

# Engaging Students in Large Classes

Andrew Goodliffe and Ben Laabs

July 2017



**Interactive lectures: Classes in which the instructor breaks the lecture at least once per class to have students participate in an activity that lets them work directly with the material.**



# Setting the stage

- What is large?
- Do you have teaching assistants?
- Do you have a classroom management system (e.g. Blackboard)?
- Identify your teaching style – Informer, Questioner, Entertainer, etc.
- Play off your style and strengths, but incorporate other deliveries to promote engagement.



<http://finance.fortune.cnn.com>



# How do you prepare for big lectures?

- Identify your main points
- How do slides advance these points
- Prepare your visuals
- Print out notes
- Practice!
- Focus on your slide transitions
- Don't install new software right beforehand!
- Adapt as needed
- Take notes on how you would improve for next year
- Use a lecture preparation checklist

# Preparing the teaching team

## Detail your expectations in writing

- Explain TA duties
- Team work
- Records policy
- If co-teaching make sure each professor has clear responsibilities

# Goals for the course: Define for yourself and students

- What is the purpose of the course
- Develop an informative syllabus (set the expectations)
  - State goals
  - **Explicitly** express policies and procedures for grading, attendance, late homework, missed tests, office hours, email, etc. - make all expectations clear
  - Publish all important dates at the beginning of the class
  - Identify all resources that will be used and have them ready
  - **Do not make up rules as you go along!**

# Activity

- Identify a large class that you might teach (see worksheet on page 2-16)
- What are your top 5 goals for what students will learn in this class?

# Delivering the Lecture

**EXPRESSIVENESS** is the most basic and most direct way to keep students' interest



# Engagement Triggers - examples

- Interpreting Graphs
- Making Calculations
- Demonstration/making predictions
- Brainstorming
- Reading to solve a problem
- Physical prop
- Evocative visual/picture
- Cartoons
- News Clips & Articles
- Video clips
- Think-Pair-Share
- Minute paper
- Muddiest Point
- ConcepTests
- Question of the Day
- Small group discussion
- Clicker
- Google Earth (or other tech)

<http://serc.carleton.edu/NAGTWorkshops/earlycareer/teaching/LargeClasses.html>

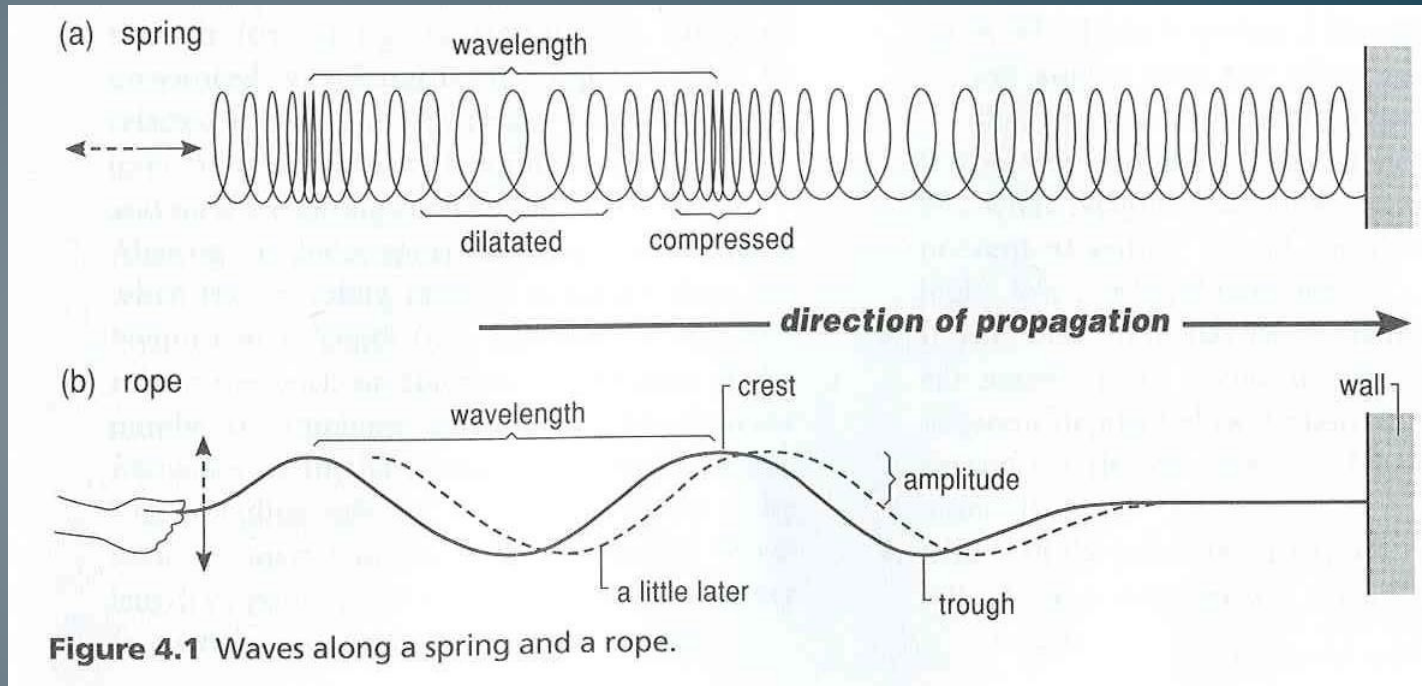
# An Example of In-Class Activity

In a 10-20 minute breakout.....

- Break into groups of 5-10 (works even in auditorium seating)
- Provide a single question, set of questions, or exercise that students need to discuss.
- The question(s) can be used as an introduction or as an assessment of presented material. Each group independently discusses the question and negotiates a group answer.

**You and the TAs monitor and guide groups. Collect each group's answer (a singular assignment with everyone's name listed).**

# Kinesthetic Learning Example – P- and S-Waves



From: Mussett and Khan, Looking into the earth

Differences in particle motion between a P- and S-wave.

# Interactive personal response system – Top Hat



# Interactive Lectures Activity

Spend the next few minutes on an activity that you'd like to use in your class (see worksheet, page 2-17).

- What concept do you want students to better understand?
- How will you engage the students?
- How will you know it is working?

# **Interactive Lectures**

## **Group Brainstorm and Sharing**

**Now share your idea with a partner and provide each other with feedback.**

# Engaging non-majors

Many large lecture classes serve as a core requirement and have many non-majors who are not necessarily engaged in the topic. This is your opportunity to get them interested and excited in geoscience.

- Make it relevant to their lives
- Make pop culture work for you
- Engage different learning styles
- Bring in your personal experiences

# Bring your personal experiences to the classroom

- Where have you done fieldwork?
- What inspires you?
- What environmental issues keep you up at night?
- Where have you traveled?
- What is the societal relevance of your work?
- What career path did you follow and what experiences shaped that?



# Assessment that is consistent with your engagement style...

In "large" classes, you can use a variety of techniques, depending upon the # of students and how much TA support you have:

- Multiple choice/ scantron
- Online quizzes/tests (group or individual)
- Short answer / short essay
- Fill in the blank
- Matching (vocabulary)
- Clickers
- Fill in the blank diagrams
- Peer review



**Use Bloom's Taxonomy - aim for students to be working at the "top" of the pyramid in class, and in your exams**

**Consider collaborative exams!**