



Please help CREATE for STEM welcome

**Dr. Ryan Stowe**

Assistant Professor of Chemistry, University of Wisconsin-Madison

**Wednesday, March 19, 2025, 12:00-1:00PM**

## CREATE Seminar space, Suite 115

If joining via Zoom, registration is required:

[https://msu.zoom.us/webinar/register/WN\\_w36RK10cQAqHlxq6T9jRBg](https://msu.zoom.us/webinar/register/WN_w36RK10cQAqHlxq6T9jRBg)

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*\*Light refreshments will be provided for in-person attendees; we would love to see you !*

## Chemistry for whom and for what purpose?



### Abstract:

There is a long tradition in chemistry education scholarship (including our work) of assuming there is inherent value in students mimicking the practices of professional scientists. For example, one might claim that student groups who construct more “expert-like” explanations or models for phenomena are being better prepared for post-school life than students whose knowledge products align less-well with canon. I will present several recent studies that demonstrate we (as a community) know how to prepare students to construct explanations, models, etc. that look like what a scientist might draw or write. If we coherently emphasize and reward the use of big ideas (e.g., energy, bonding interactions) to explain/model phenomena, students tend to be better able to do these sorts of things. However, our field has almost entirely ignored why students are explaining or modeling. This is problematic due to evidence that, for students to see ways of knowing and learning emphasized in-class as useful in-life, they must (tacitly) see school tasks as contiguous with life tasks. I will present some evidence that, even in a class that emphasizes mimicking scientific practice, the goals guiding students’ knowledge construction are unlikely to be useful beyond the classroom. I will then argue that a wholesale overhaul of curricula and assessments is likely needed if we truly want students to use knowledge and practices cultivated in-class in their post-school daily lives.

### Biographical Info:

Ryan earned his Ph.D. from Scripps Research under the guidance of Prof. William Roush. While enrolled in graduate school, Ryan was appointed a Christine Mirzayan Science and Technology Policy Fellow with the Board on Science Education at the National Academy of Sciences. Post-Ph.D., Ryan spent 3 years as a postdoctoral fellow mentored by Prof. Melanie Cooper. His postdoctoral work focused on supporting student engagement in expert-like epistemic practices.

Ryan and his research group work to understand what would be required for chemistry classes to prepare students for their post-school daily lives. This agenda is multi-faceted and requires attending to how people and communities use chemistry in daily life, considering how (or whether) knowing and learning in-class resembles knowing and learning in-life, and de-settling taken-for-granted assumptions about what chemistry learning could and should look like.

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