Matthew Semel

Earth and Planetary Sciences, Northwestern University, Evanston, IL
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Education:

Northwestern University, Evanston, IL (2024-present)
Ph.D. Student, Earth and Planetary Sciences
Advisor: Andrew D. Jacobson

Colorado College, Colorado Springs, CO (2020-2023)
Bachelor of Arts, Geology, GPA 3.8
Thesis: Utilizing U-Pb Geochronology and Trace Element Geochemistry in Order to Determine Assimilation Sources and Trace Element Signatures in the Oasis Granite and Mojave Crustal Province, Mojave Desert, California
Advisor: Dr. Michelle Gevedon
Memberships: The Geological Society of America, American Institute of Professional Geologists

Awards:

Patricia J. Buster Research Scholarship
- Supports outstanding Colorado College students in undertaking original research in Earth Science.

Dean's list, 2022, 2023

Field and Laboratory Research Experiences:

Colorado College
Geochronology and Petrology Researcher, April 2022 - July 2023
Advisor: Dr. Michelle Gevedon
- Awarded grant for the Patricia J. Buster Research Scholarship to conduct this research.
- Utilized the SHRIMP-RG and SEM laboratories at Stanford University, and the Nevada Plasma Facility at the University of Nevada, Las Vegas.
- Analyzed isotopic and trace element compositions of autocrystic and inherited zircons from the Oasis granite and Ivanpah Mountains of the Mojave Desert, California.
- Used MATLAB, Iolite, IgPet, Adobe Illustrator, and GCDKit for chemical analysis and figure-making.
- Wrote undergraduate thesis titled: *Utilizing U-Pb Geochronology and Trace Element Geochemistry in Order to Determine Assimilation Sources and Trace Element Signatures in the Oasis Granite and Mojave Crustal Province, Mojave Desert, California.*
- Published abstract in Geological Society of America titled *U-Pb discordance modeling of Mojave Province zircon from the Ivanpah Mountains (eastern Mojave Desert, California) may record arc-related hydrothermal induced lead-loss.*

Nepal Academy of Science and Technology
Independent Water Quality Researcher, June-August 2022
Advisors: Dr. Tista Prasai, Dr. Danda Pani Adhikari, Durga Khatiwada MSc.
- Wrote report titled *Variations in the Quality of Drinking Water in Pokhara Valley Based on Land Use.*

- Designed biogeochemical study on water quality in Pokhara, Nepal to contextualize water quality with land usage.
- Established relationship with advisors at the biochemical lab at the National Academy of Science and Technology in Kathmandu, Nepal.
- Coordinated sample collection through established transects. Transported samples between Kathmandu and Pokhara.
- Analyzed water samples for pH, turbidity, conductivity, total dissolved solids, ammonia, nitrate, arsenic, chloride, iron, total hardness, calcium hardness, magnesium hardness, total alkalinity, phenolphthalein alkalinity, E. Coli, and fecal coliform.

Skills:

Laboratory: petrography, heavy liquid mineral separation, heavy accessory mineral picking, X-ray fluorescence, scanning electron microscopy, spectrophotometry, mass spectrometry, rock sawing, titrations, solution preparation, agar plate preparation,

Software: ArcGIS, IsoplotR, Microsoft Excel, Iolite, IgPet, MATLAB

Field: geologic mapping, geologic structure measurement, rock sample collection, ground water sample collection, surface water sample collection.

Publications and Abstracts:

Gevedon, M., **Semel, M**., Capaldi, T., Clemens-Knott, D., 2023, U-Pb discordance modeling of Mojave Province zircon from the Ivanpah Mountains (eastern Mojave Desert, California) may record arc-related hydrothermal induced lead-loss: Geological Society of America Abstracts with Programs, v. 55, no. 6. doi: 10.1130/abs/2023AM-395897.

Relevant Professional Experience:

Science Research Educator: Yonkers Partners in Education, November 2023 - May 2024

- Taught science research to sophomores, Juniors, and Seniors in the Yonkers public school system.
- Helped develop sound research plans for independent projects.
- Assisted in networking for students finding laboratory research opportunities.
- Developed student public speaking skills through scientific presentations and competitions.
- Aided the creation of student abstracts and papers.

Business Co-founder: Crown Fire LLC, August 2022 - August 2023

- Co-founded and operated a startup beverage business ensuring a quality product aligned with government regulations and policies.
- Established relationships and business agreements with co- manufacturers, co-packers, graphic designers, marketing specialists, and investors.
- Developed a professional network of advisors from the Food and Beverage Industry.

Dog Musher: Winterhawk Dogsled Adventures, October 2020 – May 2021

- Lead a team of 13 Alaskan huskies, responsible for feeding, training, and veterinary visits.
- Employed carpentry skills in constructing mainlines, sleds, and doghouses.

- Drove tourists in 13-passenger van through inclement weather in order to lead dogsled tours.

Wildland Firefighter FFT2: Alaska Fire Service, May 2020 – August 2020
- Served as a Type II Fire Crew member equivalent to Forestry Technician, 0462 GS-04.
- Operated and maintained Stihl MS 361 and 362 chainsaws to construct direct and indirect saw line, helicopter landing zones, and falling hazardous trees.
- Constructed and utilized hose lays in fire suppression and prescribed fire operations.

Presentations:
Thesis Presentation | "Is the Mojave Crustal Province the Assimilation Source of Proterozoic Zircon Grains in the Cretaceous Oasis Granite, Mojave Desert, CA?" *Colorado College Annual Symposium.* Colorado College. Colorado Springs, Colorado. May 2023.

Nepal Project Presentation | "A Biogeochemical Analysis of Drinking Water in Pokhara Valley, Nepal." Nepal Academy of Science and Technology. August 2022.