

SWOSU Chemistry Newsletter

2024-2025



IN SUMMARY

This past academic year brought with it new faculty and new student faces alike. From our faculty to our degree offerings, Chemistry and Physics has new changes to look forward to in the coming years.

We hired Shawna Ellis to fill the open Organic Chemist position, and she began teaching in Fall 2024. Nava Khatri was also hired to support the growth of the Engineering Physics Division as they prepare for upcoming ABET accreditation. Somrita Mondal, a long-term adjunct for Chemistry, was hired to fill the other open Chemistry faculty position, and she begins teaching in her full-time tenure track position in Fall 2025.

With help from the university, we also invested significantly in new instrumentation for our department, specifically a new half a million dollar NMR spectrometer.

The school year was culminated by the second annual Summer Science Program (SSP) led by Drs. Tim Hubin and Trevor Ellis. High-achieving high school students came to SWOSU for a rigorous hands-on camp centered on chemistry for five weeks. They attended lectures and lab and participated in a research project which ended in presenting their results as a research poster at the final banquet. It was a lively time for the department and a memorable experience for the students.

As we approach the upcoming year, faculty are prepared for another excellent year of instruction and activities. The Chemistry Club has been more active than recent years and plans to engage in more events this upcoming year, according to its officers.

NEW FACULTY: DR. SOMRITA MONDAL



After serving as an adjunct for two years, Dr. Somrita Mondal will begin teaching as an assistant professor in Fall 2025. Before obtaining her tenure track position, she worked as a postdoc researcher in Dr. Tim Hubin's lab. She is excited to begin doing her own research independently. Her course load primarily consists of General Chemistry courses due to the interdisciplinary nature of her field of expertise in chemistry.



NEW FACULTY: DR. SHAWNA ELLIS

Dr. Shawna Ellis began working as a professor of chemistry in the SWOSU Department of Chemistry and Physics in Fall 2024. She formerly served as an Associate Professor at the University of Central Oklahoma. She is excited to be at SWOSU and has been an excellent addition to our faculty.

Shawna Ellis attended the University of Oklahoma and received a Bachelor of Science - Professional degree, certified by the American Chemical Society. She graduated cum laude and went on to receive her Ph.D. in Organic chemistry in 2013. She began her teaching career as an instructor for the Oklahoma School of Science and Mathematics teaching Calculus and Physics. She then joined the faculty in the Department of Chemistry at the University of Central Oklahoma where she taught for the past nine years, earning tenure and the rank of Associate Professor.

Dr. Ellis conducts research in the area of Supramolecular and Host-guest Chemistry. This research has applications in the areas of molecular machines and sensors, dye-sensitized solar cells, and drug delivery. On a fundamental level, Dr. Ellis is especially interested in how compounds interact through space and between the organic and aqueous phases. In practice, this involves the organic synthesis of small molecules using a variety of reaction and separation techniques,

as well as the study of the physical interactions between molecules using spectroscopic technologies and by calculations of binding constants and binding modes. She enjoys leading undergraduate students in active research and the opportunities that these experiences provide.

Dr. Ellis has lived in Weatherford, Oklahoma for the last 13 years with her husband, Trevor Ellis, and their four children; Aidan (18), Ryker (12), Brianna (9), and Trenton (7). Shawna has been an active volunteer in local scouting and has served as Den leader and Advancement Coordinator in Cub scouts BSA. In addition to these activities, she enjoys reading, baking, and karate. She has been excited to join the faculty at SWOSU this year and to be able to share her love of Chemistry with the students.

Dr. Shawna Ellis, Fall 2024





NEW FACULTY: DR. NAVA KHATRI

Dr. Nava Khatri began working as a professor of engineering physics in the SWOSU Department of Chemistry and Physics in Fall 2024. Formerly, he served as a professional mechanical engineer. He has an extensive background in design and manufacturing and brings his impressive skills to further the goals of our Engineering Physics program as we seek ABET accreditation.

Nava Raj Khatri is a Mechanical Engineer with a PhD in Mechanical Engineering, which he earned from Texas Tech University in 2024. His research is centered on design for additive manufacturing, employing both experimental and computational approaches to assess the manufacturing and mechanical performance of 3D-printed parts.

During his graduate studies, Nava worked on a variety of projects, including the design of lightweight structures for tailored energy absorption, optimization of mechanical metamaterials for diverse applications, finite element analysis to predict the performance of 3D-printed parts, and data-driven design for additive manufacturing. Prior to his graduate work, he served as a professional mechanical engineer on a hydro power project.

Throughout his time as a graduate student, Nava has authored or co-authored 6 journal papers and presented 2 conference papers. Additionally, he has 5 journal papers and one book chapter currently under review.

He also holds a US patent for a passive design that controls fiber orientation in the 3D printing of short fiber reinforced composite materials.

Nava's primary research interests include analyzing the mechanical performance of 3D-printed parts, design for additive manufacturing, and data-informed design and optimization.

Dr. Nava Khatri, Fall 2024





2025 ACS NATIONAL CONFERENCE

Faculty mentored undergraduate student research is no doubt the highlight of the SWOSU Department of Chemistry. Each year, a number of students gain valuable hands-on experience and present their research at regional and national conferences.

Students and faculty from the Department of Chemistry and Physics at SWOSU attended the American Chemical Society (ACS) Spring 2024 meeting in New Orleans on March 18-22.

This annual event brings together thousands of chemists from all around the nation to present their undergraduate research on a national stage. Attendees can attend keynote events, career workshops, professional and leadership development courses, and poster presentations. They can also participate in networking workshops with recruitment from chemistry graduate programs and chemical, pharmaceutical, and biomedical companies, take workshops or short courses on various chemical research topics, and attend interviewing sessions.

The ACS is a professional organization of chemists in the U.S. and worldwide composed of around 150,000 members. Chemistry professionals attend ACS meetings and expositions each year to share ideas and advance scientific and technical knowledge.

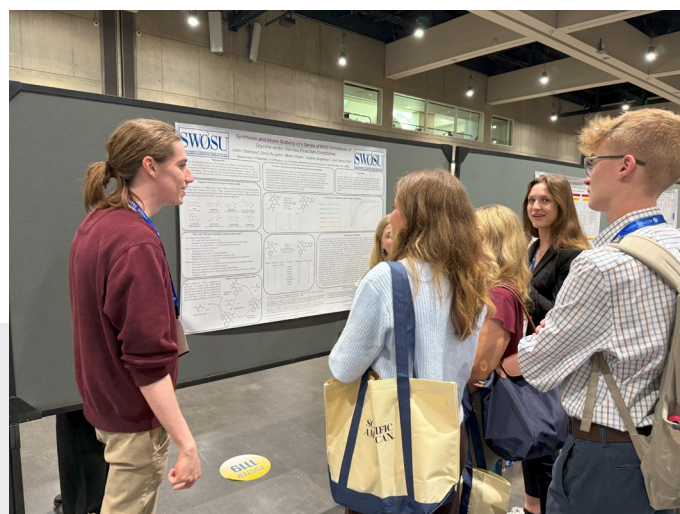
This event attracts thousands of chemical professionals, providing excellent opportunities for undergraduate students to share their passion for chemistry and connect with one of the world's largest scientific societies.

Twelve SWOSU students represented the university at the event: Amelia Kerr, Allison Bond, Maggie Larson, Audrey Jergensen, Eric Estala, Rena Cole, Grant Elam, Justin Childress, Rhealyn Sutliff, Jennifer Saenz, Lydia Laverty, and Yuki Matsui.

The six SWOSU faculty attending with them were Drs. Trevor Ellis, Shawna Ellis, Jon Henrikson, Tim Hubin, David Martyn, and Somrita Mondal, who will be working as a tenure-track assistant professor in FY2025. The attending students had the opportunity to participate in various poster presentations, with faculty accompanying them.

This event was a great opportunity for SWOSU students to showcase their research and engage with the broader chemistry community, further solidifying the department's commitment to fostering excellence in science education.

A group photo is displayed on the left. Justin Childress (right) is featured below with his research.





2024-2025 CHEMISTRY GRADUATES



Rylee Borrego
Chemistry BA



Justin Childress
Chemistry BS Pro



Eric Estala
Chemistry BS



Jeffery Hall
Chemistry BA



Audrey Jergensen
Chemistry BS Pro



Christopher Martinez
Chemistry BA



Jennifer Saenz
Chemistry BS