

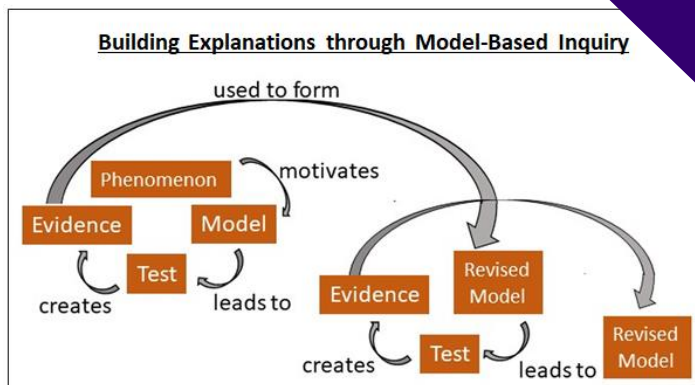
Biology Seminar

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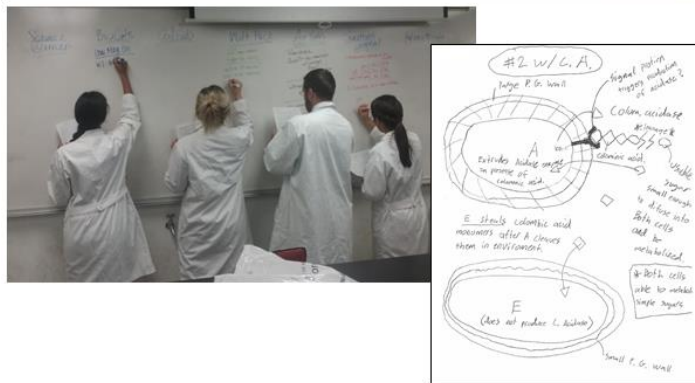
<https://mcb.arizona.edu/profile/susan-hester>

Bringing Science Practices to the Laboratory Classroom: Authentic Inquiry through Modeling in Biology (AIM-Bio)



Monday, January 13, 2020 | 12:00pm
HCK 132 Refreshments at 11:45am

Laboratory courses provide a unique opportunity to introduce students to what it means to “do science.” Laboratory course activities, however, are often misaligned with authentic scientific thinking and practices. Designing curricula that engage students in authentic scientific practices is challenging, particularly when per-student resources are limited, such as at large public universities. To meet this challenge, we have developed, taught and assessed a model-based inquiry laboratory curriculum, Authentic Inquiry through Modeling in Biology (AIM-Bio). In AIM-Bio, students observe novel (to them) biological phenomena and work



to generate data-driven, biologically-plausible explanations for those phenomena through cycles of model creation, testing and revision. Using a combination of surveys, assessments, interviews and copies of student work, we have demonstrated that participation in AIM-Bio has positive impacts on students’ agency and identity as scientists, their understanding of the nature of science, and their development of authentic scientific skills. Recent data also suggest that AIM-Bio may increase students’ likelihood to persist in STEM majors. In this seminar, I will introduce the AIM-Bio curriculum with design principles and curricular examples, and present evidence of positive student outcomes. I will also present evidence of students’ engagement in authentic scientific practices from in-laboratory audio recordings of student groups.