Constraining rates of magmatic processes that occur prior to eruption is integral to understanding magma accumulation, residence time, and eruption-triggering mechanisms; which ultimately lead to predictive modeling and forecasting for devastating volcanic eruptions. Chevkinite (REE-Ti silicate) may provide unique insight into silicic magma dynamics because it saturates late and records magma compositions in its chemistry (Vlach and Gualda, 2007). Thus, chevkinite geochronology may be used to directly date magma evolution. My study will develop chevkinite as a high-precision geochronometer and test the hypothesis that chevkinite petrochronology can constrain rates of magmatic processes that occur on short timescales prior to eruption. I will test my hypothesis by analyzing chevkinite grains from the Mesa Falls tuff, Huckleberry Ridge tuff, and Apache Leap tuff, and comparing my results to well-constrained zircon U-Pb crystallization and sanidine Ar-Ar eruption ages for these units.