

Hybrid Lab Classes – A Flipped Approach

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Chemistry 1200 – Chemistry for Health Sciences

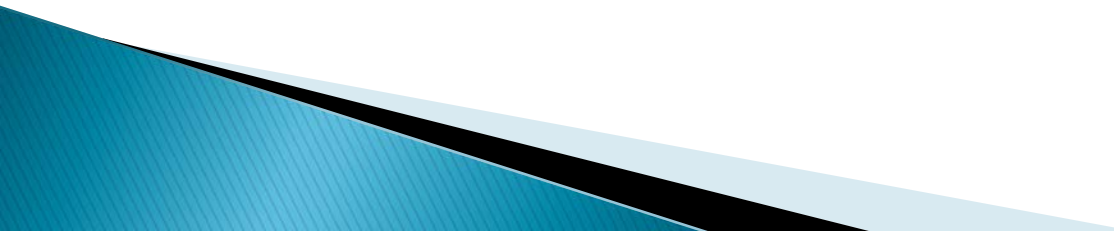
- ▶ No prerequisites
- ▶ ~95% of students are pre-nursing majors
 - Students must complete the class in their freshmen year
 - Minimum GPA requirement 2.5
- ▶ Course content focuses on breadth
 - ~40% General Chemistry
 - ~30% Organic Chemistry
 - ~30% Biochemistry
- ▶ Scheduling: 150 minutes of lecture weekly, 2 hour lab = 4 credits

Challenges Associated with Chem 1200

- ▶ Student Preconceptions of Chemistry
- ▶ Math Skills
- ▶ Fast-paced course
- ▶ Freshmen
- ▶ LPN → RN students
 - Working full-time
 - Families with kids
 - Taking other classes
 - Lack of technology skills



Flipped Classroom – Summer 2017

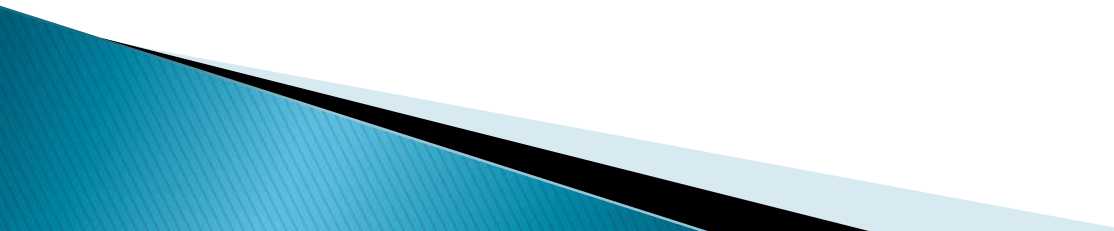
- ▶ Met 3 times per week 2 hours each
 - ▶ Students watch video lectures outside of class
 - Instructor recorded 7–25 minute videos
 - Tech Relay
 - ▶ Class time: Lab OR
 - 10 minute quiz
 - 40–50 minutes of students asking questions or doing examples on the board
 - 50 minutes of students working on assigned online homework
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Results

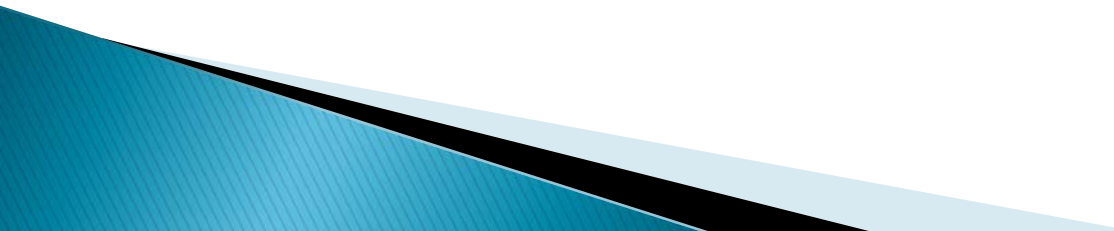
▶ Typical Semester:

- ~10% of students fail (below 2.5)
- Avg GPA: 2.6

▶ Summer 2017:

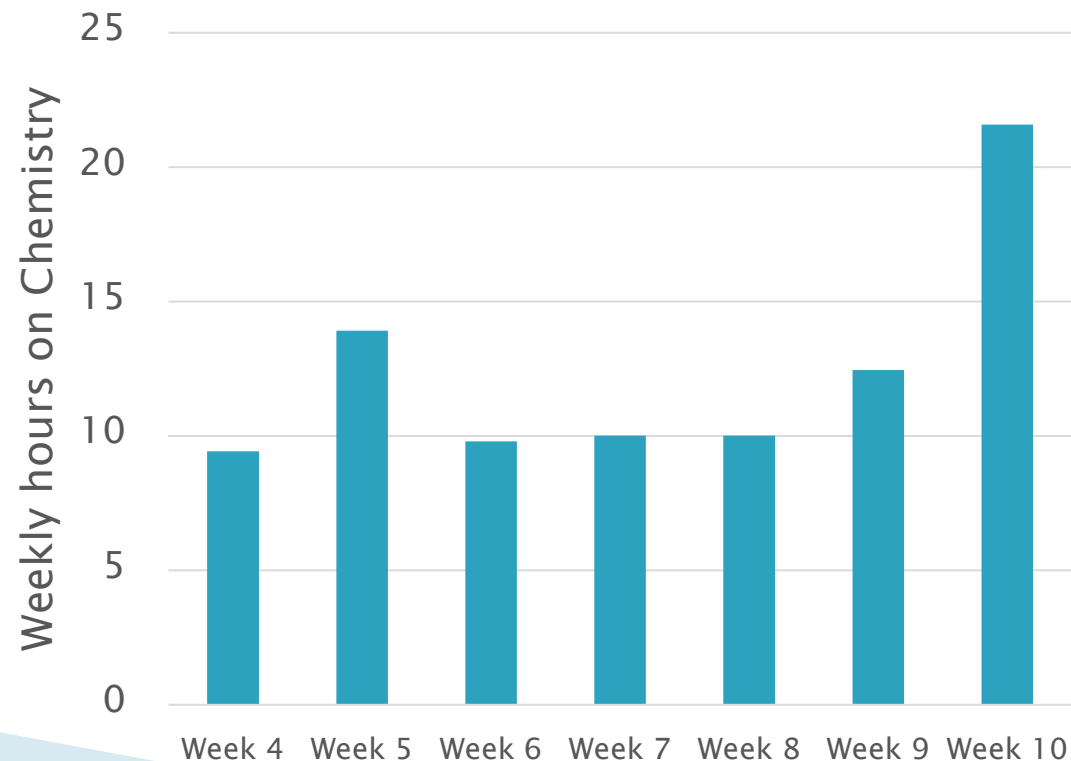
- Total: 8 Students (1 EXSS, 1 Transfer, 6 nontraditional students)
 - 6 students attended class, completed assignments – Avg GPA 3.2
 - 1 student finished 80% of the class, then quit
 - 1 student hadn't passed the math placement test or Math 200, had multiple health issues, worked full-time, so never had time to watch the videos
 - Overall average GPA: 2.5
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Student Feedback

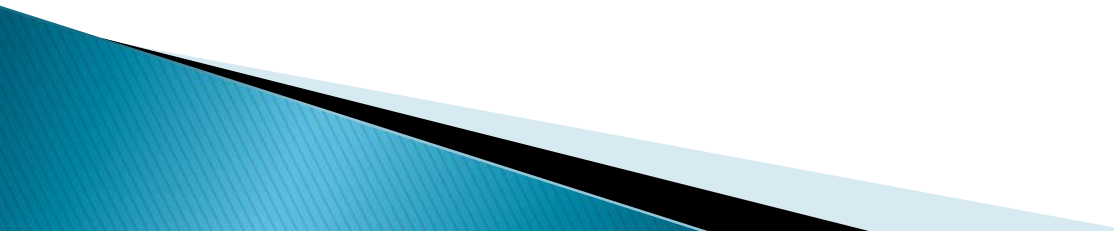
- ▶ What do you think about the flipped format?
 - 7/8 Students – I like watching the videos at home and doing problems in class.
 - 1/8 students – wished we had lecture in class and problems at home
 - 4/8 students – I can ask as many questions as I want
 - ▶ Do you think class time is used effectively?
 - 8/8 Felt that class time was used effectively
 - ▶ Do you feel that the professor is available to give you as much help as you need?
 - 8/8 – Felt that the professor was available to help you succeed and answers any questions they have
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In order to be successful in the class, do you think you are spending enough time for the class?

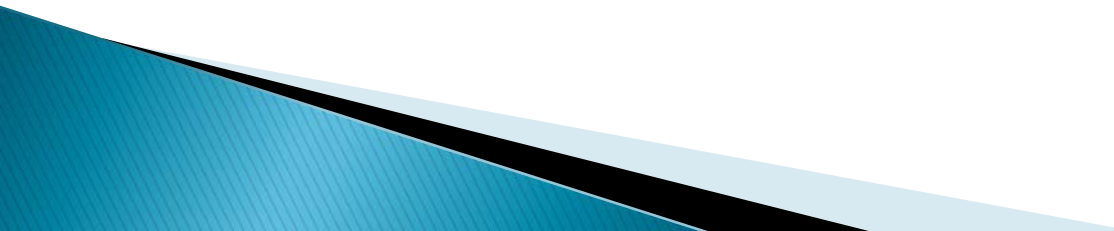
- ▶ 5/8 – yes, I think I am spending sufficient time to be successful.
- ▶ 3/8 – No, I know I should spend more time on the class, but with work, family obligations and other things, I don't have more time to spend on the class.
- ▶ 0/8 – no, I should spend more time on class, but I just haven't.



Do you have any other comments, questions or concerns about the class?

- ▶ “I am really enjoying this style of learning. It is very helpful to be able to do homework and problems in class, as that is when I would need to be able to ask questions.”
 - ▶ “This class style is very accommodating the “not average” college student. Since we are responsible adults, it is nice to be given the chance to start at home and come to class with questions.”
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Student suggestions for improvement?

- ▶ Sapling assignments open before class (online homework)
 - ▶ More optional worksheets
 - ▶ More tests
 - ▶ I feel you are doing an excellent job. You are always willing to answer questions, you review the material we watched and ensure we understand it. I don't see where I would change anything.
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Will I do it again?

- ▶ Absolutely! Especially for my LPN → RN students
- ▶ My impressions:
 - Students Felt Better about the class
 - Students seemed to retain more
 - Fewer email questions
- ▶ My concerns:
 - Some students would leave when I started homework time
 - Students finished homework before class
 - When no one had questions, I just wandered the room
 - Is this just because the class size was so much smaller?

Flipped Classroom in Large Lectures

- ▶ Trick: Find the balance of work inside and outside the classroom
 - Lab Assignments
 - Homework Assignments – Online
 - Watch Lecture Videos

 - ▶ My main Problem: How to do online homework in the large lecture
 - Require laptops?
 - 60–70 person lecture – will enough people get help?
 - Will students come to class if it's “only” a homework day?
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