

Jacob E. Megarity

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[website](#)

Coppell, Texas 75019

Education

B.S., Bioenvironmental Science, summa cum laude May 2024
Texas A&M University, College Station, TX, *GPA: 4.0*

Non-degree Seeking Jan 2025 – Present
The University of Texas at Dallas, Richardson, TX, *GPA: 4.0*

Research Interests

- Climate change and variability
- Large-scale ocean-atmosphere interactions
- Climate and ocean modeling
- Influence of climate change on ocean physics and global atmospheric circulation patterns, and the broader impacts of these interactions on marine ecosystems
- Polar oceanography
- Ocean and atmospheric dynamics

Research Experience

Research Assistant January 2025 – Present
Flow Dynamics and Turbulence Lab, The University of Texas at Dallas

- Study the small-scale turbulent structure above & below surface waves at the ocean-atmosphere interface using controlled wind-wave tunnel experiments and particle image velocimetry (PIV).
- Collaborate with Ph.D. students and PIs to develop MATLAB code for processing PIV images and calculating the velocities of water and air particles from wind-wave tunnel experiments.
- Participate in weekly lab meetings discussing current research objectives, relevant research papers, and professional development topics.

Research Assistant January 2023 – May 2024
Spatial Ecology and Conservation Biology Lab (Dr. Wu Lab), Texas A&M University

- Collected and analyzed field data for research pertaining to the impacts of climate change and various rangeland management practices on ecosystem health, livestock production, and biodiversity in the Edwards Plateau region of Texas.
- Utilized Python, MegaDetector AI model, and Microsoft Excel to process, extract, and organize the data of over 300,000 wildlife camera trap images to examine the relationship between frequent prescribed burns and biodiversity within prairie ecosystems.

- Assisted Ph.D. students in advancing research projects and publishing scientific findings through the online, community-driven Zooniverse platform to gather valuable ecological data.

Teaching Experience

Undergraduate Teaching Assistant *August 2023 – December 2023*

Fundamentals of Ecology (ECCB 205), Texas A&M University

- Facilitated weekly study sessions to help students deepen their understanding of course material, prepare for exams, review coursework, and develop strong study habits and techniques.
- Assisted the professors by providing instructional support in the classroom, answering student questions, and helping to teach course material to over 150 undergraduate students.

Student Memberships and Organizations

Aggie Speleological Society, Texas A&M University *August 2021 – December 2022*

Community Engagement and Service

Dallas Sierra Club *June 2025 - Present*

St. Joseph Village Retirement Community – Coppell *October 2024 – Present*

St. Ann's Thanksgiving Baskets Drive *November 2021 – November 2023*

Relevant Coursework

Differential Calculus

Integral Calculus

Multivariable Calculus (Fall 2025)

Differential Equations (Fall 2025)

Statistical Methods

Introduction to Programming: MATLAB

Physics – Mechanics

Physics – Electromagnetism and Waves (Fall 2025)

Oceanography

Geology

Planet Earth

Fundamentals of Ecology

Biology I & II (Zoology)

General Chemistry I & II

Organic Chemistry I

Geographic Information Systems

Skills and Techniques

Computational: MATLAB, Python, Version Control with Git/Github, ESRI's ArcMap & ArcGIS Pro 10.x, Microsoft Office Suite

Technical: Image Processing, Particle Image Velocimetry (PIV), Data Acquisition using NI DAQ and LabVIEW, Spatial Data Analysis and Map Creation