



Enhancing engagement in pharmacology through flipped learning: A mixed approach to active learning

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Teaching for Active Learning (TAL2025)

Pharmacology E2024

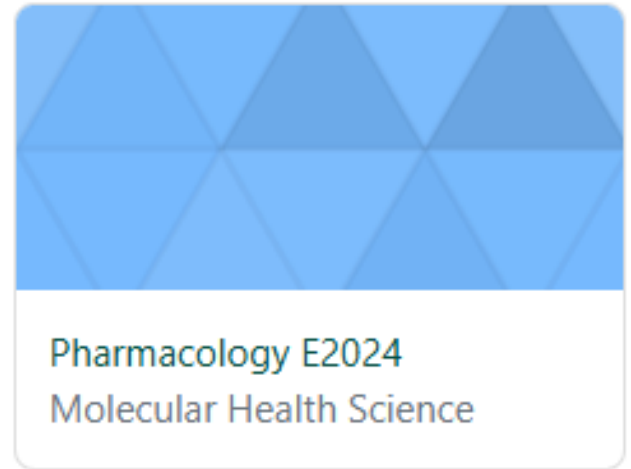
Molecular Health Science



Pharmacology courses are typically content-heavy and lecture-based. Students often rely on surface learning and rote memorization.



The **goal of this project** was to promote deeper learning and engagement through flipped learning.



Objectives

Implement

Implement flipped learning activities in a pharmacology master's course.

Combine

Combine pre-class, in-class, and post-class components.

Evaluate

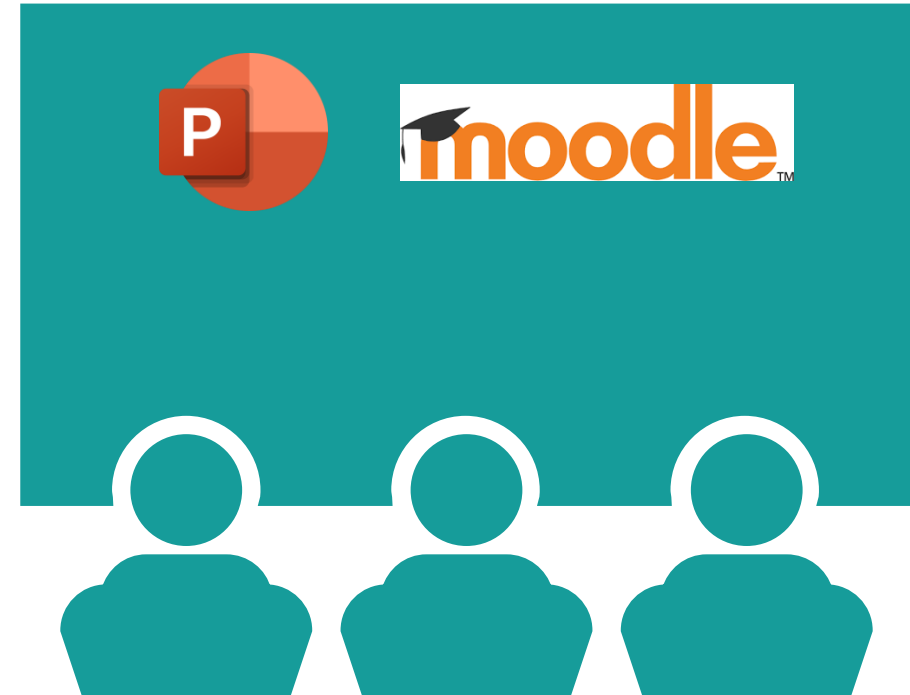
Evaluate engagement, feedback and exam performance compared to previous years.

Flipped learning design

Pre-class: Narrated PowerPoints and Moodle quizzes.

In-class: Team-based activities.

Post-class: Feedback questionnaire.



Student participation

Engagement varied but was overall positive.

Session 1

13 November 2024

Pre-class quiz participants: 28 students

In-class attendance: 24 students

Average quiz scores: 7.3 out of 10

Session 2

20 November 2024

Pre-class quiz participants: 17 students

In-class attendance: 13 students

Average quiz scores: 6.9 out of 10

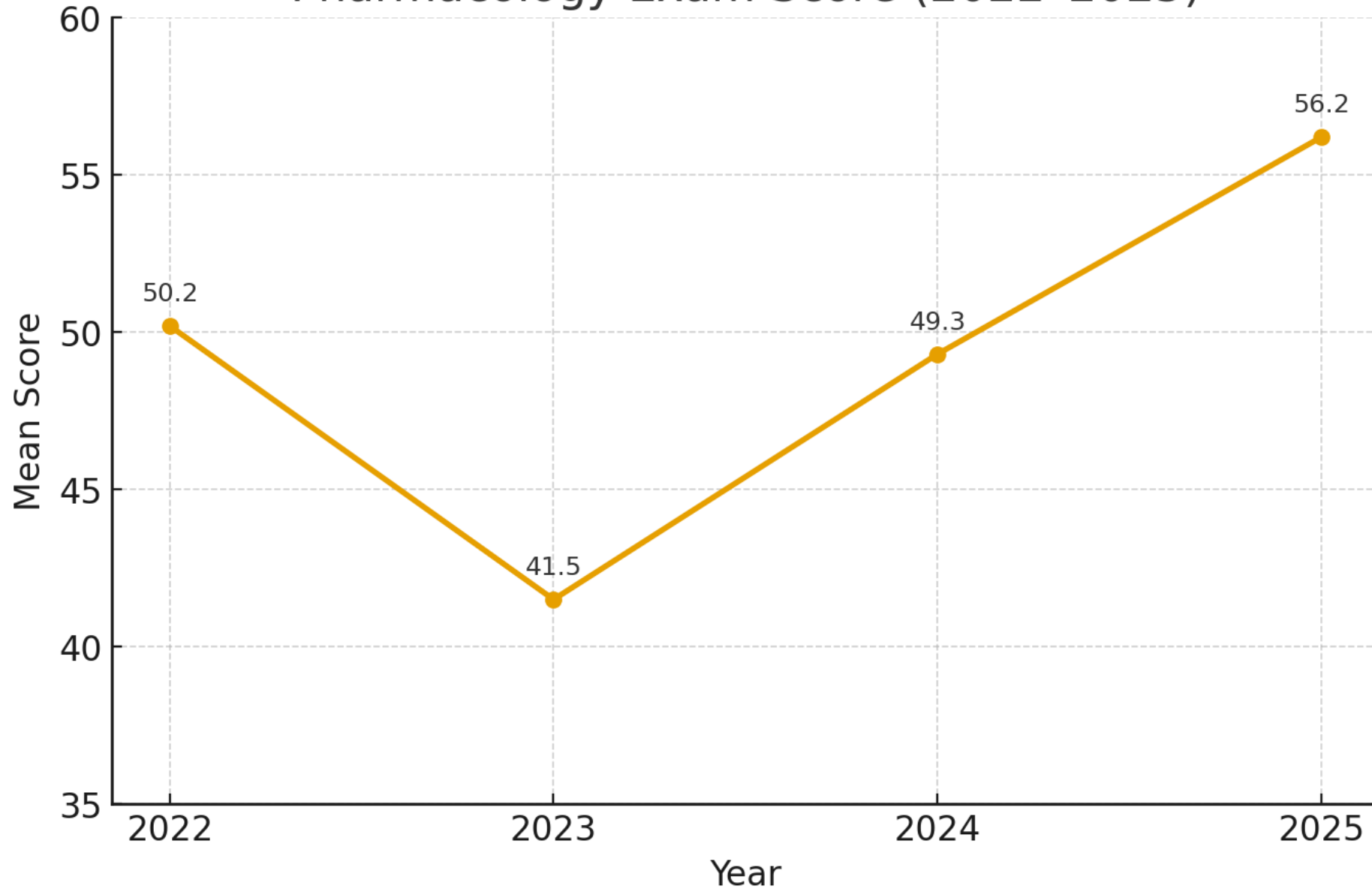
Student feedback

82–91% found
pre-class
materials useful.

82% rated in-
class activities
positively.

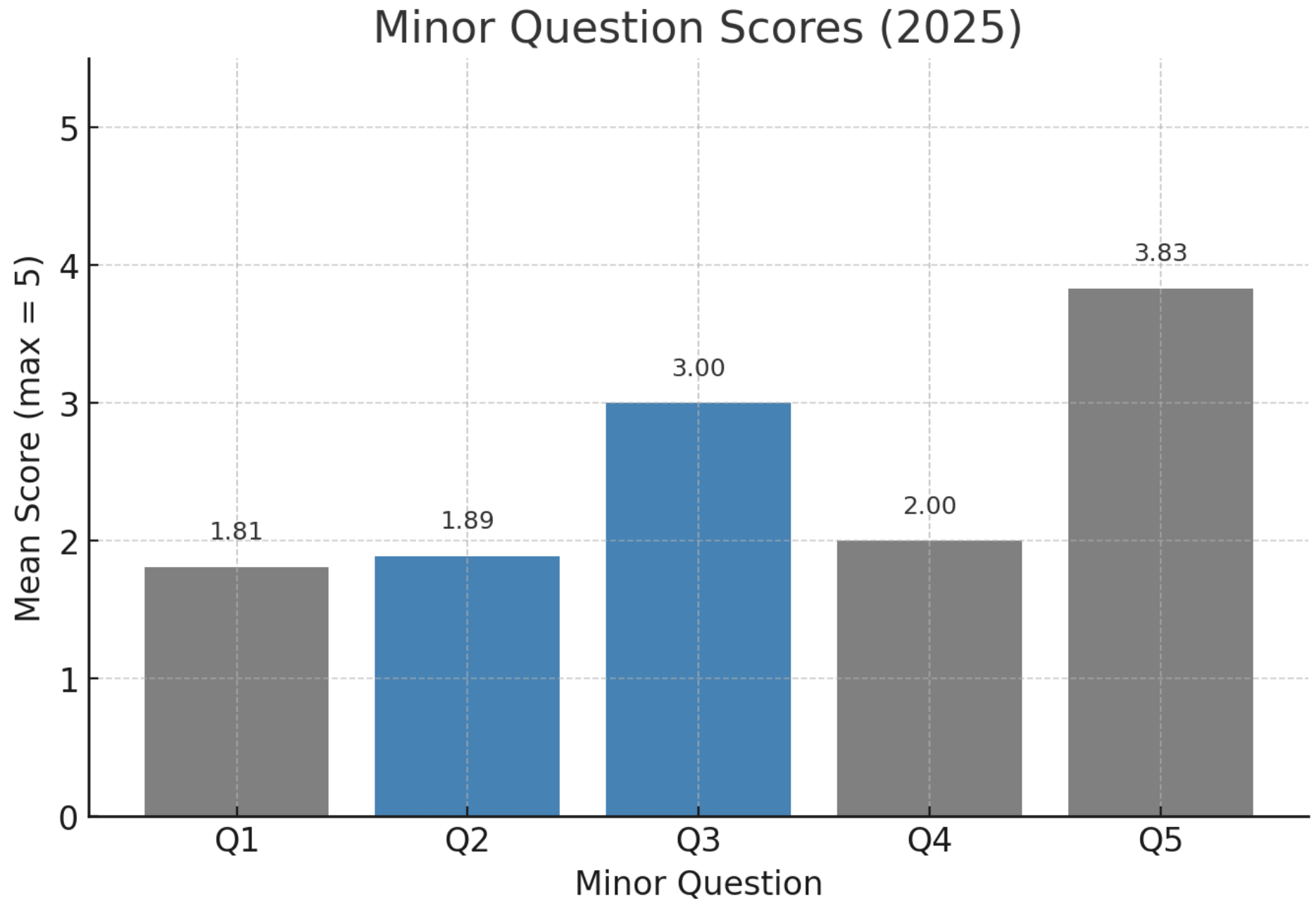
69–82%
preferred a mixed
approach (flipped
+ traditional).

Pharmacology Exam Score (2022-2025)



**Exam
results**

Exam results



Lessons learned and future plans



A few flipped learning sessions have been successfully introduced in a pharmacology course and they are easily adaptable to other content-heavy courses.



Students valued flexibility and the mixed approach (lecture + active learning).



Future plans include refine activities, improve participation and expand flipped elements.



Acknowledgments

Thanks to participating students and collaborators.