

Statement of Purpose

I am applying to the Master of Science program in Economic Geology to work on mineral resources-related research with Dr. Monecke. As a student primarily interested in hard-rock geology, the diverse research on mineral deposits Dr. Monecke conducts has motivated me to apply to this institution. My academic and personal experiences in undergraduate research and upper-level courses have helped prepare me for graduate school through the development of critical skills and exposure to various laboratory methods.

My father believed the mountains were where your sense of adventure could come alive. This belief resulted in multiple trips centered around hiking and camping in Colorado, Montana, and Alaska while I was growing up. Seeing the different minerals and rock formations in those regions facilitated my fascination with how these crystalline structures came to be. I began asking for mineral handbooks and introductory geology textbooks for birthdays and Christmas. That fascination has since blossomed into a more complex passion for understanding earth's processes. The ability to understand and predict certain things about the physical world and apply them to vital real-world questions is a dream I would like to see come to fruition throughout my career in earth sciences.

At the beginning of my undergraduate studies, I was under the impression that my interest in rocks could not lead to a career. I studied finance at the University of Arkansas and became EMT certified at my local community college, yet I could never definitively answer yes to the question: "does this make me happy?" Eventually, I took the advice of my mentors to follow what brings me joy: geology. When I began attending the University of Kansas to pursue a Bachelor of Science in geology, my uncertainty shifted to a strong drive and ambition, a shift that was most noticeable in my mineralogy class. As I gained experience in the science community through undergraduate research, field trips, upper-level courses, and discussions with Ph.D. students, my desire to contribute to earth sciences as a graduate student grew exponentially; hence my eagerness to pursue a Master of Science at the Colorado School of Mines and answer mineral resource questions.

The courses I have taken in mineralogy, geochronology, and field geology have increased my excitement for applying micro-scale observations to macro-scale problems. Learning about crystallization diagrams, measurements of radioactive decay, and how to use a Brunton all filled me with that same child-like enthusiasm from when I first started learning about minerals. A direct result of this has been my senior thesis research in sedimentology and geochronology. My thesis research focuses on utilizing cryptotephra to precisely date evaporite deposits, which I presented recently at the Geological Society of America Fall 2022 Conference. The poster entitled "*A Novel Approach to Chronostratigraphy of Evaporite Deposits using Cryptotephra*" garnered much attention for the two hours I presented. Conversing with professors and industry professionals about the implications of my project was a rewarding experience, and I was impressed by the importance of presenting my research findings succinctly.

While at the conference, I approached various graduate school tables; however, Dr. Pfaff held my attention the longest. Discussing the fieldwork involved in the research at Mines reminded me of the positive experience I received from my introductory field geology course. This program would allow me to become a part of vital research that contains extensive fieldwork while also answering critical questions on mineral resources. After GSA, I dove into the research the department has overseen. The papers on the formation of orogenic gold deposits, mineral paragenesis, and pyrite chemistry increased my excitement to join their research group. I am confident that my senior thesis research will enable me to pursue research in an area of study that captivates me while gaining valuable field experience that will help prepare me for my target career as an exploration geologist and, eventually, a professor.

As a graduate student, I plan to use the knowledge I have gained from my undergraduate research using complex U-Pb methods applied to salt deposits to transition into research on mineral resources. The upper-level classes I have taken have helped deepen my knowledge on a variety of topics as well as cultivate skills such as critical thinking. My goal for my M.S. is to leave a mark on the scientific community that either improves the current understanding of geologic processes or positively affects the world. Through my contribution to economic geology, from teaching assistant to one day becoming a professor, I believe I can beneficially represent the Colorado School of Mines by carrying its banner throughout my career.