Prep for "Engaging Students Through Interactive Lessons"

Prior to the session, please do all required reading and viewing.

Required Reading

The Torch or the Firehose: A Guide for Teaching Assistants

Section 1: The Glass Wall: Encouraging Interaction
Section 2: Questions: Theirs and Yours
Section 3: Before You Walk In…
Section 4: A Word About Pedagogy
Section 5: In the Classroom
Section 6: Getting Off to a Good Start
Section 7: Basic Communication Skills
Section 8: Seeing is Understanding: Using the Blackboard

Review the summary sheet called "The Basics of Giving a Good Lesson."

Required Viewing (about 20 minutes)

In this lesson on the chain rule, the instructor asks *a lot* of different questions and a lot of different types of questions. How many questions does the instructor ask in this segment?!

View segment 6:53 to 13:11.
https://www.youtube.com/watch?v=8dr1dZjfhmc

This biology instructor starts the first class of the term with three specific questions to check students' pre-knowledge of the subject. If you were in that class, what would those questions have done for you?

View segment 0:01 to 4:26.
https://www.youtube.com/watch?v=S9WtBRNydso

What does This programming instructor positively reinforces students when they ask questions.

View segment 0:01 to 10:12.
https://www.youtube.com/watch?v=C5HeRliZ0Ns

Optional Reading

"Although traditional lecturing has dominated undergraduate instruction for most of a millennium and continues to have strong advocates …, current evidence suggests that a constructivist 'ask, don't tell' approach may lead to strong increases in student performance…" is from this article:
Active learning increases student performance in science, engineering, and mathematics
PNAS June 10, 2014 111 (23) 8410-8415; first published May 12, 2014
https://doi.org/10.1073/pnas.1319030111

Interactive Teaching Methods Double Learning in Undergraduate Physics Class
ScienceDaily (May 12, 2011)
https://www.sciencedaily.com/releases/2011/05/110512150817.htm

Undergraduate Science and Engineering Teaching Needs Improvement
ScienceDaily (May 21, 2012)
http://www.sciencedaily.com/releases/2012/05/120521115702.htm

This article provides a good example of an interactive biochemistry classroom. While as TAs you will not be able to determine how a class runs, this piece might help to give you a sense of some things that you do to make your work with students more interactive:
http://seattletimes.com/html/seattleuniversity/2016784402_seattleu17m.html

Engaging students in conducting Socratic dialogues: Suggestions for science teachers
Journal of Physics Teacher Education Online, 4(1) Autumn 2006
http://www2.phy.ilstu.edu/~wenning/jpteo/issues/jpteo4(1)aut06.pdf (Scroll to p. 10 to get to the article. Link does not work consistently, but typing address into browser does work consistently.)

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