This lecture will describe the methods we use to transform our traditional, kilostudent classroom into a modern-day learning environment. Formal instruction emphasizes rote learning and algorithmic problem solving though these tasks are better done by machines than by humans. Since knowing the solution to a problem is less important than knowing how to solve a problem, we have restructured our large, instructor-centered lecture into an open, student-centered problem-solving forum. Here, instructors serve the role of coaches preparing students to learn on their own and become better equipped to tackle the complex problems of 21st-century science and medicine.

Objectives:
- To improve student confidence
- To regularly engage students in intense thought
- To sharpen students’ skills in filtering irrelevant information
- To train students to accept and manage intellectual risks
- To improve students’ ability to deal with ambiguity
- To help learn to persevere and grow from daily setbacks

The most important finding is the positive outcome from a semester-long group project that puts students’ knowledge into action by communicating a molecular mode of action exhibited in a compound of interest. The talk will conclude with ongoing future activities aimed at personalizing undergraduate instruction as a means to promote curiosity-driven learning.