First Name Last Name

Colorado School of Mines:
Statement of Goals

My scholastic goal is to further pursue my education with a Doctor of Philosophy degree specializing in economic geology and mineral exploration at Colorado School of Mines under Dr. Thomas Monecke. Dr. Monecke's work closely reflects the research and course work that I have enjoyed while completing my master's degree and I am excited at the possibility of being on his team.

As with many students entering college, I started at Central Washington University (CWU) unknowing to the career path I wanted to pursue. However, after taking two years of general requirements, I discovered geology. The way that both the geology department at CWU and the outside geologic community feels like a big family that works together and accepts challenges with an open mind is really why I enjoy geology so much, and wish to further my education.

By my junior year of college, I was so infatuated with geology that I began pursuing advanced electives beyond my graduation requirements. I first took an extra quarter of general chemistry in which I was able to take an American Chemical Society exam (ACS). I took this extra class to help me better relate the chemistry side of geology with my research. Other non-required electives I pursued included geodynamics, petrography and petrogenesis, and seismology. Taking these classes helped me understand different perspectives of my research and set myself up for future research projects. Furthermore, by the time I graduated, I had taken seven weeks of geologic field camp. On top of that, many of the classes I have taken, including rocks and minerals, sedimentology and stratigraphy, geodynamics, and petrography also had weekend field trips to locations all over Washington state. With all of this field experience, I feel I will be well prepared to further develop my field skills at a graduate level.

Considering how much I enjoyed my upper level geology classes, I volunteered to be an undergraduate teaching assistant for the rocks and minerals, mineralogy, and introduction to geology laboratory courses. As a teaching assistant, I attended all weekly labs, graded labs and class work, attended field trips, and provided help to students when needed. After this experience, I realized how much I enjoy teaching and helping other students. I really look forward to the opportunity of being a graduate teaching assistant and sharing my love of geology.

After completing a mineralogy in-class project on a diamondiferous gneiss from Germany, I realized how much metamorphic rocks fascinate me. My interest was initially sparked by being able to understand what a sample of rock has gone through by looking through a microscope. This initiated my undergraduate research experience in mineralogy under Dr. Chris Mattinson. When I first began my research, I picked a sample from a current master's student thesis project. The sample I chose was a kyanite eclogite from the Dulan area, in the North Qaidam UHP terrane of western China. I first began doing detailed petrography and using the bulk rock composition of my sample (using XRF) to do phase equilibria modeling using Perple_X. To further constrain the pressure-temperature path, I used previously collected Zr-in-rutile results. While doing this research, I found my love of geologic analytical experimentation, leading me to my next research adventure.

In early summer 2016, I went to Washington State University to use the electron microprobe to do major and trace element analysis for a suite of samples, including my sample. Soon after, our research group visited University of California, Santa Barbara to mount zircons and use the scanning electron microscope to take CL images of the zircons. We collected U-Pb

zircon ages and rare earth element data using laser ablation-split stream (LASS) technique. I also assisted the current master's student in analyzing the rare earth element data to determine if a certain age belongs to an inherited zircon from the protolith or to zircon that represents the high-pressure metamorphism. With this data, a specific metamorphic stage was linked to a specific age. By determining this relationship for my project sample, I was able to contribute to the formation of a spatially distributed pressure-temperature-time data set for the Dulan area for Dr. Mattinson's NSF project.

Then, in the fall of 2016, I had the opportunity to present my petrography phase equilibria modeling and mineral chemistry data at the annual Geological Society of America meeting in Denver, CO. To aid my travel to this conference, I was awarded a grant from the Office of Undergraduate Research at CWU. In May of 2017, I presented my research including the U-Pb and rare earth element data at CWU's Symposium of Undergraduate Research and Creative Expression. I presented these same results, and further conclusions of the data at the Geological Society of America 2017 meeting in Seattle, WA. By attending these meetings I gained useful feedback, inspirational ideas, and had the pleasure to network with countless leading scientists in the field.

The compilation of these educational experiences has led me to truly love the geologic field. I now wish to pursue a master's in the geological sciences because geology continually excites me. I believe attending Colorado School of Mines and studying under Dr. Palin will allow me to further expand my knowledge and excitement of metamorphic geology, and tectonics. I am particularly interested in furthering the work of Dr. Palin's projects because they tie well into the kind of research that I enjoy, and he is a well published metamorphic geologist with many fresh ideas and enthusiasm for his work. Along with this, I believe that I can bring new ideas, effective field work methods and a hard-working attitude to his research team.

By receiving a master's at a wonderful and prestigious, top-five university such as Colorado School of Mines, my dream of becoming an exploration geologist can be achieved. I truly love the mineralogical field and am excited to further my career. Colorado School of Mines will give me the tools to not only land the job, but to succeed in this field. I don't just want to be a geologist, but I want to be a geologist who makes a difference in the field of mineralogy and exploration geology through research, hard work, and excellence.

I truly believe I am ready to succeed in a master's program. My experiences as an undergraduate student have prepared me for the work and dedication. I have taken numerous upper division electives that were not required by my department. I also have pursued an undergraduate research project where my thesis is nearly finished. Also, I have experience in both applying for grants and presenting research at large conferences. Finally, and perhaps most importantly, my genuine love for the field of metamorphic geology will ultimately assist in my success. I thank you for your time. I appreciate the opportunity to be considered to be a member of a competitive program such as the geology department at Colorado School of Mines.