

Gabe Jandebeur

PhD Student | Bioinformatics & Genomics

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Education

University of Oklahoma Health Science Center - Ph.D. in Biomedical Sciences	Expected Spring 2030
Research Focus: Functional Genomics, Cancer Therapeutics, Computational Transcriptomics	
The University of Oklahoma: B.S. Chemical Biosciences & B.A. Environmental Studies	Spring 2025
Skills: R Programming, UNIX scripting, Data Visualization, Bioinformatics Workflows, RNA-seq Analysis	

Relevant Experience

Post-baccalaureate Research Intern – Boyce Thompson Institute	Ithaca, NY
Nelson Bioinformatics & Plant Genomics Lab	June - August 2025

- Selected for a competitive NSF-funded REU in computational plant genomics.
- Designed transcriptomic workflows for Nanopore and Illumina dRNA-Seq data to study abiotic stress effects on gene expression and RNA modifications across Brassicaceae species.
- Applied R and UNIX tools for differential expression, base modification profiling, and data visualization for comparative analyses.

Undergraduate Research Assistant - University of Oklahoma	Norman, OK
Schroeder Biophysical Chemistry Lab	August 2024 – Present

- Developed scalable workflows for differential expression and RNA modification analysis using long-read Nanopore data.
- Investigated effects of smoking and influenza co-infection on m6A/pseU covalent modifications across the transcriptome.
- Performed dRNA-seq processing on the OU HPC cluster using shell scripting and R.
- Mentored first-year students in UNIX command-line basics and RNA-seq data analysis pipelines.

Undergraduate Researcher - University of Oklahoma	Norman, OK
Hodges Critical Zone Biogeochemistry Lab	August 2022 – January 2025

- Led two funded projects on heavy metal toxicity and soil carbon sequestration using industrial hemp.
- Conducted elemental analysis of soil and root systems to evaluate carbon capture and heavy metal mobilization in the rhizosphere.
- Compiled a systematic meta-analysis of 118 publications on hemp's phytoextraction potential in contaminated environments.
- Designed experiments integrating biogeochemistry and environmental remediation approaches.

Undergraduate Academic Assistant - University of Oklahoma	Norman, OK
Oklahoma Water Survey	January 2023 – April 2025

- Collected and processed wastewater and river samples for microbial monitoring and pathogen surveillance.
- Maintained and programmed over 10 automated field samplers for remote data acquisition.
- Ensured sample integrity and transport compliance with EPA and DOT biosafety standards.

Leadership & Outreach

Environmental Health Disparities

Contributed to a student-led research initiative addressing environmental injustice in the JFK neighborhood of Oklahoma City. Analyzed lead and heavy metal contamination in soil linked to industrial activity, focusing on the health implications for residents. Co-authored a legal manuscript proposing both policy-based and community-driven remediation strategies, with findings published through the Metropolitan Library system.

Pollinator Garden

Led a team of over 10 students in creating and maintaining a native pollinator garden as part of an environmental outreach initiative. Combined hands-on ecological restoration with public education to raise awareness of pollinator decline and the importance of native plant species in sustaining local biodiversity.

Plant Science Engagement

Collaborated with a four-member team to deliver interactive plant biology educational sessions for children at a local science museum. Facilitated hands-on activities such as leaf printing, UV flower stamping, and seed sowing to promote early STEM interest

Awards & Funding

- UReCa Provost's Summer Fellowship** - \$5,000 research stipend for carbon capture via basalt-amended soils.
Undergraduate Research Award- \$1,000 stipend for hemp-based toxicological remediation.
Environmental Studies Research Grant - \$300 for soil toxicology analysis and environmental modeling.
Geoscience Student Exposition Award - \$500 award for presenting phytoremediation strategies using hemp.
Award of Excellence – Merit-based academic scholarship, University of Oklahoma
Loy & Marian Morris Award – Need-based endowment supporting undergraduate education

Presentations

OCRID Research Symposium (Spring 2025)

“Advances in Nanopore Direct RNA Sequencing to Probe Epitranscriptomics Effects of Cancer Smoke Extracts on Influenza Infections” (*Poster*)

Environmental Health Injustice (May 2024)

“Health Disparities and Lead Contamination in OKC’s JFK Neighborhood” (*Publication and Presentation, Metropolitan Library*)

Student Research Symposium (Fall 2023)

“Carbon Capture Using Basalt Soil Amendments in Industrial Hemp” (*Poster*)

Provost’s UReCa Fellowship Showcase (Fall 2023)

“Natural Carbon Capture via Basalt Amendments in Cover Crops” (*Oral Presentation*)

UReCa Research Showcase (Spring 2023)

“Remediation of Heavy Metal Contamination using Industrial Hemp” (*Poster*)

Spring Student Exposition (Spring 2023)

“Heavy Metal Phytoremediation” (*Poster*)

Environmental Studies Research Presentation (Fall 2022)

“Experimental Design for Phytoremediation Potential for Industrial Hemp” (*Oral Presentation*)