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Particle Focus in Prep Chem

WVU students who do not meet the pre-requisites for first semester general chemistry (Chem 115) are placed in prep chem (Chem 110). A minimum grade of C- in Chem 110 is the effective pre-requisite to Chem 115. For decades, an expectation that the same collection of assessments would be administered to all Chem 110 students obligated our instructors were to follow a relatively uniform course presentation across all sections. This practice was justified by our data that indicated Chem 110 “graduates” passed first semester general chemistry at the same rate as those entering directly. Unfortunately, the Chem 110 pass rate was consistently low. In an effort to boost prep chem student success, we developed an alternative prep chem course pedagogy. This course possesses a strong focus on presenting and testing students’ understanding of the particulate nature of matter. Our premise was that particulate understanding was a more meaningful focus to carry forward to future chemistry courses than our prior emphasis on significant figures. The content was reduced and new assessment questions were written to target and test a single topic at a time. Graduate and undergraduate teaching assistants facilitated in-class problem-solving using both Socratic and Chem101 online platforms. We report on initial prep chem class data in the preparatory chemistry course and student success in the subsequent first-semester general chemistry course.

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