

TRANSFORMING TOGETHER

The Newsletter of the SIRIUS II Project*



Photo: Enid González-Orra

SIRIUS YEAR 3: INAUGURAL SIRIUS STEM CONFERENCE

The first SIRIUS II STEM Conference held on April 20th at Sacramento State brought together over 100 students, faculty, administrators, and community supporters in a fun, engaging, and informative event. Each of the four Los Rios community colleges and Sacramento State were represented, and students and faculty from at least six different STEM disciplines presented the work from their course-based Authentic Learning experiences (cALEs). We were also joined by the Society of Environmental Toxicology and Chemistry Northern California Chapter (NorCal SETAC) who shared information about their annual conference and other activities. Students illustrated their work as research posters, science communication vignettes, and instrumentation models.

One highlight included a scavenger hunt that prompted students to meet their colleagues at other institutions and from different disciplines, and raffle winners took home tote bags filled with fun items and signed by Sacramento State's President Nelsen, who is an ardent supporter of the SIRIUS Project.



Photo: Brendon Ishikawa

RESEARCH HIGHLIGHTS FROM THE SIRIUS STEM CONFERENCE

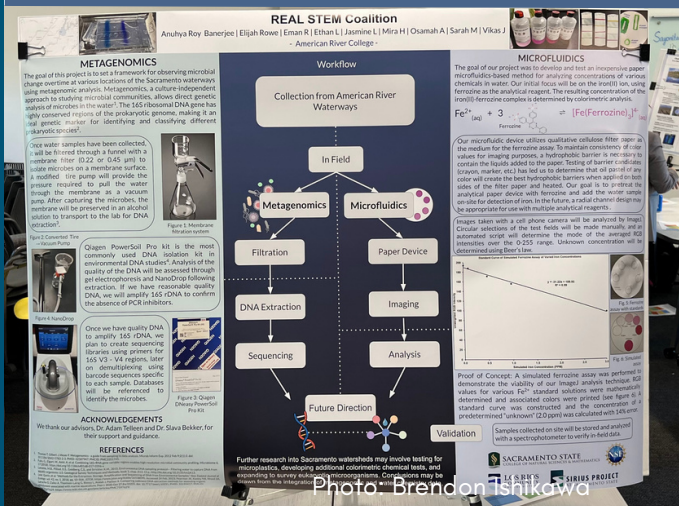


Photo: Brendon Ishikawa

REAL STEM Coalition - Dr. Adam Tellen (Biology) and Dr. Slava Bekker (Chemistry)

Students in American River College's research club and their mentors have embarked on several projects involving Sacramento waterways. One is a metagenomics project that aims to observe and monitor changes in microbial populations over time, at various locations. A second project is using a microfluidics-based method to detect various chemicals, such as the iron (II) ion, in the water samples.

Math 50 - Dr. Coskun Cetin

Using data sourced from Chemistry 309 at American River College, Dr. Coskun Cetin and his students at Sacramento State used statistics and data analysis techniques to describe variation in dissolved oxygen and pH in the American River. Students used a software package called Matlab to do quantitative analysis and build graphs like histograms, residual plots, and boxplots.

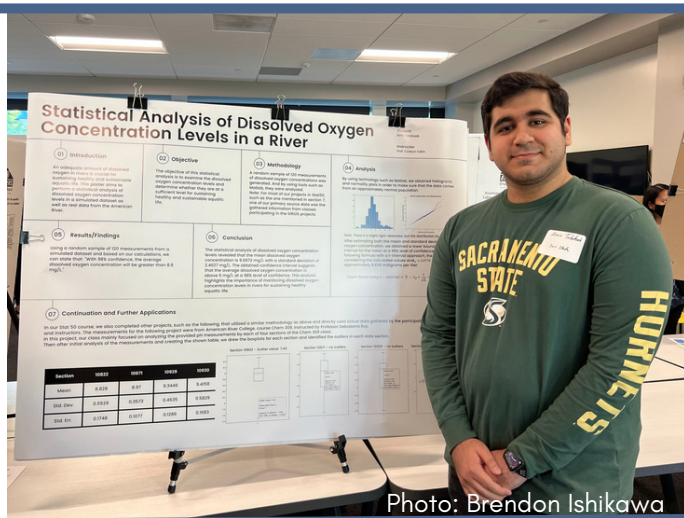


Photo: Brendon Ishikawa

Geography 193A - Dr. Jasmine Arpagian

Geography 193A debuted in Spring 2023 with several ALEs focused on the River District of Sacramento. In one example, Dr. Jasmine Arpagian and her students at Sac State explored how residents in the River District access amenities, including the Sacramento River itself. They worked with business and other local leaders to help them think about the area's sense of place for planning purposes, and they researched other cities with a river identity for ideas of how to bring the river/water theme to our urban landscape.



Photo: Brendon Ishikawa

BIO 160 - Dr. Cathy Ishikawa

BIO 160 (General Ecology) lab sections at Sac State presented two types of posters: (1) more traditional research posters looking at the effects of slope and aspect on vegetation and soil properties along levees near campus and (2) socioecological systems models of urban forest patches near Sacramento State. Students used a published systems model and customized it for a forest patch they visited during class.



Photo: Brendon Ishikawa

MORE SUCCESSES TO SHARE

Sac State physics professors **Michael Ray**, **Mikkel Jensen**, and **Eliza Morris** have had a manuscript describing an ALE accepted for publication in the *American Journal of Physics*. This ALE challenged lower- and upper-division students in PHYS 11B and 116 to work toward developing and troubleshooting technology for monitoring the physical properties of water in the American River (e.g. temperature, turbidity, and depth). Working directly with upper-division students helped demystify the advanced coursework for lower-division students in PHYS 11B.

Dr. Michelle Stevens (Sac State), her students, and community partners celebrated their work as part of the Bushy Lake Eco-cultural Community on April 29, 2023, and were recognized for their service in helping restore culturally and ecologically important habitat in the Sacramento Bee:

<https://www.sacbee.com/news/local/article274875736.html>

Congratulations to **Heather Fletcher Fajardo**, who completed her Master's thesis and earned her degree evaluating the impacts of SIRIUS I.

Symposiums and Conferences:

- The SIRIUS II Project participated in the Community Engagement Showcase at Sacramento State on April 20, 2023, highlighting several of its regional partnerships.
- Students in **Professor Susanne Lindgren's** (Sacramento State) and **Professor Eric Neff's** (Cosumnes Community College) courses presented posters about their ALEs at the Northern California American Society for Microbiology meeting May 6, 2023.
- Undergraduates, **Tolulope Owolabi** and **Andrea Palacio**, and graduate research student, **Ethan Roberts**, at Sacramento State competed in the 2023 Spring Research Symposium at Sacramento State, describing results from their STEM education projects, including those related to SIRIUS II impacts. They brought home a first and a second place award for their presentations.



Heather Fajardo, MS, at her hooding ceremony with SIRIUS teammates



Kat Colima Aguirre doing a turtle education demonstration with Milo, a Red Eared Slider



Professor Michelle Stevens leads a tour at Bushy Lake

LOOKING AHEAD

ALE-apolooza II

May 25th from 9am – 5pm in the TSC 1001, Sacramento State

GOT DATA?

<https://www.csus.edu/college/natural-sciences-mathematics/sirius/>

QUESTIONS? CONTACT US!

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