Mount Holyoke College offers a project-based course dedicated to preparing students for academic and industry research in the mathematical sciences. Groups of students are prompted to explore, make conjectures, gather computational evidence, and find proofs. As the semester progresses, they are expected to take on gradually larger roles in steering this process. They are evaluated primarily by the papers they write at the end of each project. Some projects have also included presentations at local conferences and 3D printed mathematical art. In this talk, I will share some insights from teaching this unusual and exciting course. (Received September 25, 2018)