

Texas Lutheran University

CHEMISTRY

& BIOCHEMISTRY



BACHELOR OF SCIENCE OR
BACHELOR OF ARTS IN CHEMISTRY

BACHELOR OF SCIENCE
IN BIOCHEMISTRY

What Is A Chemist?

At TLU, chemistry and biochemistry majors receive one-on-one guidance from faculty in the classroom and the lab. Small class sizes allow for this type of interaction where courses are taught by tenure-track professors, not teaching assistants. The department is dedicated to educating students and committed to strengthening scientific curiosity, problem solving, and research skills.



DEGREE PATHS & CORE COURSES

Students interested in majoring in chemistry have the option of choosing a Bachelor of Science (B.S.) or a Bachelor of Arts (B.A), or the B.S. in biochemistry degree path. Professors work closely with students ensuring their degree is tailored to fit individual needs and goals. Collaboration across the STEM disciplines also supports students who would like to double major or minor in fields like math, physics, or biology.

CORE COURSES

- General Chemistry I & II
- Organic Chemistry I & II
- Analytical and Physical Chemistry

SPECIALTY COURSES

- Medicinal Chemistry
- Environmental Chemistry
- Advanced Inorganic Chemistry



→ The Science Behind It All

RESEARCH OPPORTUNITIES & INTERNSHIPS

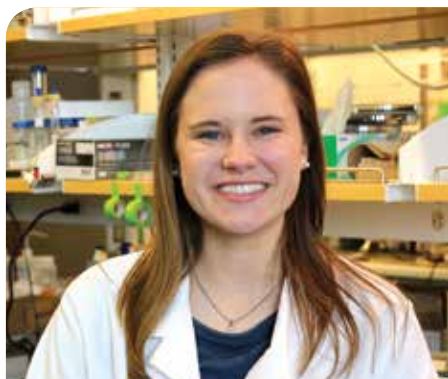


Unlike many larger universities, chemistry and biochemistry majors can begin working on research as early as their freshman year. With opportunities to participate in faculty-led summer research or special projects,

you will have the chance to conduct work most students won't even have the chance to see until graduate school.

Led by Assistant Chemistry Professor Alison Bray, TLU's Chemistry Research Group (Team Rice) is funded by the United States Department of Agriculture's (USDA) National Institute of Food and Agriculture to conduct research on arsenic uptake by rice plants and other food safety issues. The team also conducts investigations on arsenic and cadmium concentrations in rice containing products like baby cereal and formulas, as well as dog food. Dr. Michael Ruane's research focuses on the development of new synthetic techniques to aid in the generation of new medicinal compounds. Students working in the lab have generated new pyranones to be used to make the core of molecules with biological implications. Molecules with a programmable 3D structure are beneficial to the development of new medicines. Such molecules have been found in compounds that fight cancer and diabetes, and have applications across a wide variety of diseases.

All research students have opportunities to present their results at professional conferences like the American Chemical Society National Meeting and the Texas Academy of Science. TLU undergraduate chemistry students have participated in off-campus internships at places including Harvard University, the Agricultural Research Services labs in Beltsville, Maryland, the USDA Animal Metabolism Unit in Fargo, North Dakota, the University of North Texas, and Texas State University. Professors also help facilitate opportunities for pre-med students to shadow physicians as they strengthen and build their medical school applications.



NICOLE POLLOK '15

**Chemistry & Molecular
Biology Major**

Ph.D. Candidate

The University of Texas at Austin

"I really like how chemistry teaches you to put together your own methods and you can see real world applications to a variety of problems or topics. My current lab work focuses on building a biosensor for patients to be able to monitor their own heart failure. Working on a device that could potentially be on store shelves to help people is motivating and rewarding."



COMMUNITY OUTREACH

TLU students share their passion for science with families in the Seguin community at the annual CHAOS event sponsored by the Pi Rho chemistry club. CHAOS, which stands for Chemistry Happens with Adventurous Outstanding Scientists, is an opportunity for students to give back to the community while educating young minds about the everyday applications and uses of

chemistry. The free, hands-on event features student-created experiments, as well as a few more explosive “don’t try this at home” demonstrations. Professors and their students regularly visit elementary schools to present high-energy, high-impact chemistry demonstrations. Pi Rho is also a featured exhibitor at the New Braunfels Science Fest—a local event that draws thousands of participants.

TLU HAS ALUMNI EMPLOYED AT:

- Southwest Research Institute
- Valero Energy Corp.
- Guadalupe Blanco River Authority
- Pure and Gentle Soap Company
- University of Maryland (atmospheric chemistry)
- Texas A&M University (materials science)
- University of Texas at Austin (medical sensor design/chemistry)
- University of North Texas (nanomaterials)
- Rice University (nanomaterials)
- Texas Tech University (environmental toxicology)



For more information, visit tlu.edu/chemistry.

To schedule a customized visit, please go to tlu.edu/visit.