

From Promise to Practice: What We Know About Specifications Grading in Chemistry

Fall 2026 Seminar Series



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EVENT INFO

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Room 105 &
Zoom**

Specifications grading gained rapid traction in chemistry, promising clearer expectations, greater flexibility, mastery-oriented assessment, more useful feedback, reduced anxiety, and more equitable outcomes. Yet, its adoption has outpaced empirical evidence of its effectiveness. This talk synthesizes our research examining why chemistry instructors adopt specifications grading and the extent to which its anticipated benefits are realized in practice. Drawing on instructor interviews, instrument-development studies, institutional comparisons in high-enrollment general and organic chemistry courses, and a national study spanning 15 courses, five institutions, and 6,451 students, we examine instructor motivations, student perceptions, grade outcomes and opportunity gaps, and changes in academic motivation. The findings reveal a nuanced account: instructors value the flexibility, emphasis on mastery, transparency, and feedback; students often perceive clearer expectations and more useful feedback; and specifications-graded courses are frequently associated with higher grades across student groups. Nevertheless, benefits are not uniform: opportunity gaps persist, motivation shows little differential change, and student experiences vary substantially across implementations. These findings shift the conversation from whether specifications grading “works” to how its design and implementation shape outcomes, for whom, and under what conditions.

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