Lauren K. Bomer

lauren.bomer@utexas.edu | 210.249.8830

Department of Marine Science
College of Natural Sciences
The University of Texas at Austin
Austin, TX 78712

EDUCATION

Ph.D. Marine Science, The University of Texas at Austin 2024 - Present
Dissertation/Thesis: Title

B.S. Biochemistry, University of the Incarnate Word May 2024

ACADEMIC APPOINTMENTS

Graduate Teaching Assistant, The University of Texas at Austin August 2024 - Present
Biology Instructional Office, College of Natural Sciences

Graduate Student Researcher, The University of Texas at Austin June 2024 – August 2024
Doctor of Philosophy, Marine Science

RESEARCH EXPERIENCE

The University of Texas at Austin – Marine Science Institute June 2024 – August 2024
Graduate Research Assistant

- Curated a stable isotope database for the Texas Coastal Bend region for enhanced data accessibility and research efficiency
- Assisted in the design and construction of crab megalopae collectors for deployment in estuaries for research purposes
- Collaborated with a team to sample eye and muscle tissues from fish and sharks at a fishing tournament for future analysis

UIW Welch Program in Biochemistry May 2023 – August 2023
Undergraduate Research Assistant

- Continued research on a novel microalgal isolate/consortium from the Blue Hole, a primary spring to the San Antonio River
- Conducted assays to test antifungal activity against *Candida albicans* biofilm formation and established biofilms
- Prepared numerous algae extracts in preparation for future assays to characterize polyphenol and flavonoid presence and biomolecule composition.
- Assisted in the maintenance and cultivation of microalgae cultures, ensuring optimal growth conditions
- Collected and analyzed data from experiments, recording results accurately and maintaining detailed records

NSF Plant-STEM REU in Biological Engineering – Utah State University May 2022 – July 2022
Undergraduate Research Assistant

- Selected to participate in a competitive research experience for undergraduates. Worked in the College of Agriculture & Applied Sciences, Plant Soils & Climate Department under Dr. A. Jacobson researching nanoparticle fertilizer applications
- Participated in weekly presentations of research updates

UIW Algae Agricultural Biochemistry Research September 2021 – May 2024
Undergraduate Research Collaborator

- Investigating potential applications of select species of microalgae that are not well examined for their role in the plant protective microbiome of biofertilizer applications (tomato)
- Conducted soil analysis experiments to assess the persistence of algal cultures in soil over time, monitoring changes and evaluating the impact of algal cultures on soil pH and seedling growth, measuring parameters such as germination rates and overall plant health

- Collected and analyzed preliminary data to draw conclusions regarding the potential benefits or drawbacks of algal cultures as a biofertilizer

UIW Welch Program in Organic Chemistry May 2021 – June 2021

Undergraduate Research Assistant

- Set up and conducted chemical experiments, tests, and analysis of organic synthesis using techniques such as chromatography, nuclear magnetic resonance, infrared spectroscopy, reflux
- Performed laboratory inventory of lab chemicals by manufacturer, amount, date, and location

---

TEACHING EXPERIENCE

The University of Texas at Austin August 2024 – Present

Graduate Teaching Assistant

- Led weekly discussion sections for a large introductory biology course and encouraged student engagement with the material.
- Held regular office hours to provide individualized academic support, addressing student questions and offering guidance.
- Graded assignments and exams for 200 students, delivering detailed feedback to help students improve their understanding.

PUBLICATIONS

Bomer, L.K.; Leverett, B.D. Growth Characteristics of a *Desmodesmus* Species from the San Antonio Springs and Its Short-Term Impact on Soil Microbial Dynamics. *Life* 2024, *14*, 1053.

PRESENTATIONS

Poster Presentations

1. L. K. Bomer, G. Espinoza Perez, B.D. Leverett. Anti-*Candida* Activity of Novel Copper-Phenanthroline Complexes. *Annual Biomedical Research Conference for Minoritized Scientists*. Pheonix, Arizona (November 2023).
2. L. K. Bomer, G. Espinoza Perez, G. Toureilles, K. Brown, B.D. Leverett. Biostimulant Potential of Microalgae from the Blue Hole. 16th *Annual UIW Research Week*. San Antonio, Texas (April 2023).
3. L. K. Bomer, E. Khorunzhy, L. Yen, A. Jacobson. Investigation of Meta-Vivianite and Chitosan-Coated Meta-Vivianite as a Nanofertilizer. *11th Annual Sustainable Nanotechnology Organization*. Austin, Texas (November 2022).
4. L. K. Bomer, E. Khorunzhy, L. Yen, A. Jacobson. Characterization and Investigation of Meta-Vivianite and Chitosan-Coated Meta-Vivianite Weathering in Soil. *Utah State University Plant-STEM REU in Biological Engineering*. Logan, Utah (July 2022).
5. L. K. Bomer, G. Toureilles, K. Brown, B. D. Leverett. Agricultural Applications of Microalgae: Extracts from Marine Microalgae Enhance Seed Germination and Abiotic Stress Response in Tomato. *12th Annual UIW Honors Symposium*. San Antonio, Texas (March 2022).
6. L. K. Bomer, G. Toureilles, K. Brown, B. D. Leverett. Agricultural Applications of Microalgae: Extracts from Marine Microalgae Enhance Seed Germination and Abiotic Stress Response in Tomato. *125th Annual Texas Academy of Science Meeting*. Houston, Texas (February 2022).
7. L. K. Bomer, R. A. Bhura, N. De La Cerda, A. Khanal. Stepwise Chemical Modification of Mica Surface by Utilizing Synthesized Organic Compounds. *Welch Summer Research Program.* University of the Incarnate Word, San Antonio, Texas (June 2021).
8. L. K. Bomer, C. S. Wellman. Comparison of Sonication Bath and Ultraviolet Light on the Reduction of *Escherichia coli*. *Texas FFA State Convention Agriscience Fair*. Fort Worth, Texas (June 2018).

HONORS & AWARDS

- Dean's List for 8 Semesters
- UIW Presidential Academic Scholarship
- NSF Cardinal Chemistry Scholarship
- Richard Wallrath Foundation Scholarship
- San Antonio Livestock Expedition Scholarship

COMMUNITY SERVICE

University of the Incarnate Word – Tutoring Services August 2021 – May 2023
Science Peer Tutor

- Courses: Biochemistry I, Organic Chemistry I & II, Genetics, Cell Biology, Quantitative Chemical Analysis, Physics I & II
- Facilitated a learning environment for one-on-one & group tutoring, providing students with study techniques & strategies that resulted in improved academic performance
- Composed practice problems and study guides for tutee reference
- Submitted detailed session reports weekly

UIW STEM Explorers August 2023 – May 2024
Vice President

UIW Chemistry & Biochemistry Club August 2021 – May 2024
Member

UIW Honors Program August 2020 – May 2023
Member

UIW Cardinal Chemistry Scholars Program August 2020 – December 2022
Member

PROFESSIONAL EXPERIENCE

University of the Incarnate Word – Department of Chemistry & Biochemistry May 2023 – May 2024
Intern

- Overhauled chemical storage system, improving organization and safety standards in the laboratory
- Conducted chemical inventory management, tracking and reporting stock levels
- Ensured the safe disposal of chemical waste, adhering to regulations and minimizing risks
- Prepared laboratory course solutions and media, ensuring accurate and efficient setups for experiments
- Supervised laboratory periods, assisting in maintaining a productive learning environment

REFERENCES

Sharon Herzka, Associate Professor
University of Texas Marine Science Institute
750 Channel View Drive, Port Aransas, Texas 78373
(361) 749-6711
sharon.herzka@utexas.edu

Betsy Leverett, Associate Professor
Department of Chemistry and Biochemistry
University of the Incarnate Word
4301 Broadway, San Antonio, Texas 78209
(210) 283-6437
leverett@uiwtx.edu

Rachell Booth, Professor
Department of Chemistry and Biochemistry
University of the Incarnate Word
4301 Broadway, San Antonio, Texas 78209
(210) 839-3158
rbooth@uiwtx.edu