

You are cordially invited to attend

Wednesday, November 14, 2018

12:00 - 1:30 pm

133F Erickson Hall

Michigan State University

(Light refreshments provided)

Kevin Haudek

Assistant professor, Biochemistry & Molecular Biology and
CREATE for STEM Institute, Michigan State University

Using Automated Analysis to Reveal Student Thinking in STEM

Abstract:

In the Automated Analysis of Constructed Response (AACR) Research Group, we develop constructed response assessment items and associated predictive machine learning models that allow formative evaluation of student writing. These models are particularly informative for revealing prevalent student ideas in large-enrollment, introductory STEM courses. We employ a mixed-methods approach to develop these questions and analytic tools, which reveal a rich and complex picture of student thinking about important disciplinary ideas across biology, statistics and chemistry. Recently, our group launched projects that develop assessment items aligned with learning progressions in physiology for undergraduates and scientific argumentation for middle school students. We have also begun to explore for possible interactions between predictive scoring models and responses from English language learner middle school students.

This talk will provide a brief overview of the methodology we employ to develop automated predictive scoring models, examples of developed items, and our attempts to summarize and report this rich information to college faculty. Additionally, this talk will report on recent projects aimed at adapting these approaches to learning progressions.



Kevin Haudek is an assistant professor in the Biochemistry and Molecular Biology department at Michigan State and engages in discipline-based education research (DBER). His research interests focus on uncovering student thinking about key concepts in biology using formative assessments. He is currently leading projects associated with the Automated Analysis of Constructed Response (AACR) group, which conducts this research and development of such tools. Kevin earned his Ph.D. in Biochemistry at MSU, then transitioned into undergraduate science education research for his postdoctoral studies and became engaged in DBER.

This speaker is part of the **CREATE Seminar Series**.

For more information, please visit
<http://create4stem.msu.edu/seminar-series>



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