Emma Boeman

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Education

M.S., Geoscience *Expected May 2027*
The University of Arizona, GPA *4.00/4.00*

B.S., Geology *May 2024*
Minor: Drawing
Certificate: Geographic Information Science (GIS)
The University of Utah, Salt Lake City, UT, *GPA 3.96/4.00, magna cum laude*

Scholarships, Honors and Awards

Arizona Geological Society M. Lee Allison Scholarship *Fall 2025*
$1500.00 scholarship awarded by the Arizona Geological Society

Honorable Mention, NSF Graduate Research Fellowship Program *Spring 2025*

First Place, Undergraduate Poster Presentation *Spring 2024*
Received award at University of Utah Department of Geology and Geophysics GeoFest Poster Session

Presnell Scholarship *Fall 2023 - Spring 2024*
Merit-based scholarship of $3000.00 awarded by the Department of Geology and Geophysics

Association of Women Geoscientists Susan Ekdale Field Camp Scholarship *Summer 2023*
$1500.00 scholarship awarded by the Utah Chapter of the Association for Women Geoscientists for field camp related expenses

Presnell Field Camp Scholarship *Summer 2023*
$1200.00 scholarship awarded by the Department of Geology and Geophysics for field camp related expenses

University of Utah Academic Excellence Scholarship *Fall 2020 - Spring 2024*
Merit-based scholarship covering full, non-resident tuition for 8 semesters

Dean's List *Fall 2020 - Spring 2024*

Research Publications and Presentations

2024 **Boeman, E**., Irmis, R.B., Lerosey-Aubril, R., Breeden III, B.T., (2024) Determining the stratigraphic provenance of ex-situ fossils using portable X-Ray Fluorescence technology: a case study from the middle Cambrian of western Utah, U.S.A. [Poster Presentation], University of Utah Department of Geology and Geophysics GeoFest Poster Session, Salt Lake City, UT

2024 **Boeman, E**., Irmis, R.B., Lerosey-Aubril, R., Breeden III, B.T., (2024) Determining the stratigraphic provenance of ex-situ fossils using portable X-Ray Fluorescence technology: a case study from the middle Cambrian of western Utah, U.S.A. [Poster Presentation], University of Utah Spring 2024 Undergraduate Research Symposium, Salt Lake City, UT

2023 **Boeman, E**., Irmis, R.B., Lerosey-Aubril, R., Breeden III, B.T., (2024) Determining the stratigraphic provenance of ex-situ fossils using portable X-Ray Fluorescence technology: a case study from the middle Cambrian of western Utah, U.S.A. [Oral Presentation], GSA Connects Annual Meeting, Pittsburg, PA

Grants and Funding

David S. Chapman and Inga M. Chapman Fund *November 2023*
$1860.00 for Beamtime attendance at the Advanced Light Source Synchrotron in Berkeley, California

ASUU Travel Scholarship Fund *October 2023*
$600.00 awarded by the Associated Students of the University of Utah for expenses related to attending and presenting at GSA Connects 2023 in Pittsburgh, Pennsylvania

Barbara Nash Research and Development Fund *October 2023*
$800.00 awarded for expenses related to attending and presenting at GSA Connects 2023 in Pittsburgh, Pennsylvania

Office of Undergraduate Research Travel Fund *October 2023*
$500.00 awarded by the Office of Undergraduate Research for expenses related to attending and presenting at GSA Connects 2023 in Pittsburgh, Pennsylvania

Experience

Graduate Teaching Assistant *August 2025 - Present*
University of Arizona, Tucson, Arizona, Supervisor: Dr. Barbara Carrapa and Dr. Jonny Wu

- Served as a teaching assistant for GEOS 302: Sedimentology and Stratigraphy (Fall 2025) and GEOS 304: Structural Geology (Spring 2026)
- Planned, organized and executed weekly lab exercises for approximately 70 students
- Aided in multiple full-day field trips of approximately 20 students to various sites in southern Arizona

Scientists in Parks Paleontology Assistant *October 2024 – December 2024*
Conservation America, Dinosaur National Monument, Supervisor: Rebecca Hunt-Foster

- Developed a long-term systematic program for monitoring the quarry face and the preservation of its fossils
- Established and executed a cleaning process for the quarry face within the Quarry Visitor Center that adheres to all safety standards and guidelines
- Documented all 1500 fossils on the Carnegie Quarry face using traditional techniques, as well as utilized photogrammetry for long term monitoring needs

GSA GeoCorps Cave and Karst Program Assistant *May 2024 – August 2024*
Geological Society of America, White River National Forest, Supervisor: Alex Lyles

- Assisted the Cave and Karst Resources Manager with finding, inventorying, surveying, describing, and monitoring caves and karst features across the Forest
- Provided cave/karst outreach, conservation, and interpretation to school groups, Boy Scout troops, rock climbers, and other members of the public
- Utilized GIS and LiDAR to identify areas of interest for cave and karst features and improve the Forest's geospatial field data

Undergraduate Teaching Assistant *May 2024*
University of Utah, Salt Lake City, UT, Supervisor: Dr. Cari Johnson

- Served as a teaching assistant for Summer 2024 Field Geology Camp I
- Aided in organizing and executing the geology field camp capstone, as well as contributing to student engagement, for approximately 20 students

Undergraduate Research Assistant *November 2021 – May 2024*
Natural History Museum of Utah, Salt Lake City, UT, Supervisor: Dr. Randall Irmis

- Utilized portable X-Ray Fluorescence Technology (pXRF) to analyze chemical compositions of various Cambrian fossil samples from the House Range of western Utah
- Performed multivariate statistical analysis such as linear discriminant analysis (LDA) and principal components analysis (PCA) using the PAST 4.12 Statistical Analysis Software to infer the locality and formation-level provenance of fossil samples lacking provenance data.
- Collected over 100 fossil specimens from 12 different localities across the Marjum, Wheeler, and Weeks formations in Western Utah for pXRF analysis

Undergraduate Research Assistant *January 2023 – May 2024*
University of Utah Rock and Mineral Physics Lab, Salt Lake City, Supervisor: Dr. Lowell Miyagi

- Aided in preparation of for various beamtimes by using proper laboratory techniques to prepare samples and diamond anvil cells (DAC), gaskets and sample holders, and powder samples for high pressure and temperature experiments
- Conducted high pressure/temperature experiments combined with in-situ x-ray diffraction at the Advanced Light Source at Berkeley National Lab
- Analyzed in-situ x-ray diffraction data to quantify changes in sample texture, stress, and other crystallographic parameters via Materials Analysis Using Diffraction software (MAUD).

Kirtlandia Taphonomy Research Intern *June 2022 – August 2022*
Cleveland Museum of Natural History, Cleveland, OH, Supervisor: Dr. Caitlin Colleary

- Analyzed biofilm growth and taphonomic processes on museum zoology specimens by creating thin sections for optical microscopy
- Created databases for existing museum zoology specimens to identify and record specimen of particular interest for analysis of biofilm growth
- Facilitated educational summer programs and museum events for children ages 5-12 to foster interest and community engagement in paleontological research

Fieldwork Experience

Southern Chilcotin Mountains, Southwestern British Columbia *June 2025 – July 2025*
Preliminary sample collection for analytical work as part of MS research project

Dinosaur National Monument, Eastern Utah *October 2024 – December 2024*
Paleontological data collection, inventory, and specimen management

White River National Forest, Colorado *May 2024 – August 2024*
Cave and karst inventory, survey, and data collection for conservation purposes

Northern Utah *August 2023*
Paleoclimate data collection in cave and karst systems

House Range, Western Utah *October 2022*
Paleontological sample collection

Community Engagement

AWG Graduate Student Mentor *October* *August 2025 - Present*
Association for Women Geoscientists, Southern Arizona Chapter, Tucson, Arizona,

- Provide guidance, advice, support and mentorship to an assigned undergraduate student as part of the AWG Mentorship Program
- Serve as an example and support system to a student early in their academic career, and provide resources for being successful in college, and in pursuing graduate school and career objectives

AWG Fundraising Cochair *September* *August 2025 - Present*
Association for Women Geoscientists, Southern Arizona Chapter, Tucson, Arizona,

- Responsible for planning, organizing, and executing fundraising events for AWG, including fundraising for scholarship opportunities

Women's Outdoor Leadership Initiative (WOLI) *December 2021 – May 2024*

- Participated in a community aimed at empowering women to gain leadership skills and confidence in the outdoors
- Contributed to planning events and workshops that forward the overall mission of the student group
- Learned and practiced new skills such as canyoneering, rock climbing, backpacking, and outdoor safety

Timpanogos Grotto *March 2023 – May 2024*

- Learned and practiced proper vertical caving techniques and safety practices
- Participated in caving trips organized for both research and recreational purposes
- Aided in data collection, such as extracting speleothem cores, within various caves for paleoclimate research

GoEco Volunteer *May 2022 – June 2022*

- Volunteered at an animal sanctuary in Puntarenas, Costa Rica through the volunteer travel program GoEco
- Aided in cleaning cages, maintaining facilities, and feeding animals while working with individuals of varying language and cultural backgrounds

Wasatch Wildlife Watch Volunteer *August 2021 – December 2021*

- Set up camera traps in various locations throughout Red Butte Canyon to monitor animal behavior and activity
- Analyzed hundreds of images to identify and tagged various species captured in the photos
- Contributed to the analysis of animal activity throughout the Salt Lake City area to determine how human

development affects various species in the Wasatch Mountains

Specialized Skills

- Scientific Writing & Communication
- Scientific Data Collection and Analysis
- Geologic Fieldwork Methods
- SfM photogrammetry and LiDAR analysis and Interpretation
- Remote Sensing Techniques
  Portable X-Ray Fluorescence Technology (pXRF) Methods
- Vertical Caving, Canyoneering & Rock Climbing
- ArcGIS Pro 3.1.0.X, and ESRI GIS Software
- Bruker S1PXRF Software
- PAST 4.12 Statistical Analysis Software
- Microsoft Office Suite
- Emlid Studio and Agisoft Metashape
- Materials Analysis Using Diffraction Software (MAUD)
- Python and R Studio
- Apatite Fission Track (AFT) analytical techniques