



**College of Liberal Arts and Sciences
Fall 2020 Chemistry Seminar Series
Friday, November 6th**

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**Short and longterm effects of POGIL in large enrollment
General Chemistry course**

Increasing the persistence of college students in STEM, especially those who belong to marginalized populations, is one of the biggest challenges in higher education (Graham et al., 2013). Active learning is a form of learning that diverts from traditional lecture i.e., passive listening, and has been shown to increase student's performance in college STEM courses (Freeman et al., 2014). Active learning has been shown to support students who come from less advantaged high-schools (Haak et al., 2011), improve retention (Sandra et al., 2014), and improve women's success in male dominated classes (Kogan and Laursen, 2014). However, there is very little research focused on how and why active learning supports these positive outcomes. While currently we can design successful active learning techniques, we could make them even better by targeting the characteristics of active learning that we know support success. That is why is very important to develop a deep understanding of the mechanisms of how and why active learning aids in student success, especially for those that belong to marginalized populations.

This talk will focus on an active learning intervention across four large-enrollment sections of General Chemistry I at a public university. As a post-test to compare outcomes of these sections in contrast to sections that were taught in a traditional lecture format, we collected data at the beginning of General Chemistry II the following semester. Students showed significantly higher chemistry identity and chemistry competency beliefs when compared to their peers, even when controlling for incoming characteristics such as SAT and high school GPA. Furthermore, regression analyses showed that these changes in attitudes could be attributed to student's perceived success and engagement during active learning activities. Difficulties associated with the implementation as well as effects on marginalized populations will be addressed.