

Miriam Primus

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SUMMARY

Motivated structural geology master's student with experience planning and executing fieldwork, detailed geologic mapping, kinematic analysis of geologic structures, and preparation of samples for geochronologic/geochemical analysis. Experience integrating structural and geochronologic data to understand the tectonic/geologic history of a region. Working knowledge of Adobe Illustrator, ESRI ArcGIS, Rstudio, Google Earth Pro, Microsoft Office suite.

EDUCATION

Master of Science, Geoscience

Expected Summer 2025

Colorado State University, Fort Collins, Colorado

Bachelor of Arts, double major in Geology and German studies

May 2021

Whitman College, Walla Walla, WA

RESEARCH EXPERIENCE

Graduate Research Assistant

Aug 2023 - Present

Colorado State University, Advisor: John Singleton

Project: *Multiphase Deformation along the Deadman Creek thrust, Sangre de Cristo Mountains, CO*

- 1:10,000 geologic mapping of the Deadman Creek thrust area in the Sangre de Cristo Mountains in Southern Colorado to investigate the complex tectonic history of the Laramide orogeny, Rio Grande Rift extension, and related Oligocene magmatic events
- Analysis of kinematics and deformation styles of mylonites/deformed rocks, including evaluation of microstructures in thin section, Stereonet interpretations of geologic features
- Integration of EBSD analysis of recrystallized quartz and U-Pb monazite geochronology to create a structural history of the mapping area
- Interpreted preliminary structural and kinematic data, presented findings at GSA Connects 2024

NAGT (National Association of Geoscience Teachers) Intern

U.S. Geological Survey, Lakewood, CO, Mentor: Adam Hudson

May 2022 - Dec 2023

Project: *Utilizing Quaternary Geology to Reconstruct Landscape Evolution in the Western US*

- Assisted research geologists with sample preparation, clean lab chemistry, and analysis on thermal isolation mass spectrometers (TIMS) for U-series geochronology
- Preparation of samples for luminescence dating including mineral separation, chemistry treatments, and loading aliquots into OSL/IRSL readers
- Participated on field work trips in Colorado and the western U.S., collected samples, practiced geologic field skills and notetaking
- With collaborators, interpreted U-series and luminescence age data from Pleistocene deposits in the Lower Colorado River corridor and presented findings at GSA Connects 2022

TEACHING AND MENTORING EXPERIENCE

Graduate Teaching Assistant, Warner College of Natural Resources (WCNR)

Aug 2023 – May 2024

Colorado State University, Fort Collins, CO

- Taught undergraduate lab classes in physical geology and igneous and metamorphic petrology (GEOL 121 and GEOL 364)
- Graded exams and lab assignments, assisted students with assignments during office hours

- Created lab assignment answer keys and worked closely with professors to instruct students

Field Camp Teaching Assistant, WCNR
Colorado State University, Fort Collins, CO

Summer 2024

- Assisted instructing the field course by checking on students in the field and answering questions at field sites, modeling appropriate field behavior, providing geological context, and working closely with professors to grade assignments and organize travel logistics

Graduate Student Mentor, Graduate Application Assistance Program (GAAP), WCNR
Colorado State University, Fort Collins, CO

Spring 2024

- Met one-on-one with students looking to apply to CSU's geoscience graduate program
- Provided application advice regarding the application process, how to get involved with research and reach out to professors

Peer Mentor, Geosciences Peer Mentoring Program, WCNR
Colorado State University, Fort Collins, CO

Spring 2024

- Mentored undergraduate geoscience students in one-on-one meetings, provided career and graduate school advice based on prior knowledge and experience

Peer Chemistry Tutor, Academic Resource Center (ARC)

Whitman College, Walla Walla, WA

Oct 2019 – Dec 2020

- Assisted freshman and sophomore chemistry students by answering questions, talking through problems, and reviewing material before tests to improve their understanding of coursework
- Guided chemistry tutees to learning resources and encouraged time management study skills

PROFESSIONAL EXPERIENCE

Staff Geologist, Broadbent & Associates, Inc
Parker, CO

Oct 2021 - Apr 2022

- Executed fieldwork (including groundwater monitoring and sampling, Phase 1 site investigations, archeological surveying, and drilling oversight) in CO, UT, WY, NM, and NV to collect data for environmental compliance reports
- Planned and executed travel for multiple projects with different requirements, timelines, and field procedures
- Contributed to environmental compliance reports under supervision of experienced geologist and environmental planners

CONFERENCE PRESENTATIONS

Primus, M. E., Singleton, J., Broeder, H., and Malavarca, S. (2024) Multiphase deformation along the Deadman Creek thrust in the Sangre de Cristo Mountains, Colorado: Superposition of Rio Grande rift extension on Laramide contraction. Oral presentation at GSA Annual Meeting, Anaheim, CA, September 2024.

Primus, M. E., Hudson, A. M., Gray, H., House, P. K., and Crow, R. (2023) New Constraints on the Pleistocene incision and aggradation history of the Lower Colorado River from U-Th series dating of pedogenic carbonates and luminescence dating of the Chemehuevi Formation and bracketing units, Cottonwood Valley, Arizona and Nevada, USA. Poster presentation at Cordilleran Section Annual Meeting, Reno, NV, May 2023.

Primus, M. E., Hudson, A. M., House, P. K., Crow, R., and Gray, H. (2022) New constraints on the Pleistocene incision history of the Lower Colorado River from U-Th series dating of pedogenic carbonates, Cottonwood Valley, Arizona, USA. Oral presentation at GSA Annual Meeting, Denver, CO, October 2022.

COMPUTER AND PROGRAMMING SKILLS

- Working knowledge ESRI ArcGIS
- Google Earth Pro
- Adobe Illustrator
- Working knowledge of Rstudio (R programming language)
- Microsoft Office Suite
- Microsoft Windows, macOS

LABORATORY AND INSTRUMENTATION SKILLS

- Cutting billets of igneous, sedimentary, and metamorphic rocks for thin sections
- Clean chemistry techniques and lab upkeep: use of concentrated acids for sample dissolution, ion-exchange column chromatography, teflon beaker cleaning
- Mineral separation and preparation of luminescence samples: isolation of grain sizes with sieving, HCL and H₂O₂ treatments, Frantz magnetic separation, LST density separation
- Operation of thermal isolation mass spectrometry (TIMS) instruments
- Sawing, polishing, and drilling carbonate rock samples

RELEVANT COURSEWORK

- Advanced Petrology, Advanced Structural Geology, Subsurface Geophysical Mapping, Data Science Applications: Introduction to Rstudio, Creative Science Writing
- **Field Camp:** Field Geology in the Rocky Mountains, Indiana University, July 2021

LEADERSHIP

- **Events Coordinator**, Geology Graduate Student Organization, Colorado State University Geoscience Department, January 2024 – Present

HONORS AND AWARDS

Roger and LuAnne Steininger Fellowship, Colorado State University	2024
Leeds Prize for Excellence in Geology, Whitman College	2021

CERTIFICATIONS

Geologist-in-Training (GIT), State of Wyoming	2022
OSHA HAZWOPER 40-hr	2022

PROFESSIONAL MEMBERSHIPS

Geological Society of America (GSA), Student Member, 3 years

OUTSIDE INTERESTS

Swimming, gardening, trail running, international travel

