above: Dr. McGill's GEOL 5220 Neotectonics class.
Left: With research students Brock Gedik and Miranda Owen (drone pilot!).
Below: Teaching at our annual Great Shakeout event (left), and at our Science Carnival outreach event (right).

Thanks for all of your service, Sally!

Get Involved and Give Back!

You made it to the end of our Department Newsletter!
There's so much more going on, but we'll save it for the next issue.

In the meantime, there are so many ways you can get involved with the department:

- **Please Give**! Your support makes the continuation of our field-based program possible in the face of budget cuts and rising costs. Use the QR code at the bottom of the page to make a donation - any amount helps our students!

- **Mark your Calendars**! **Thursday, April 9th** we will gather on campus to celebrate 35 years of CSUSB Geology! Details to come in early 2026. We can't wait to see you!

- **Follow us on social media**! **CSUSB Geology** on LinkedIn, **@officialcsusbgeology** on Instagram, and **Geology at CSUSB** on Facebook!

- **Give a department seminar** or join an alumni panel! Our seminars are typically 12 - 1 on Tuesdays and Thursdays during the semesters. Reach out to Claire (claire.todd@csusb.edu) - and shout out to our Fall 2025 alumni speakers: **Ashley Stroup**, **Tracy Roberts**, **Michael Makerov** and **Jennifer Pereda**! :)

- **Share an Alumni Update** for the next newsletter! We would love to hear from you! Email Chair Claire at claire.todd@csusb.edu. Photos are appreciated!

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