

Enhancing Learning by Promoting and Assessing More than Content Knowledge

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Skills such as communication, teamwork, critical thinking, and problem solving are frequently cited as intended learning outcomes for STEM degree programs. While these skills, sometimes referred to as workplace or process skills, are highly valued, they are rarely explicitly assessed in the classroom. Assessment serves two purposes: (1) it provides a measure of achievement, and (2) it facilitates learning. The types of assessment used by an instructor also telegraphs to students what is valued in a course. However, in many instances, the lack of alignment between instructional methods and assessment detracts from the added value of engaged student learning environments. This NSF IUSE project focuses on the development and implementation of rubrics that facilitate providing feedback to students and informing the instructor as to the effectiveness of their instructional strategies in supporting process skill development. Implementation of the rubrics provides a means to better align intended outcomes with instructional activities and supports adoption of evidence-based active learning strategies that foster skill development in addition to content knowledge.



Professor Renée Cole earned a PhD in Physical Chemistry from the University of Oklahoma and joined the Department of Chemistry faculty at the University of Iowa in 2011. The focus of her research is in the area of chemical education, as well as STEM education more broadly. Professor Cole is the Principal Investigator for a number of NSF-funded projects such as the Increase the Impact Project, which developed resources to improve the propagation of educational innovations; the ELIPSS Project, which is developing resources to assess transferable skills in the classroom; and other projects related to institutional transformation of instruction in STEM.



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