BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Hall, Grace Avery

eRA COMMONS USER NAME (credential, e.g., agency login): ghall03

POSITION TITLE: Graduate Researcher

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
Duke University , Durham , North Carolina	BS	05/2025	Earth and Climate Sciences

A. Personal Statement

I am an extremely hardworking and motivated student who has been engaged in research since the very beginning of my undergraduate career. Through my experiences with biology research in Dr. Xinnian Dong's lab studying plant immune response using CRISPR techniques and Dr. Rytas Vilgaly's lab contributing to their work on the Plant-Microbe Interfaces (PMI) project, which focused on illuminating genes associated with tree-ectomycorrhizal fungi symbiotic interactions, I gained a foundational understanding of approaches and techniques in biology research. I am competent in basic techniques such as collecting and preparing a wide range of biological samples, culturing microbes, running/analyzing polymerase chain reactions (PCRs), etc. However, my main research interests, which I was able to pursue under the guidance of Dr. Avner Vengosh, have been in geochemistry. In the Vengosh lab I had the opportunity to first assist with wet-lab analysis for various graduate student projects including (i) tracing the environmental contaminants in groundwaters associated with both hard rock and brine lithium resources, (ii) observing the uptake of environmental contaminants from phosphate-rock sourced fertilizers in wheat crops, and (iii) studying potential sources of lead (dust, soil, and water) in Durham homes through the Duke Superfund Project. After this initial work, I was able to pursue two independent research projects. The first project was a study of the occurrence and behavior of contaminant elements in water exposed to economically important ore rocks and culminated in my honors thesis project "The Potential Water Quality Impacts of Mining Critical Raw Materials: Comparative Analysis of Simulated Leachates of Sulfide and Laterite Ores", which included a 15-minute oral presentation and a ~10,000 word research paper. The second project is a study of the Rb/Sr ratios and Sr isotope ratios in soils and trees overlying Li-rich pegmatite deposits as a potential exploration tool for these deposits. I am currently working to finish a publication of the latter project and plan to present the work this October at GSA Connects 2025. My work in the Vengosh Lab has given me an understanding of how elements and isotopes move through the environment. It also has given me experience in (i) preparing and analyzing geologic materials for elemental compositions and isotopic ratios, (ii) designing and carrying out experimental approaches, and (iii) writing and presenting research findings. My background in both biological and geochemical research along with my solid academic record have uniquely prepared me to carry out my interdisciplinary dissertation project.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments

2025 -	Graduate Researcher, Duke University, Department Earth and Climate Sciences, Kipp Lab, Durham, NC
2025 - 2025	Teaching Assistant: ECS 204L Earth and Evolving Life, Duke University, Department of Earth and Climate Sciences, Durham, NC
2024 - 2024	Undergraduate Research Assistant , Duke University, Department of Biology, Vilglays Lab, Durham, NC
2023 - 2025	Undergraduate Research Assistant , Duke University, Department of Earth and Climate Sciences, Vengosh Lab, Durham, NC
2021 - 2023	Undergraduate Research Assistant , Duke University, Department of Biology, Dong Lab, Durham, NC

Honors

2025	Thomas V. Laska Award, Duke University, Department of Earth and Climate Sciences
2025	Graduation with Distinction, Duke University, Department of Earth and Climate Sciences
2025	Graduation Magna Cum Laude, Duke University, Trinity College of Arts and Sciences

C. Contribution to Science

N/A