Outline

Outside of Class

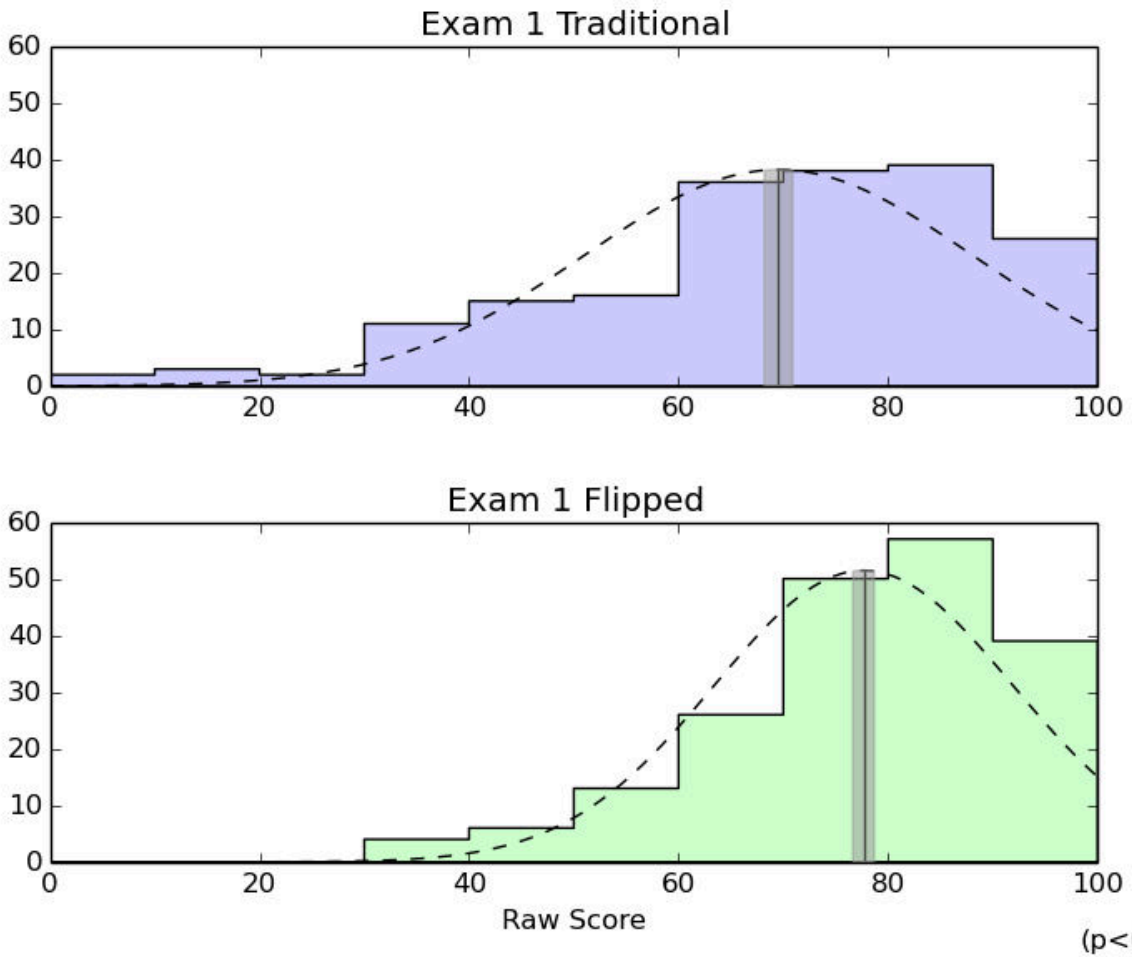
- Read assigned material from the textbook
- Watch video lectures (~2 hr per week)
- Take a short concept quiz
- Complete weekly homework

In Class

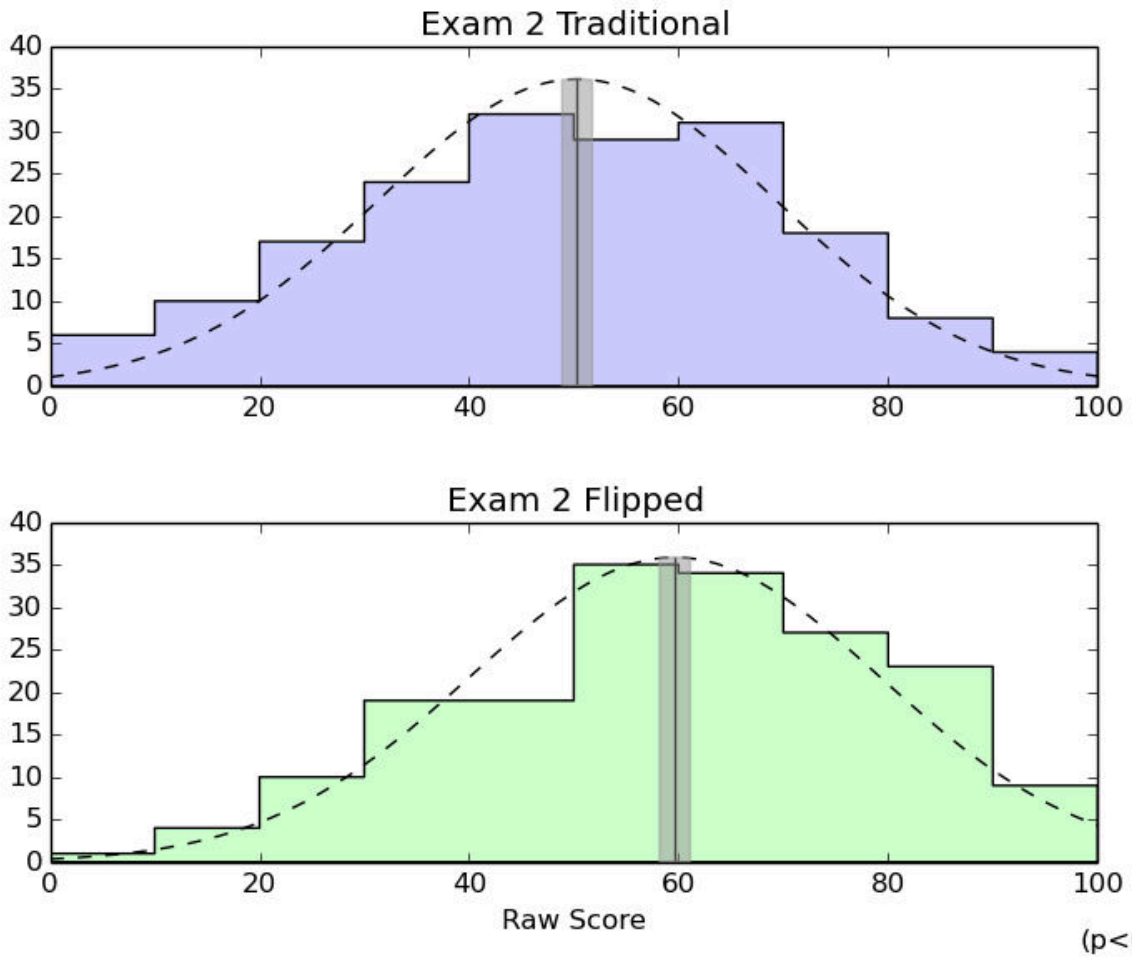
- Review material based on results of concept quiz
- Use demonstrations and clicker questions to reinforce concepts
- Practice problem solving
- Complete a ~weekly concept-rich group problem

Outline

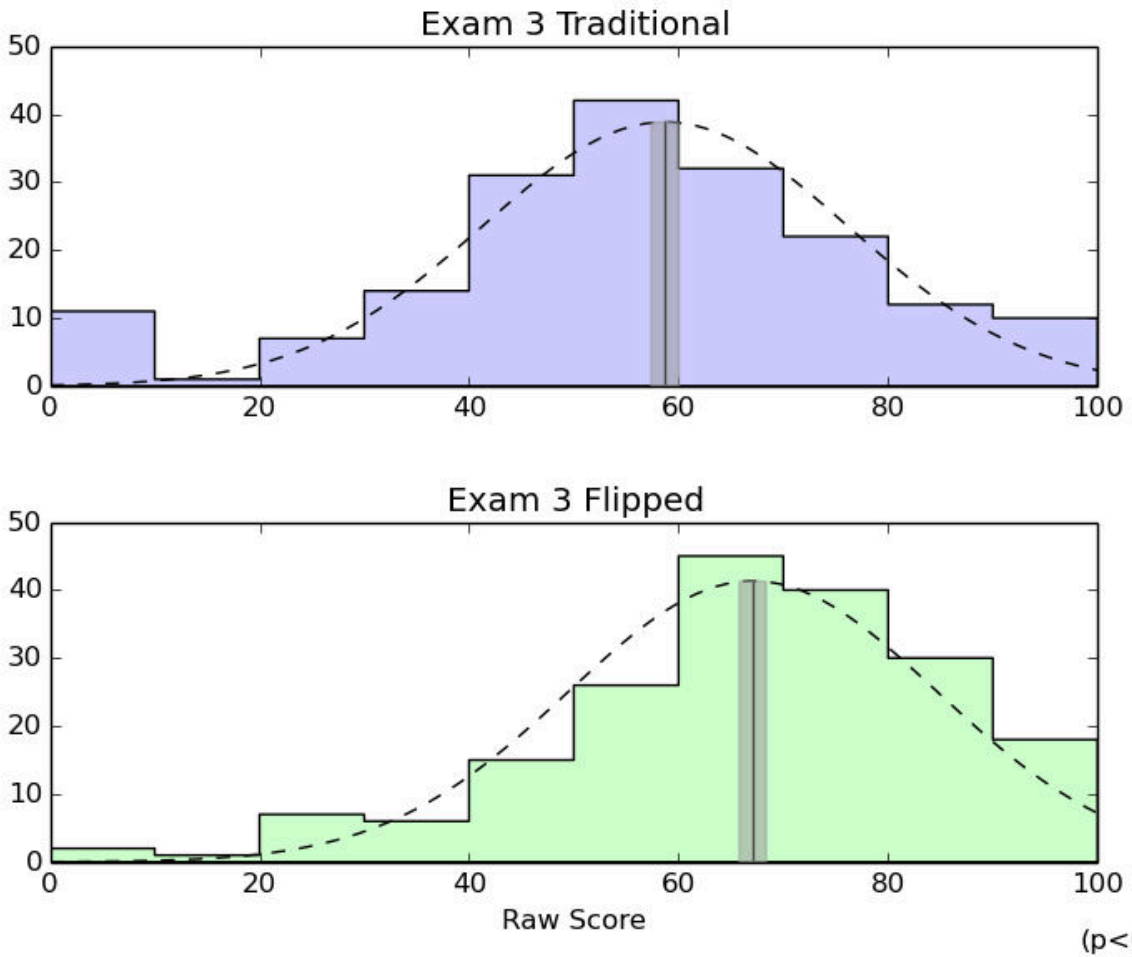
Exam 1 (Vectors, Kinematics, and Forces)



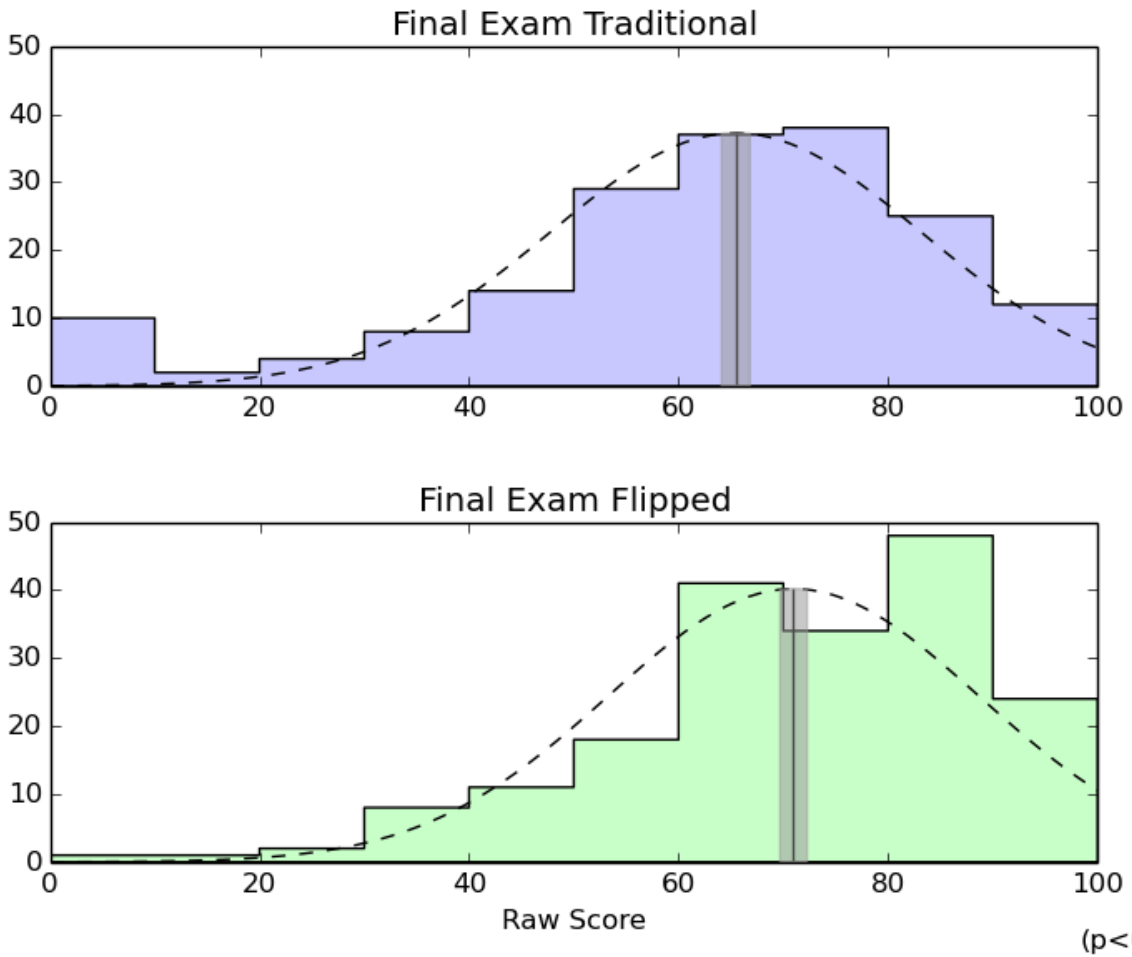
Exam 2 (Energy, Momentum, and Rotation)



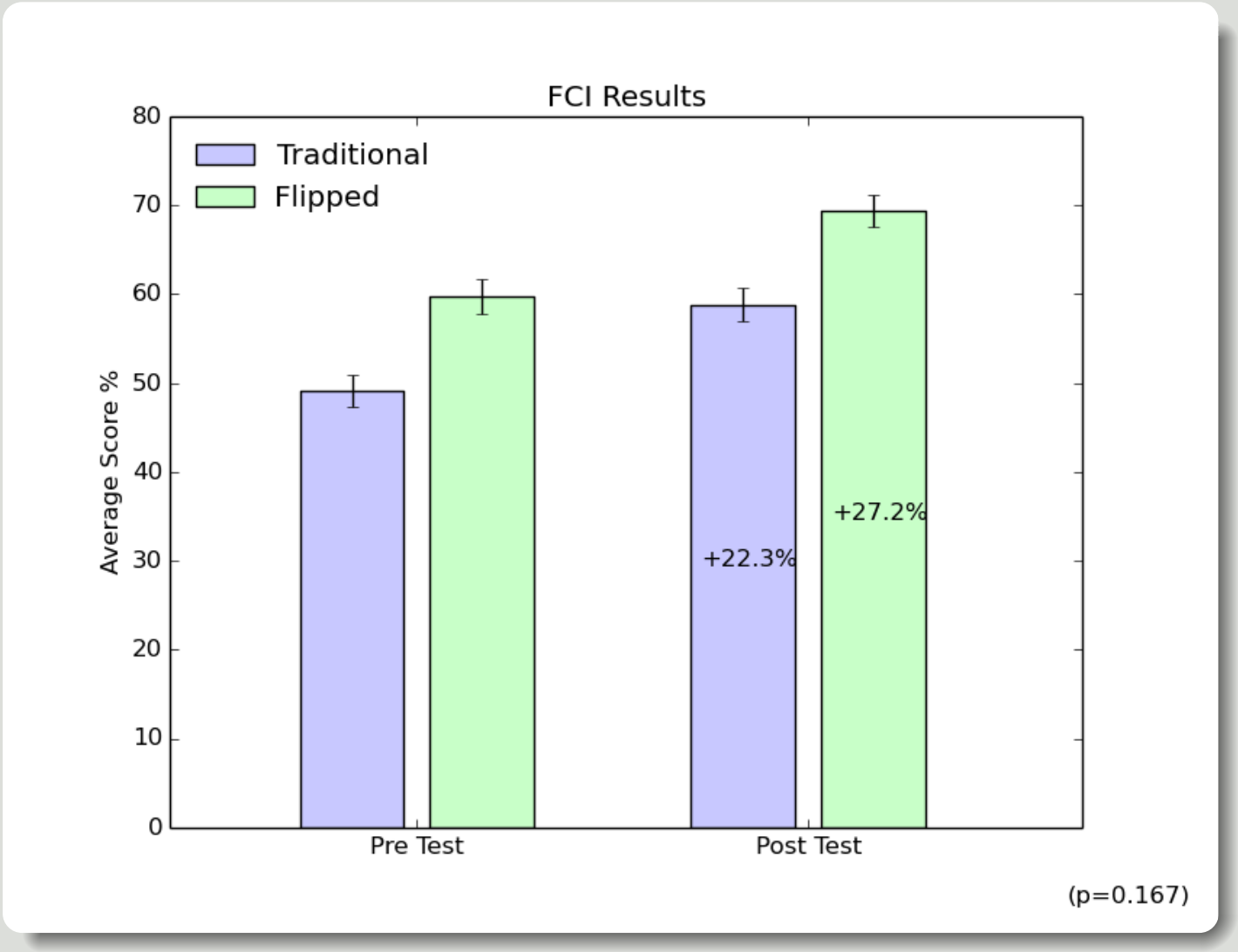
Exam 3 (Equilibrium, Oscillations, and Waves)



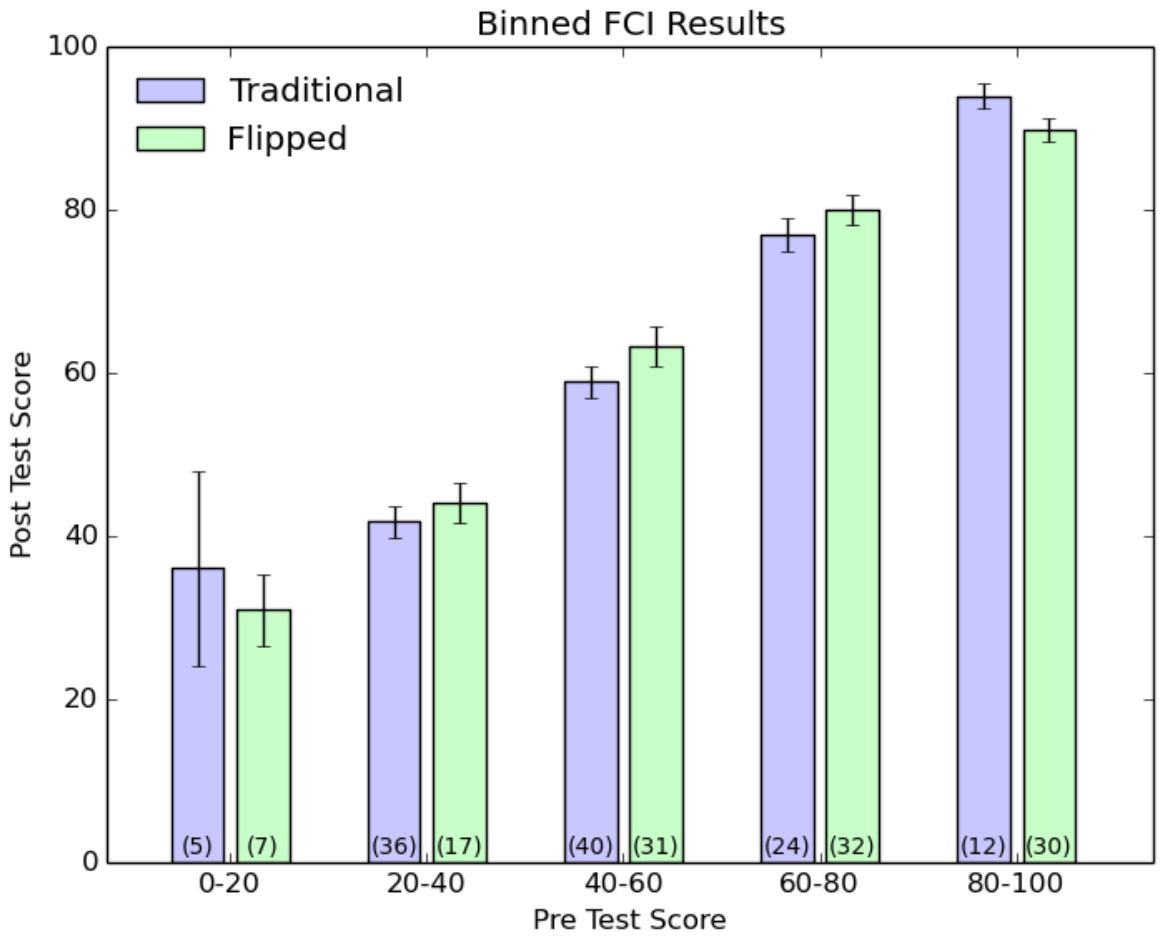
Final Exam (Everything Previous + Thermodynamics)



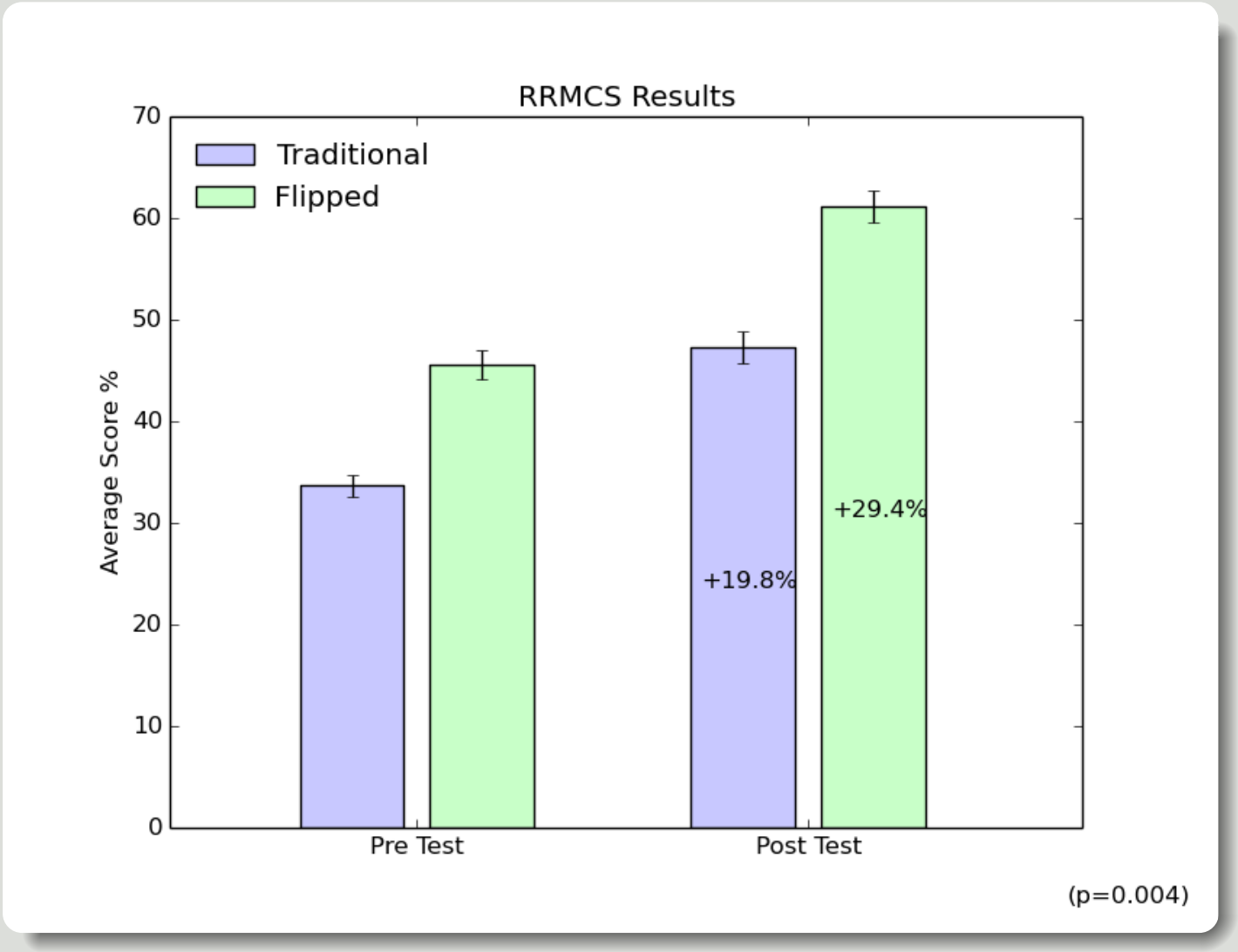
FCI (Force Concepts)



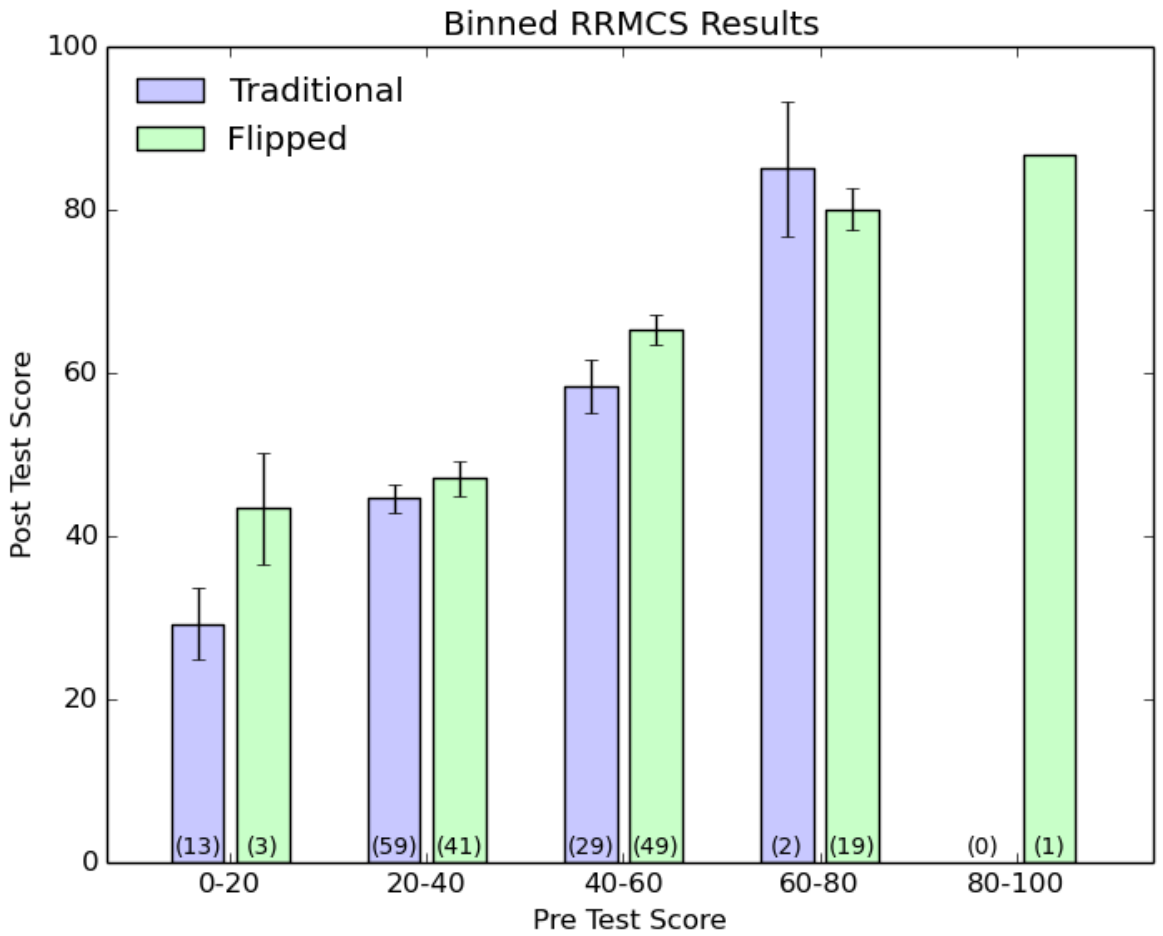
FCI (Force Concepts, Binned by Pre-Score)



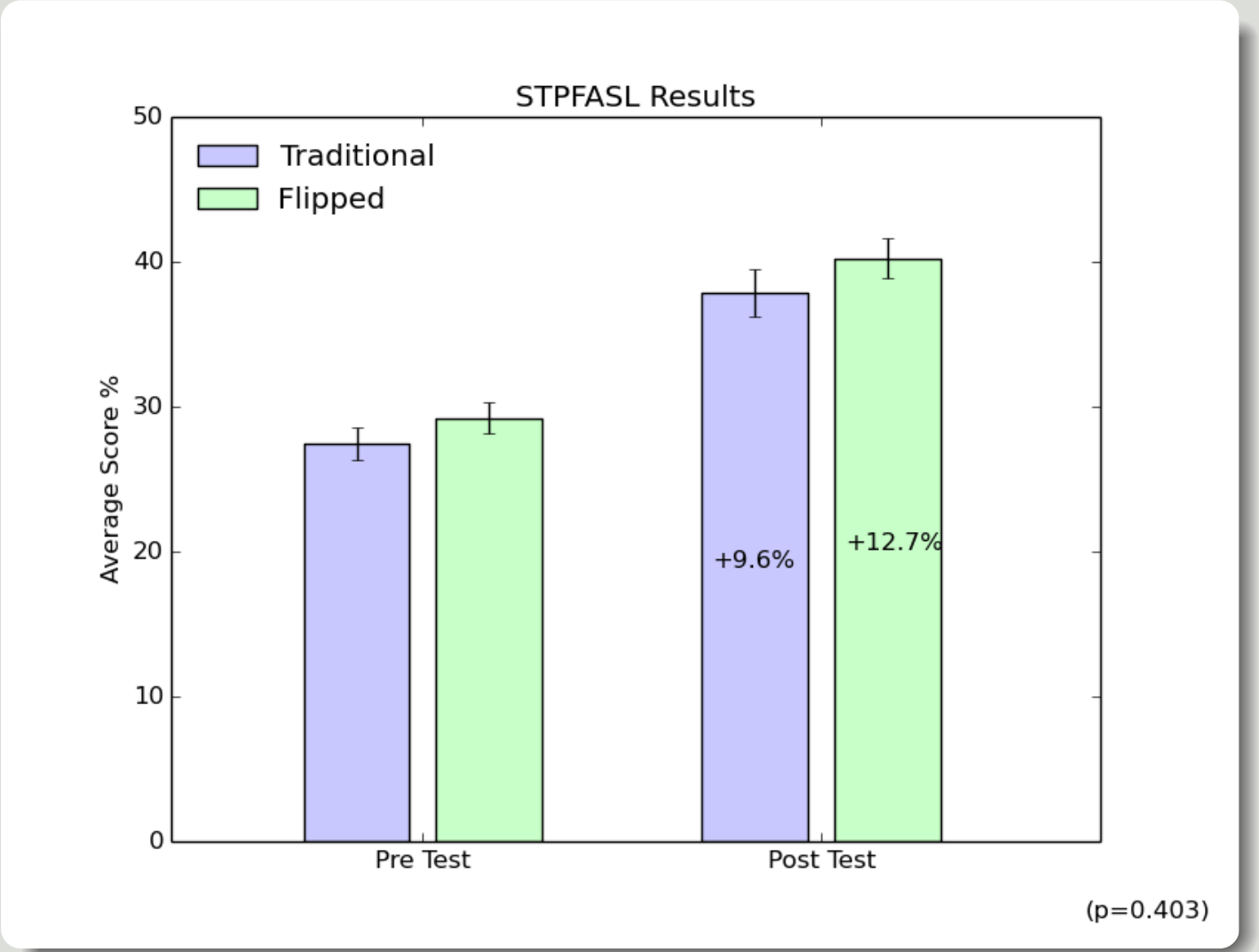
RRMCS (Rotation Concepts)



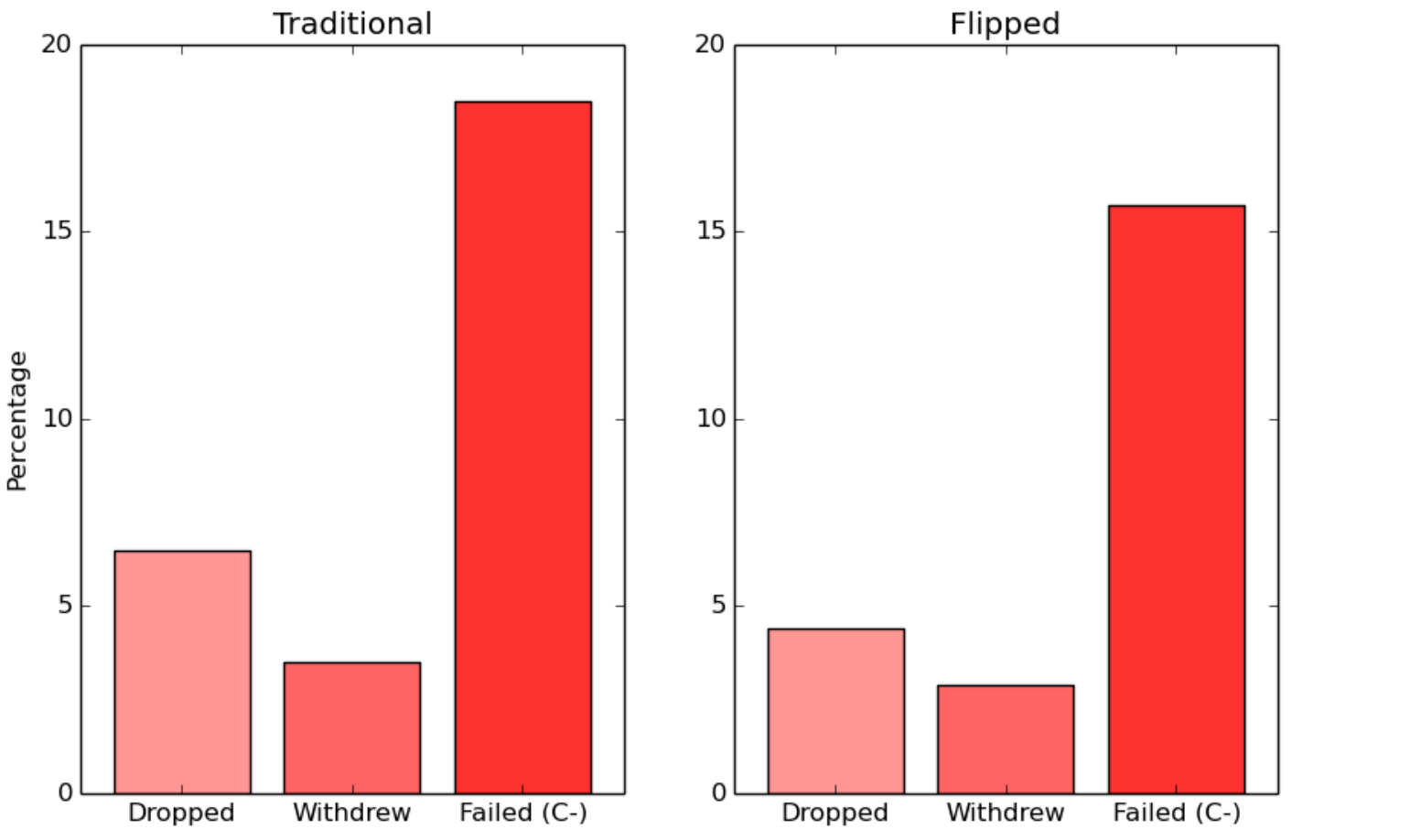
RRMCS (Rotation Concepts, Binned by Pre-Score)



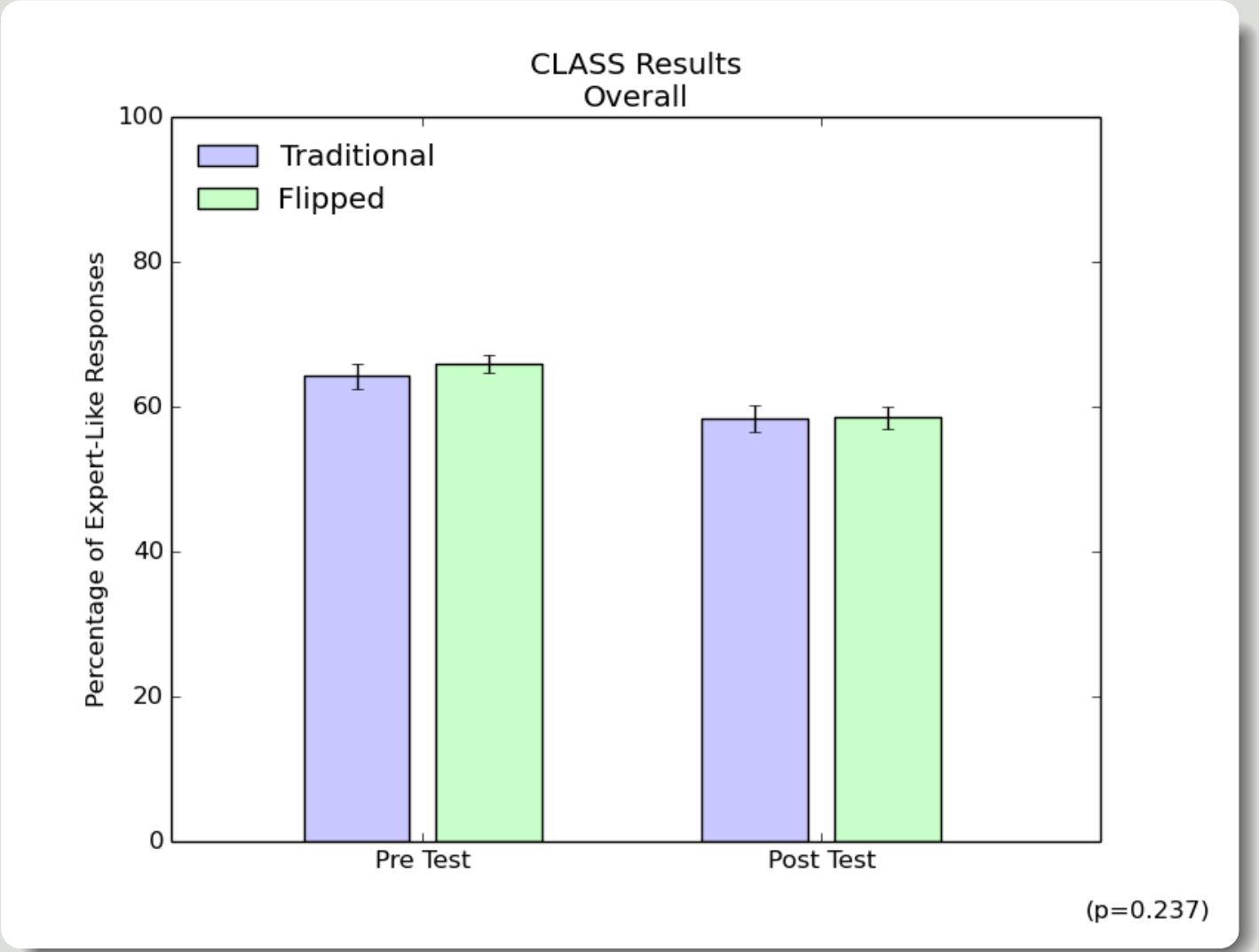
STPFASL (Thermodynamics Concepts)



Drop/Withdraw/Fail Rate

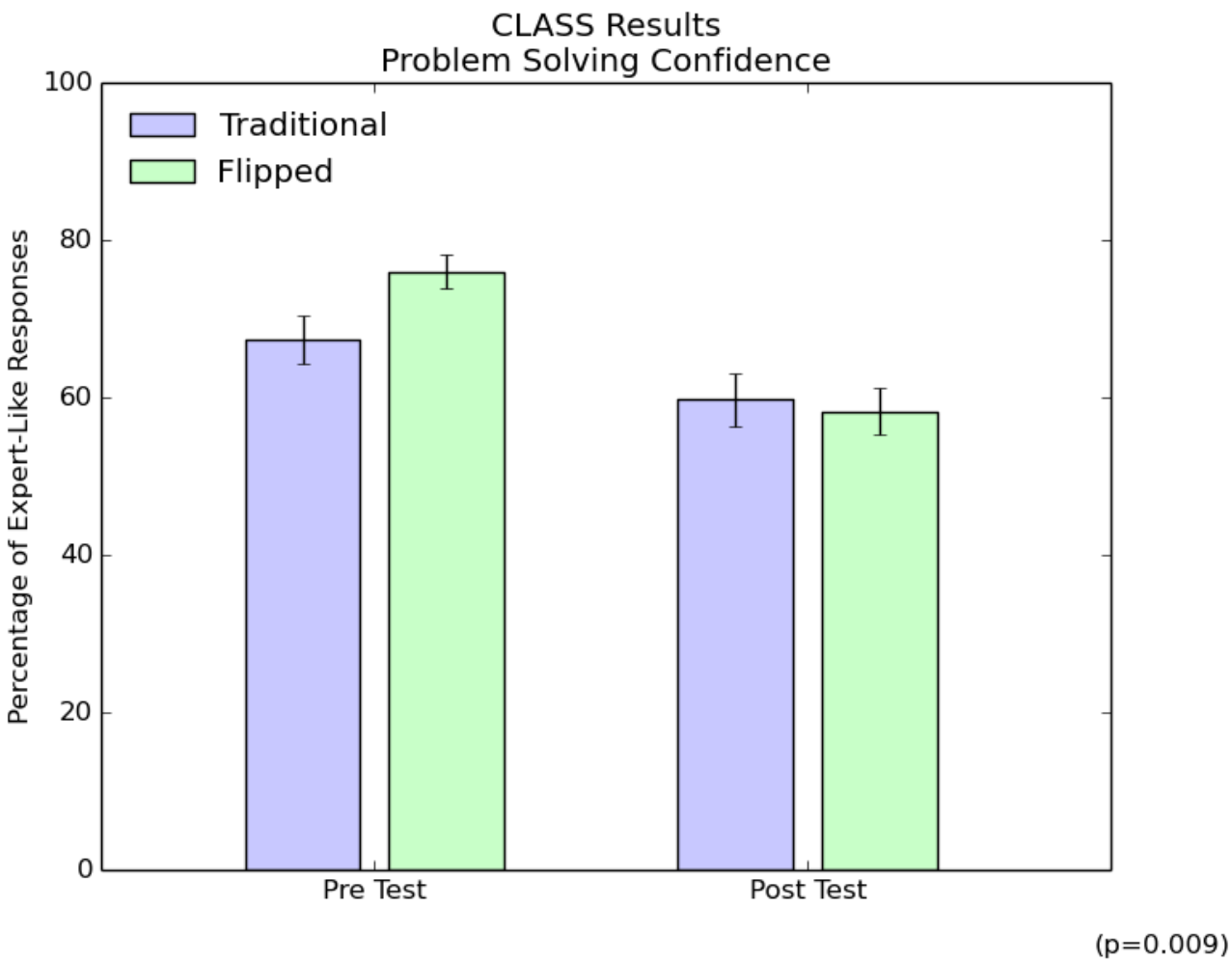


CLASS (Overall Learning Attitudes)



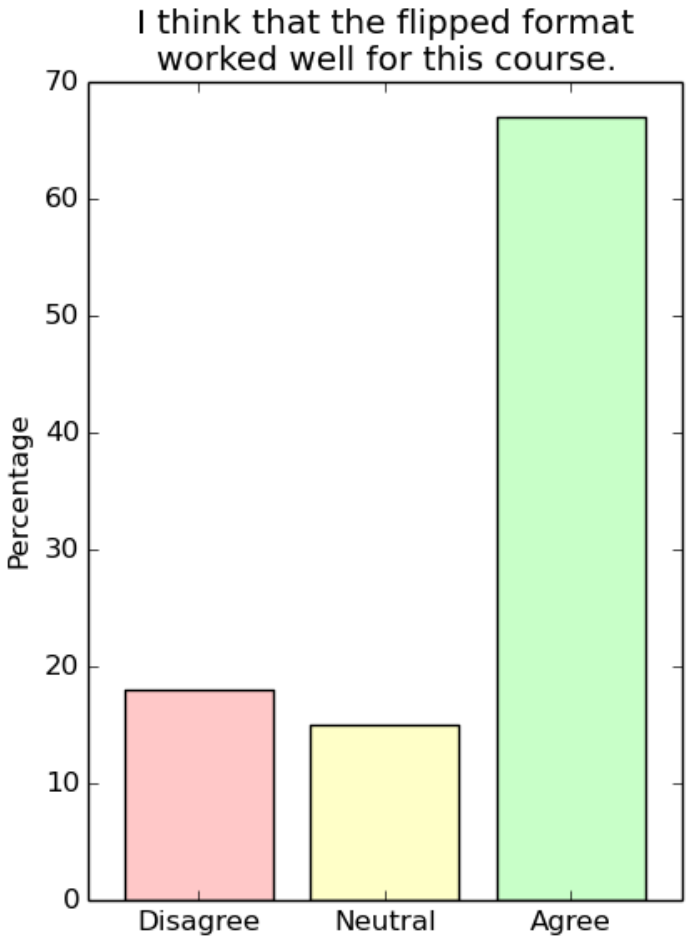
CLASS (Problem Solving Confidence)

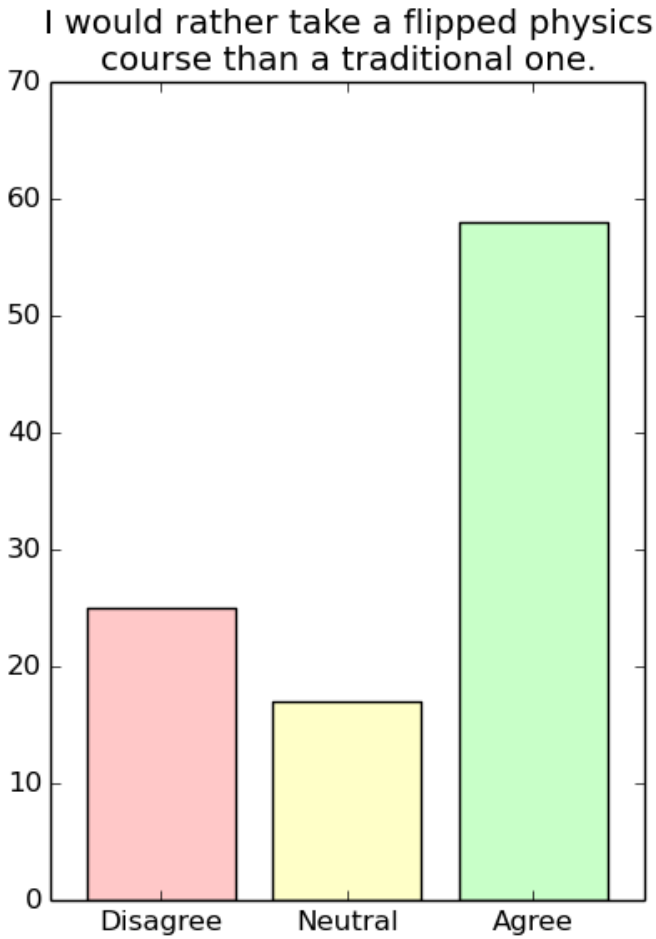
The Only Negative Result



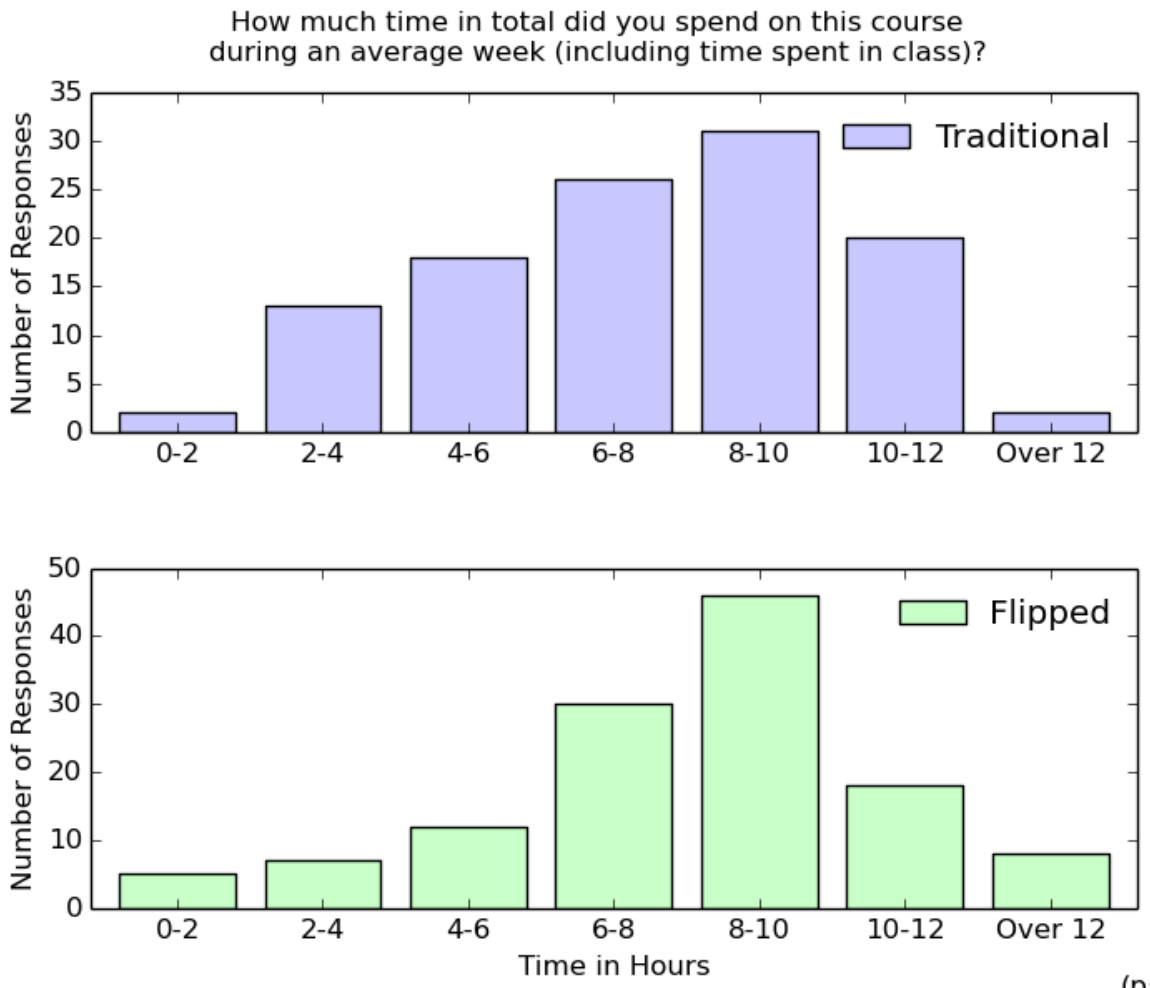
Initial overconfidence, or downside to in-class problem solving?

Acceptance of the Flipped Format

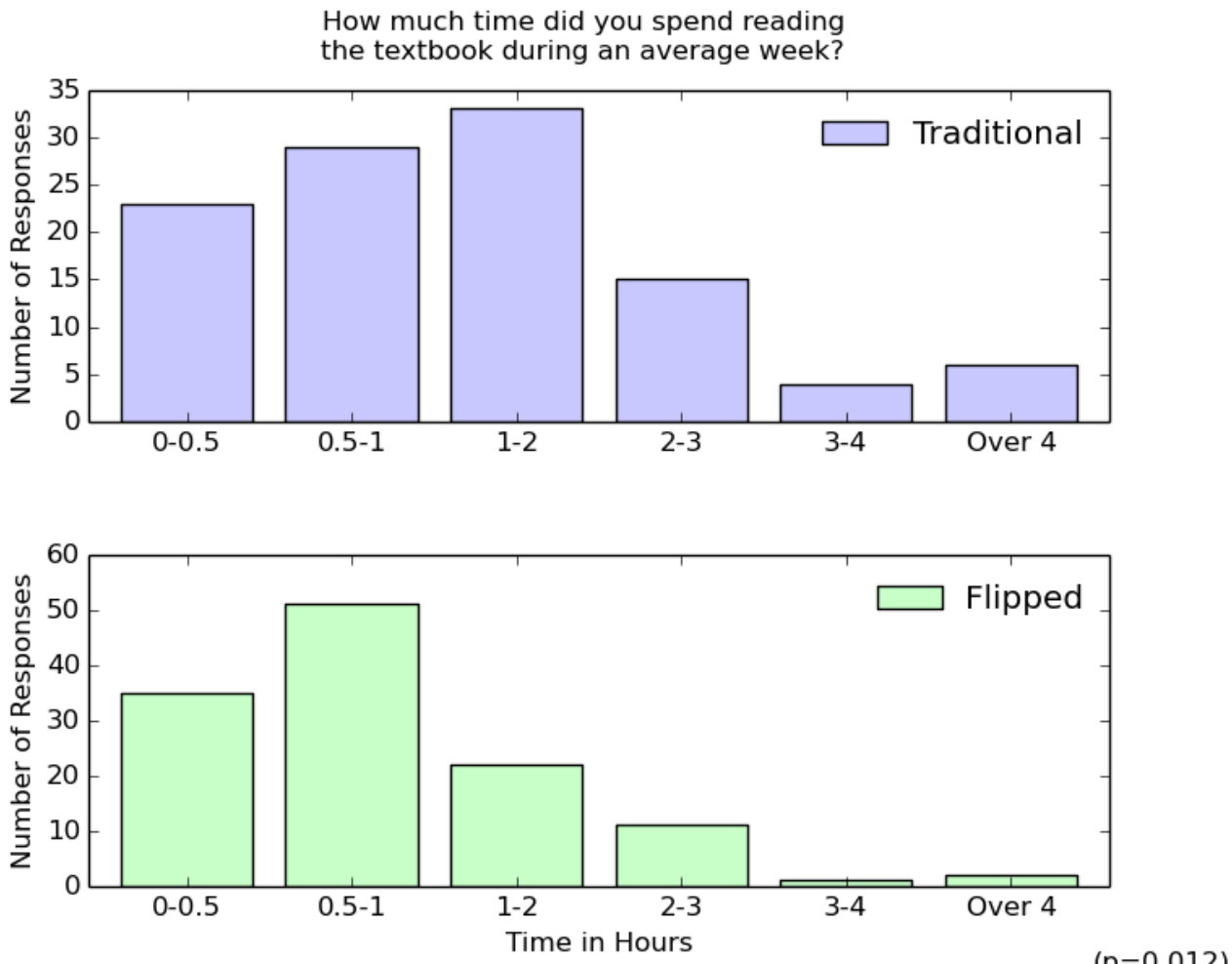




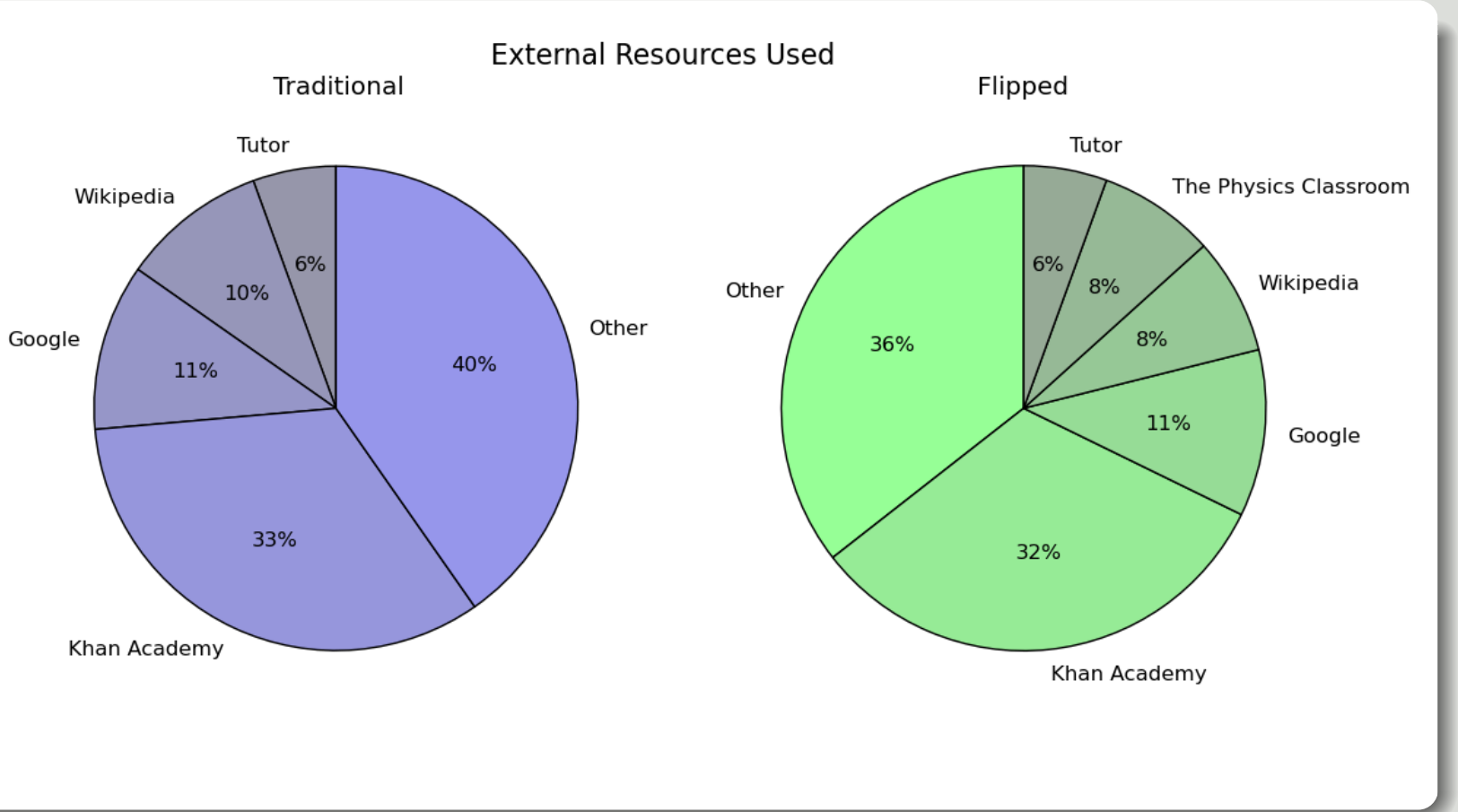
Self-Reported Workload



Surprising Result: Reduced Textbook Usage



Surprising Result: Widespread Usage of Khan Academy



Over 50% of the students who responded listed Khan Academy

Summary of Metrics

Overall Success

- Exam scores ✓
- FCI ✓
- RRMCS ✓
- STPFASL ✓
- DWF rates ✓
- CLASS ✗
- Student Feedback ✓

Outline

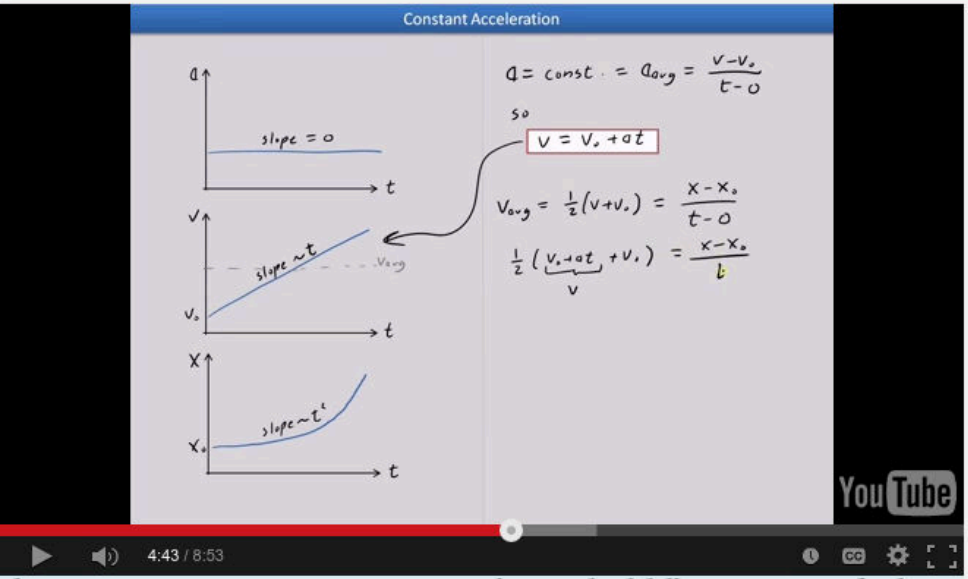
This Semester

Changes

- Minor adjustments to schedule
- Concept-rich group question moved to recitation
- Difficulty of example problems increased
- Using *Classroom Salon* for lecture videos

Collect More Data

- FCI
- RRMCS
- CLASS
- Student Feedback



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Everyone's Comments | Expand All | newest | active | votes

Instructions

[redacted] | 7 days ago | 0 votes

This was a good explanation of the equations

Reply ▶ 4:26

vote | bookmark | ☆

General

[redacted] | 11 days ago | 0 votes

Can these equations only work in a positive coordinate plane? I'm confused as to why the "half point" is half way through the first quadrant.

Reply ▶ 4:43

vote | bookmark | ☆

Hide replies

General

[redacted] as Anonymous | 9 days ago | 0 votes

They can work as long as time is positive. Acceleration and velocity can be negative, which could appear in the 4th quadrant.

The halfway point is the average of velocity (vavg) over the time interval. Think of t, v, and vo as fixed points. What would half of v be?

Reply ▶ 4:43