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Strategies for Promoting Student Success and Equity in a Large Enrollment STEM Course

ABSTRACT:

General Chemistry I at Indiana University can be an overwhelming experience for new college students due to the rigorous content and large class size (~700 students). Evidence-based methods for increasing student success such as active engagement, multiple opportunities to demonstrate mastery, and development of connections with peers and instructors are challenging to implement with large numbers of students. In Fall 2021, the course was revised to incorporate more effective pedagogical methods. The amount of active learning in the course was increased through a combination of interactive lectures, “flipped” classroom sessions, and small-group problem solving activities. A large teaching team consisting of graduate students and undergraduate teaching interns was utilized to promote effective facilitation of these sessions. Multiple assessment opportunities in the form of exam retakes were provided to instill growth mindset and allow students to learn from their mistakes. The effect of these changes in course structure on student success, equity, and sense of belonging will be discussed.

BIO:

Jill Robinson came to Indiana University in 2002 and is a Senior Lecturer. She has a B.S. in Chemistry from Truman State University and a Ph.D. in Analytical and Atmospheric chemistry from the University of Colorado -Boulder. Her graduate research with Professor John Birks and Professor Kathy Rowlen involved the development of a portable chemiluminescence instrument for measuring nitric oxide (NO) in the atmosphere and human breath. The instrument was patented for use in asthma clinics as a tool to evaluate the effectiveness of asthma medications. She teaches courses in general, analytical, and environmental chemistry and has been honored with several teaching awards including the President's Award for Distinguished Teaching at Indiana University.