

## Education

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### University of Texas at Austin

#### **Master of Science - Geoscience**

May 2025

Advisors: Peter Flemings and Dan Breecker

GPA - 4.0

Thesis: *Permafrost Carbon Emissions and Geochemical Changes in a Warmer Climate*

#### **Bachelor of Science - Chemistry**

May 2023

Bridging Disciplines Certificate - Environment and Sustainability

GPA - 3.7

Minor - Entrepreneurship

#### **DIS - Study abroad in Scandinavia**

May 2022 - July 2022

Copenhagen, Denmark & Greenland

*Understanding Climate Change of Arctic Ecosystems Lab*

## Research Experience

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#### **Graduate Student Researcher**

August 2023 - Present

Jackson School of Geosciences at the University of Texas, Austin

- Designed and conducted experiments to measure permafrost carbon gas emissions as a function of temperature and time
- Developed a method to measure carbon dioxide and methane carbon isotope values and concentrations from a low-concentration gas mixture using a GasBench GC-IRMS
- Outlined preliminary kinetic model of permafrost carbon gas emission

#### **Alaska Field Research Team Member**

March 2023

University of Texas Institute for Geophysics, Austin, TX

- Assisted in permafrost core extraction
- Managed recovered core samples and storage
- Supported research teams from Sandia National Labs

#### **Carbon Flux Undergraduate Researcher**

September 2022 - May 2023

Bureau of Economic Geology, University of Texas, Austin, TX

- Analyzed data from two eddy covariance towers in Texas
- Created visuals of relationships between carbon flux and related variables using Python
- Authored a thesis-style report on project outcomes for future use

#### **DIY Diagnostics Student Researcher**

January 2020 - December 2020

University of Texas, Austin, TX

- Analyzed impacts of light sources on home-use heart rate monitors
- Applied various wet lab, electronic, and computer programming skills
- Wrote and reviewed student research papers

## Work & Activities

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#### **Head Teaching Assistant**

January 2024 - May 2024

Jackson School of Geosciences, University of Texas at Austin

- Prepared weekly physical geology lecture material (GEO 401)
- Lead weekly meetings with the teaching assistant team
- Instructed 60+ students

#### **Teaching Assistant**

August 2023 - December 2023

Jackson School of Geosciences, University of Texas at Austin

- Taught introductory geology (GEO 303) lectures
- Guided students through hands-on learning activities
- Gained over 150 hours of teaching experience

**UT Farmstand Hydroponics and Seed Transplant Specialist**

March 2021 - May 2023

Housing &amp; Dining System, University of Texas at Austin

- Coordinated with fellow members on student-led sustainability project initiatives
- Monitored hydroponic systems in seedling grow racks and larger outdoor systems
- Prepared educational material for farmers' markets and community activities

**World Food Prize Board of Reviewers Member & Group Leader**

Spring 2020 - 2023

World Food Prize Foundation - Global Youth Institute

- Reviewed student research papers on global food insecurity challenges
- Facilitated discussion between experts & students to address food insecurity challenges
- Guided students through research presentations and encourage collaboration

**Longhorn Stream Team**

February 2022 - May 2023

University of Texas at Austin

- Paddled Texas rivers and monitor water quality
- Contributed water assessment data as a citizen scientist to public databases
- Trained incoming team members in water assessment protocols

**Negative Emissions Technology - Policy Team**

January 2022 - May 2022

University of Texas at Austin

- Researched potential carbon capture and storage technology
- Designed policy outline for carbon capture implementation at UT Austin
- Presented policy proposal to the University of Texas Board of Trustees

**Student Consultant - Longhorn Impact Fellowship**

August 2021-December 2021

Emergent Forest Finance Accelerator Non-Profit

- Conducted market research to identify trends of top financial firms in ESG investing
- Produced a white paper covering progressive rankings of financial firms
- Identified key firms for client to target to sell carbon offsets

**Abstracts**

**Riley Garrett**, Peter Flemings, Dan Breecker, Jeff Cullen, Tanner Mills, Louise Farquharson, David Fukuyama, Lisa Bigler, Chuck Smallwood. (2024). Permafrost Carbon Emissions and Geochemical Changes in a Warmer Climate. *American Geophysical Union Annual Meeting. December 2024. Washington D.C., USA*

Tanner Mills, Peter Flemings, John Germaine, **Riley Garrett**, David Fukuyama, Lisa Bigler, Louise Farquharson, Nicholas Hasson, Chuck Smallwood, Jenna Schambach, Stephanie Kolker, Monica Sanchez, James Ricken. (2024). Gas flow in synthetic and field core permafrost specimens. *American Geophysical Union Annual Meeting. December 2024. Washington D.C., USA*

**Riley Garrett**, Peter B Flemings, Tanner Mills. (2024). Permafrost Carbon Emissions and Geochemical Changes in a Warmer Climate. *Jackson School of Geoscience Annual Symposium. February 2024. Austin, TX, USA.*

Tanner Mills, Peter B Flemings, Michael Nole, John Germaine, **Riley Garrett**, David Fukuyama, Lisa A Bigler, Louise Melanie Farquharson, Nicholas Hasson, Chuck Smallwood, Monica Sanchez, Jenna Schambach, Stephanie Kolker and James Ricken. (2023). Flow and Index Properties of Permafrost Cores from Fairbanks, Alaska and Synthetic Permafrost Specimens, *American Geophysical Union Annual Meeting. December 2023. San Francisco, CA, USA.*

**Grants,  
Fellowships,  
&  
Scholarships**

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***Spring Off-Campus Research Grant***

*January 2024*

University of Texas at Austin

- Grant to conduct off-campus research at field site near Fairbanks, AK

***Independent Studies Fellowship for Fall 2024***

*June 2024*

University of Texas at Austin

- Fully funded semester to focus on individual research after significant service as a Teaching Assistant

***Bridging Disciplines Connecting Experience Scholarship***

*June 2022*

University of Texas at Austin

- Scholarship to complete summer study abroad program in Denmark and Greenland focused on climate change research in the Arctic

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**Professional  
Affiliations**

- American Geophysical Union (AGU)
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