



Instructional Division Seminar

Prof. Melanie M. Cooper

Department of Chemistry
Michigan State University



Evidence-Based Approaches to Curriculum Reform and Assessment

There is now a fairly large body of work from the learning sciences providing us with insights into how people learn; and from Discipline Based Education Research (DBER) we know what discipline-specific difficulties students face. However, it is quite surprising that relatively little of this understanding has made its way into the design of science and engineering curricula offered at most colleges and universities. While there is much discussion of evidence based reform, most of these efforts are focused on incorporating pedagogical techniques, rather than redesigning the curriculum and the concomitant assessments of student learning in light of evidence from research. This presentation will focus on the need for evidence based curriculum reform, the research findings that can guide such reforms, and how we might assess the results of these reforms. Examples of curriculum reform efforts and assessment strategies will be presented and will include: a new general chemistry curriculum, "Chemistry, Life, the Universe and Everything", approaches to systemic reform that focus on core ideas, scientific practices and cross-cutting concepts, and approaches to the design of assessments that elicit evidence of student use of their knowledge.

Results of such transformation efforts indicate that students who participate in such transformed courses have a more robust understanding of important chemistry concepts such as the causes and consequences of intermolecular forces, structure property relationships, and acid-base chemistry.

Tuesday, May 16, 2017

4:00 P.M.

2033 Young Hall