

You are cordially invited to attend
Wednesday, September 19, 2018
12:00 pm - 1:30 pm
133F Erickson Hall
Michigan State University

Extending a Coherent Gateway to STEM Teaching and Learning

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Abstract:

In 2013 MSU was awarded one of eight grants, from the Association of American Universities (AAU), that were intended to catalyze transformation in STEM education at research universities. This project, "Creating a Coherent Gateway to STEM Teaching and Learning," focused on the gateway courses in biology, chemistry and physics because of their pivotal role in retention of students in STEM. Our goal was to use three-dimensional learning (3DL), a vision originally laid out by the Framework for K-12 Science Education, as a common framework around which transformation would be focused. The project involved efforts both to 1) support and inform faculty about how 3DL operates and could transform their teaching and learning and 2) develop approaches to assess the extent of the transformation.

Faculty support took the form of discussions within disciplines to identify a set of core ideas, workshops to support 3DL, and the development of a STEM Gateway Fellows program for faculty who teach in gateway STEM courses. Assessment of the extent of transformation involves several on-going threads. Perhaps the most revealing at this stage is the evaluation of course assessment items to identify the extent to which 3DL items are used. After all, if a course is transformed but the assessments stay the same, what has been accomplished? To do this, we developed the Three-Dimensional Learning Assessment Protocol (3D-LAP), which provides criteria to characterize the extent to which items elicit understanding of the three dimensions. We are currently working on the analogous Three-Dimensional Learning Observation Protocol (3D-LOP) that will help characterize opportunities for students to engage with the three dimensions during class meetings.

In this presentation we will discuss the rationale and theoretical basis for the transformation, provide examples of transformed materials and learning activities, and show the results of four years of transformation across three disciplines.

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

For more information, please visit

<http://create4stem.msu.edu/seminar-series>



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