



# TLC ADVANCEMENT-OF-TEACHING WORKSHOP: FLIPPED INSTRUCTION & BEYOND PART 1 – FRIDAY, JANUARY 29, 2016

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# Agenda

- Introduction/overview of flipped models
- Example flipped activity
- Report on Successful Outcomes of UIC Flipped Course
- Future Planning
- Survey

**Does your classroom look like this?**



**Or, does it look like this!**

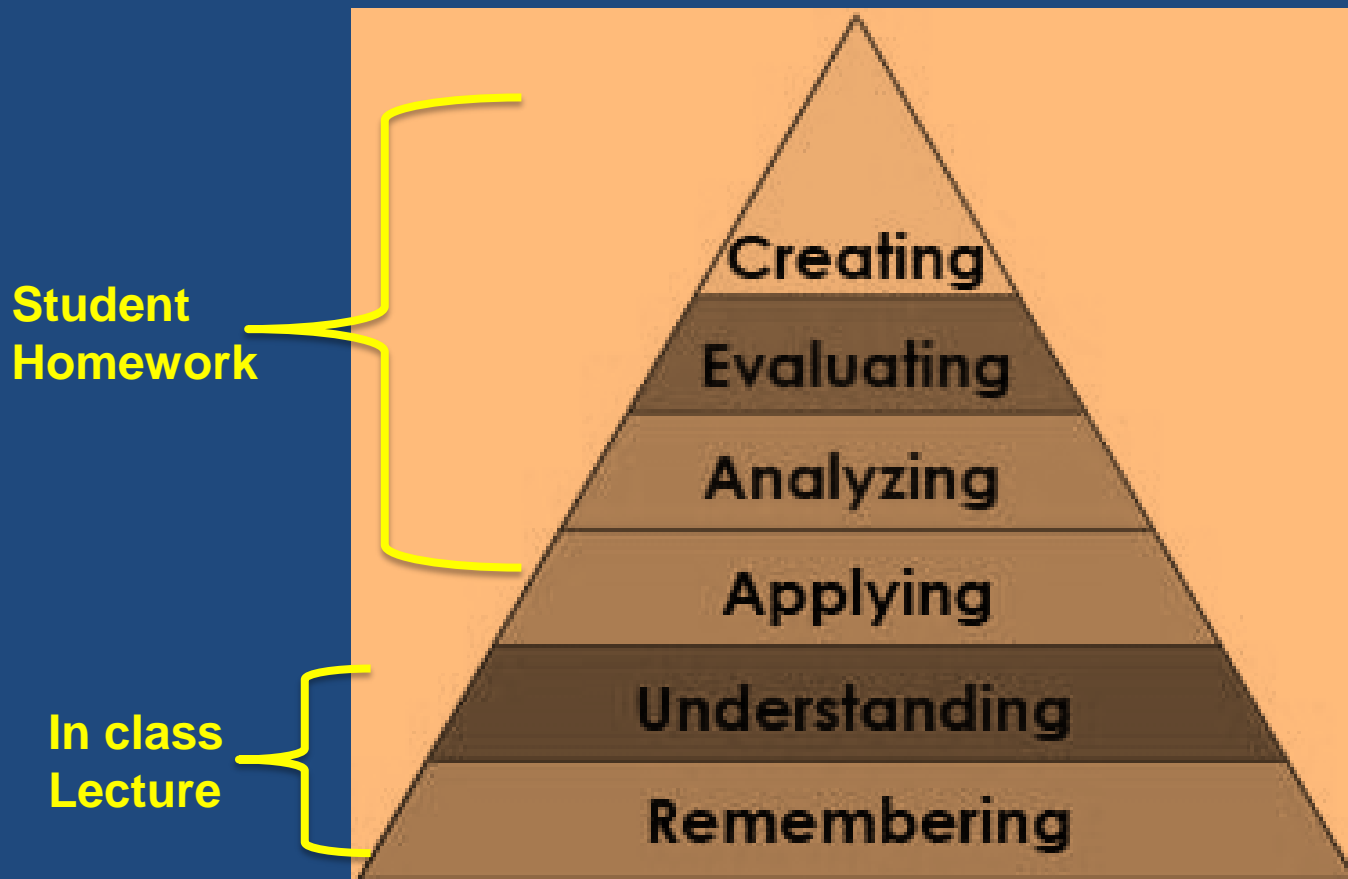


# What is Classroom Flipping ?

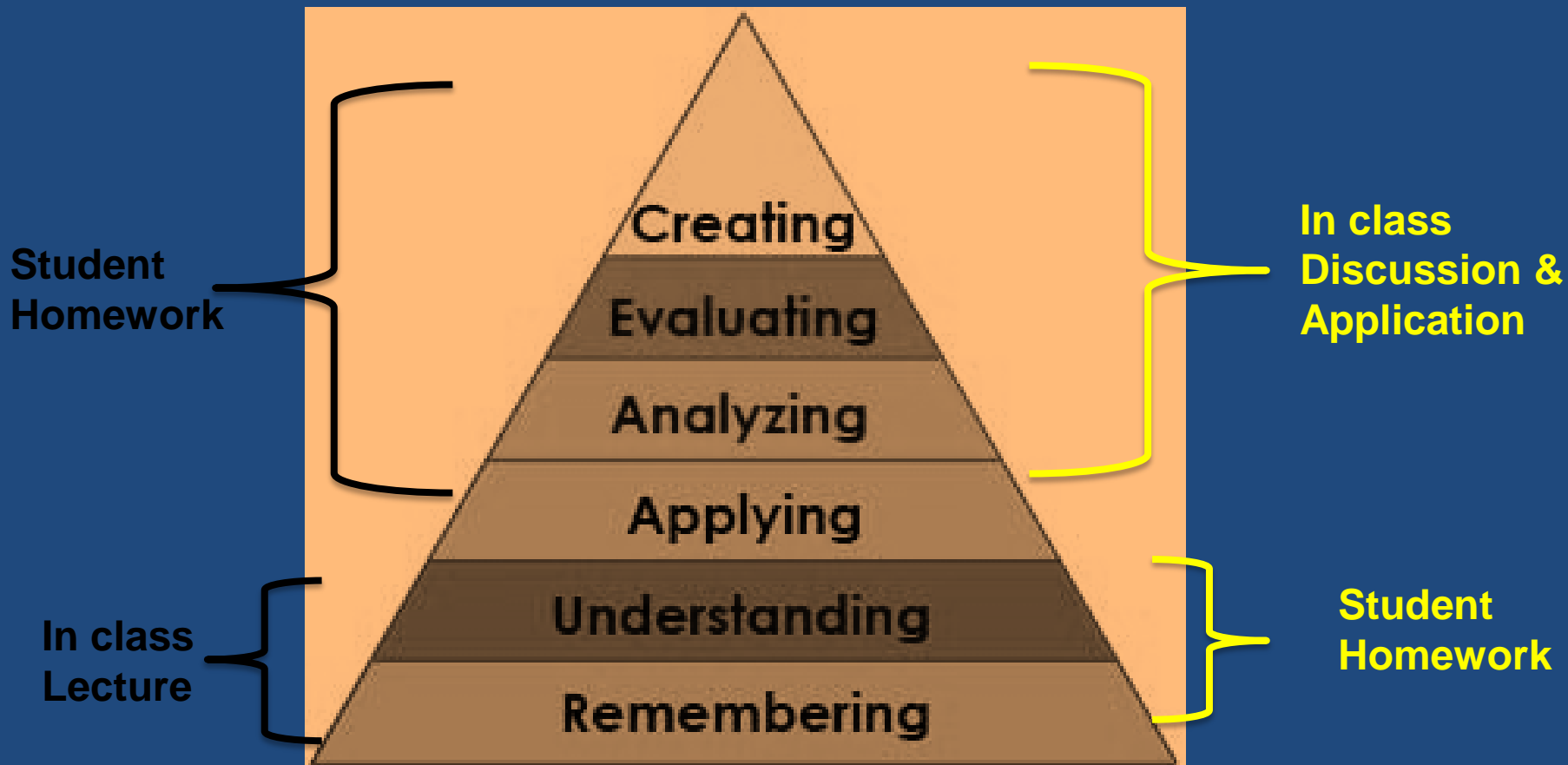
Traditionally Outside Classroom ... Now  
Inside Classroom

Traditionally Inside Classroom ... Now  
Outside Classroom

# Traditional Approach



# Flipped Classroom



# Thought Provoking Questions???

- **Why assign outside the classroom “stuff” that you cover inside the classroom?**
- **Why assign outside the classroom difficult “stuff” you should cover in the classroom?**



# What “stuff” Outside the Classroom?

- Assign for understanding and remembering.
- Readings?
- Lecture Replacement ... **VIDEO!**

<b>Former Classroom</b>		<b>Current (Flipped) Classroom</b>	
<b>Activity</b>	<b>Time</b>	<b>Activity</b>	<b>Time</b>
Review Homework	5 Minutes	Ice Breaker	5 Minutes
Lecture	40 Minutes	Review Homework	5 Minutes
Application	5 Minutes	Discussion/QA on Video	10 Minutes
		Application	30 Minutes

# Reasons NOT to flip...

- The presenter got an article published in an obscure blog and said you should.
- Will bring your classroom into the 21<sup>st</sup> Century.
- You'll be on the cutting edge of education.
- Students expect technology in the classroom.
- It will make your job easier!

# Reasons to Flip...

- **Boils down to higher forms of thinking through student engagement.**

# Sample Home View Video

- This video presents an example of a classroom lecture substitution. Students will review this video, outside of class, to prepare themselves for discussion, application or evaluative activities during the next class meeting.

# An Application Exercise

- The following slides provide instruction for an in-class activity titled “Trying it on for size”. The content discussion for this activity was presented in a video reviewed by students prior to its completion.



# Peer Instruction: “Trying it on for size”



# The Tiling Task

- Individually, begin working on the task. Make sure to read the problem carefully, and show your work.
  1. How many tiles of each type will she need for a 40 cm by 40 cm square?
- With a partner, explain your strategy. Try to convince each other of the validity of your strategy.



# The Tiling Task

- With a partner, work on the following question:
  2. Describe a method for quickly calculating how many tiles of each type she needs for larger, square tabletops (e.g., 50 cm x 50 cm; 120 cm x 120 cm).
- With a partner, explain your strategy. Try to convince each other of the validity of your strategy.

# Answers to The Tiling Task

- Let the side of a tabletop be  $x$  cm by  $x$  cm
- Since these are multiples of 10, simplify and let:  $n = x/10$ 
  - The number of quarter tiles is always 4.
  - The number of half tiles is  $4(n - 1)$
  - The number of whole tiles is  $n^2 + (n - 1)^2$

**The following slides present data  
that supports the use of Flipped  
Instruction**

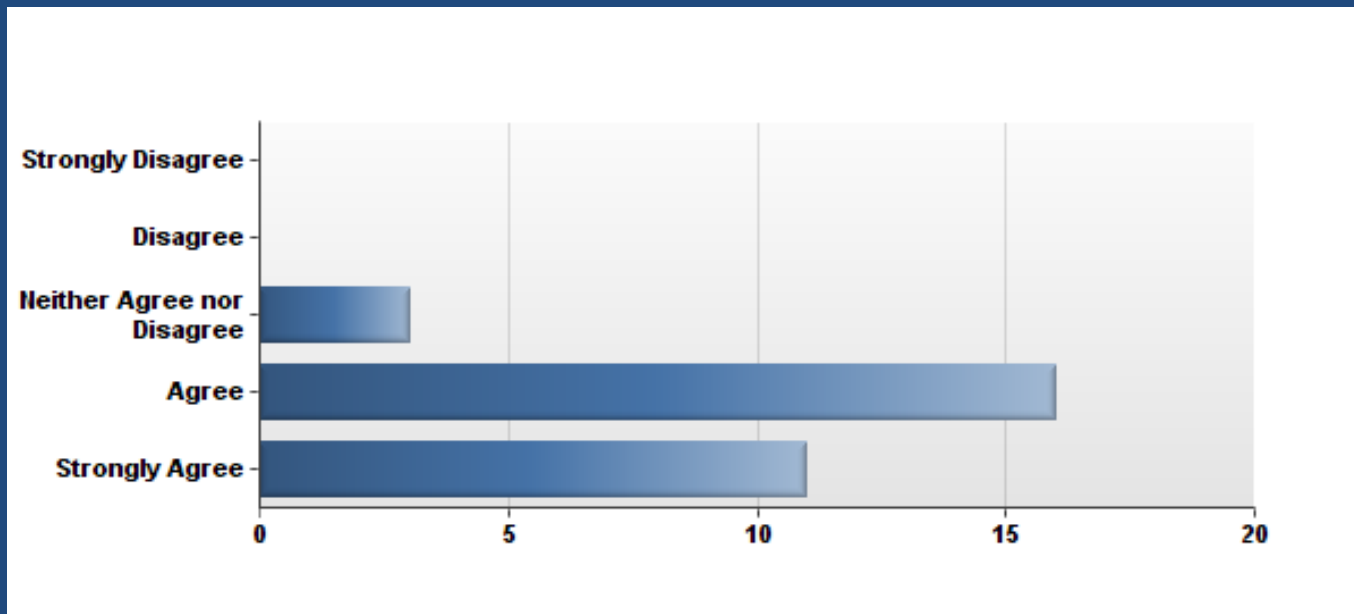
# Survey Results

- Students in general are proficient using computers/Internet (M=4.6, SD=.62) and Blackboard Learn (M=4.57, SD=.5), and know what is expected from them in the course (M=4.46, SD=.49)
- Most students watched most videos prior to their test (87%). 83% of students watched all videos and 33% watched 85% of the videos
- Students experienced few or none technical problems accessing the videos (M=3.9, SD=.8).
- The large majority of the students watched videos from home (80%) and using a laptop (83%).

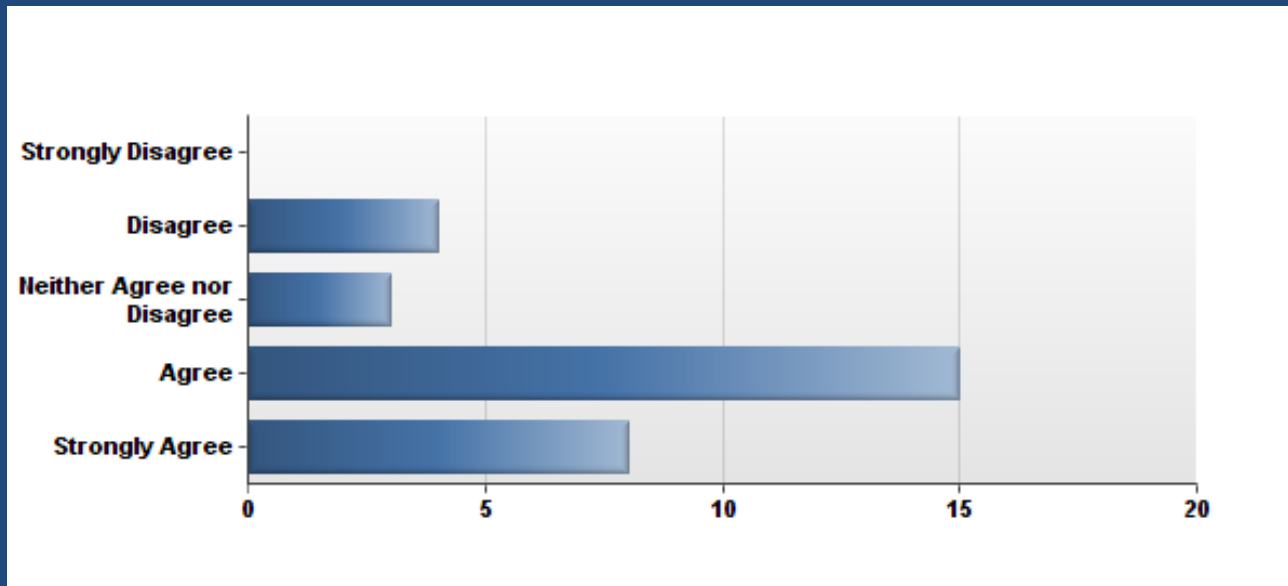
# Survey Results

- Students agree that the videos enhanced their understanding of the course content ( $M=4.27$ ,  $SD=.64$ ), but are not clear on how the videos create a more engaging learning environment ( $M=3.9$ ,  $SD=.96$ ).
- Students prefer a course that has multiple short lecture videos (less than 20 min)  $M=4.0$ ,  $SD=.95$  versus a course that has fewer long videos (more than 50 min)  $M=3.23$ ,  $SD=1.33$ .
- Majority of the students like video as a way to deliver content in the class.

**The instructional narrated PowerPoint videos enhanced my understanding of the course content (M=4.27, SD=.64).**



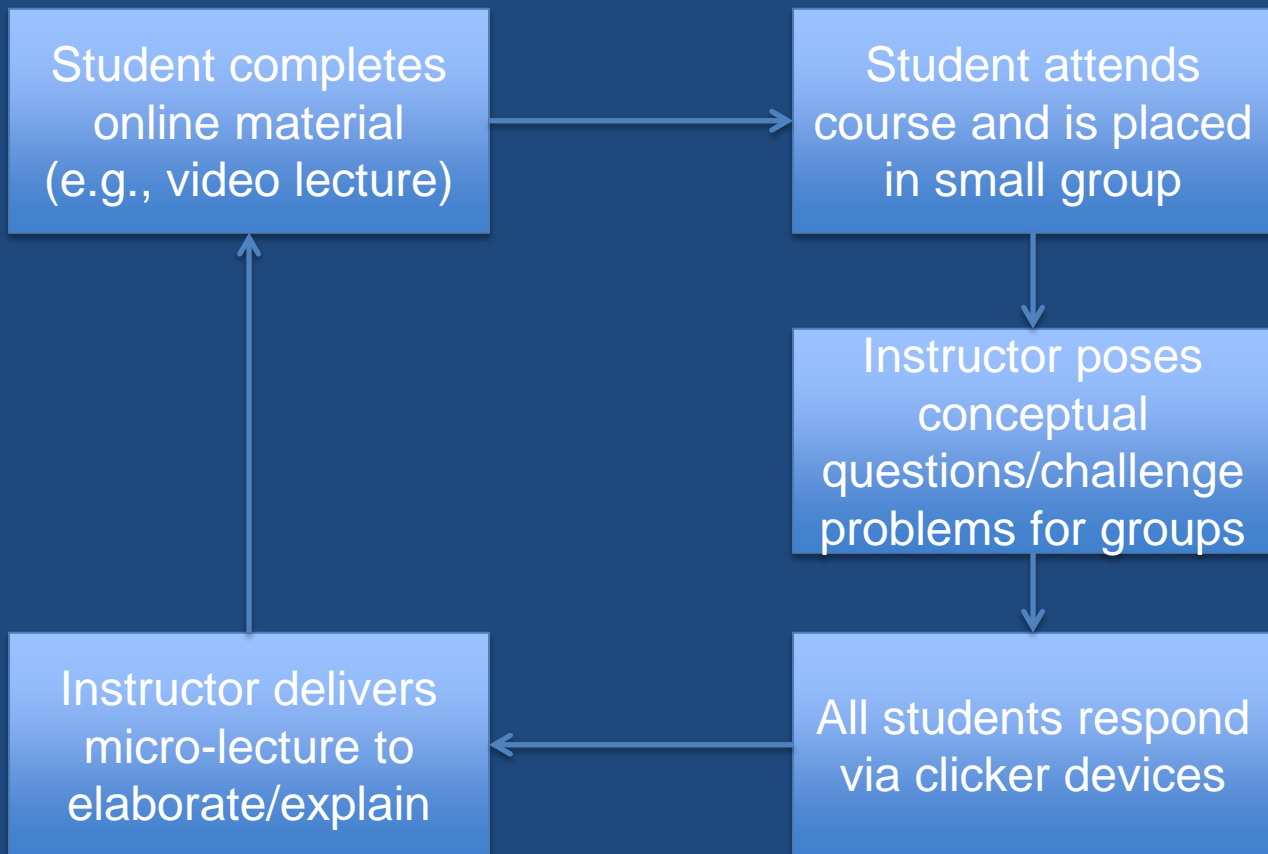
The videos/narrated PowerPoint slides in the course created a more engaging learning environment ( $M=3.9$ ,  $SD=.96$ ).



**The following slides present support of the use of Flipped Instruction in select courses.**



# UIC CHEM232



# UIC CHEM232

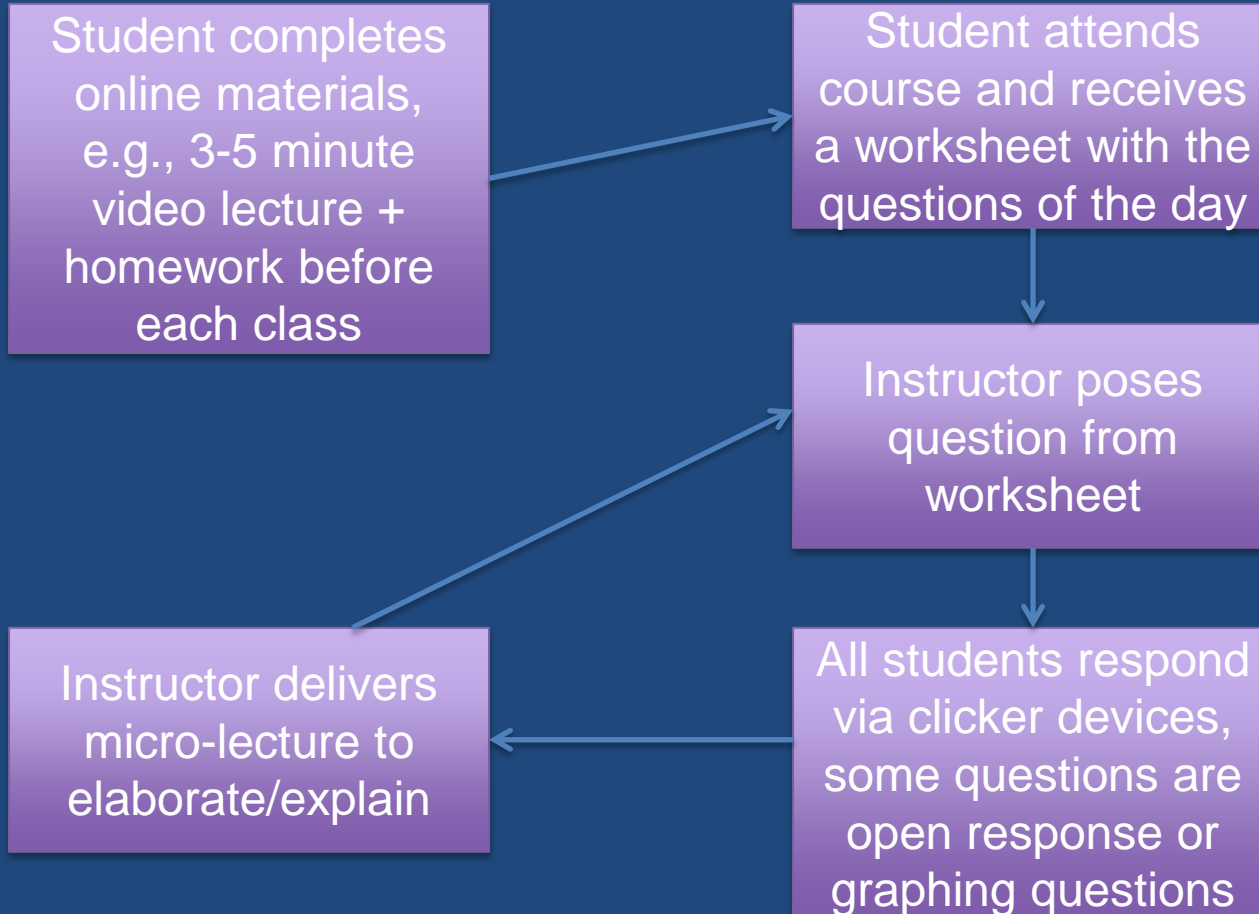
## *Before the Flip*

- Structure
  - 30 hours of lecture
  - 6 hours of exam review in discussion sections
  - 52 hours of office hours
- Assignments
  - 10 quizzes
  - 3 exams
  - 1 final exam
  - ~450 homework problems

## *After the Flip*

- Structure
  - 20 pre-lecture videos (~10 hours)
  - 33.75 hours of classroom problem solving
  - 6 hours of group problem solving in discussion sections
  - 20 hours of office hours
- Assignments
  - 15 quizzes
  - 1 final exam
  - **151 clicker questions**
  - Who knows how many homework problems?

# Math 180: Calculus I



# Math 180

## *Spring 2014*

- Structure
  - 39 hours of lecture + 5 reviews in class
  - 15 hours of discussion sections
- Assignments
  - No collected homework problems
  - 15 quizzes
  - 2 exams
  - 1 final exam

## *Spring 2016*

- Structure
  - 39 hours of interactive lecture + 5 reviews in class
  - 30 hours of discussion sections
  - 39 media clips
  - Attendance policy, strict grade cutoffs
- Assignments
  - 39 MyMathLab assignments
  - Weekly Written Homework
  - 39 Media Blackboard assignments
  - 2 exams – evening exams
  - 1 final exam
  - Over 200 clicker questions