**Title:** Reading analytics when using an interactive textbook

**Speaker:** Matthew Liberatore, Department of Chemical Engineering, University of Toledo

Data are collected daily to test hypotheses. This talk’s hypothesis is that students read textbooks. A brief literature review identifying data related to undergraduate students’ textbook reading rates will frame the talk. Educational technology is changing rapidly to engage 21st century university students, who are digital natives having grown up using computers, personalized electronics, and multi-sensory interfaces. Textbooks are also experiencing a 21st century makeover to leverage technology. The utility of textbooks is a common discussion topic, which may be due to the wordy and static nature, availability of solutions manuals, or high and rising cost. Here, an interactive, web-native textbook for a material and energy balances course has been created by the speaker to introduce students to chemical engineering and its fundamental concepts. In addition to a lower cost than traditional textbooks, several unique features distinguish the interactive book. Short sections of text are enhanced with question sets, animations, and auto-graded, personalized challenge activities. Students receive feedback in real time and accumulate reading and challenge activity scores. Feedback is provided to the instructor that quantifies student engagement and progress. Copious data, including student reading rates, will be presented to prove or disprove the talk’s hypothesis.

Matthew W. Liberatore is a Professor in the Department of Chemical Engineering at the University of Toledo. He earned a B.S. degree from the University of Illinois at Chicago and M.S. and Ph.D. degrees from the University of Illinois at Urbana-Champaign, all in chemical engineering. From 2005 to 2015, he served on the faculty at the Colorado School of Mines. His current research involves the rheology of complex fluids especially traditional and renewable energy fluids and materials, polymers, and colloids. His teaching interests include developing problems from YouTube videos, active learning, and interactive textbooks. His interactive textbook for Material and Energy Balances is available from [zyBooks](http://www.zybooks.com/catalog/material-and-energy-balances/).

