Enhancing Student Success in Organic Chemistry: An Intervention to Reduce DEW Rates

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Background and Introduction

- CHM2200 is a non-science major course that covers content from both Organic Chemistry 1 and 2.
- Typically offered once a year in the spring semester; it was last offered in the fall.
- Designed for non-science majors who have successfully completed General Chemistry I and 2.
- Offered MWF Period 2 (enrollment between 30-60 students)
- FA24 grade based on 100% exams / SP25 80% exams/ 20% quizzes/HW/PLA

❖I aim to reduce the DEW rate from the fall (40%) and to increase student learning and improve content retention

Data

	FA24	SP25
# of students enrolled	34	55
# of students graded	23	
DEW	40%	
Final grades	A: 7; B:10; C: 4; D: 2	
Exam 1 avg	66.4%	86.8%
Exam 2 avg	68.1%	76.8%
Exam 3 avg	66.7%	64.1% (exam was more complex)
Final Exam	74.6%	

Strategies Employed

- ❖Pre-lecture assignments to prepare students for class, including JoVE videos and short videos created by the instructor
- ❖Chapter-based homework assignments to reinforce key concepts
- ❖Quizzes for each chapter to assess understanding and encourage consistent study habits
- ❖iClicker questions during class to promote engagement and active participation
- ❖Two undergraduate teaching assistants (TAs) in class to support students with iClicker questions—one TA recently completed the course and also holds student hours immediately after class
- ❖One graduate TA who teaches the lab component and attends lectures to assist with in-class support, including iClicker activities

Results

Student performance improved on the first two exams with the implemented strategies, but not on the third exam. This may be due to the increased difficulty of the third exam, which included more organic synthesis content compared to the fall semester. Final insights are pending as we await the end-of-semester results.

I strongly believe that consistent, daily engagement with course material is more effective for student learning than cramming right before exams.

If given the opportunity to teach this course again, I plan to expand the use of short instructional videos to further support the flipped classroom model and encourage meaningful preparation outside of class. Students demonstrate improved performance when they engage regularly with course material. To support reluctant or less motivated learners, incorporating mandatory low-stakes assignments can help ensure consistent interaction and promote deeper understanding.