Activating Your Lecture Series
PART 2: Using Technology Make Lectures more Interactive

There are a variety of different classroom technologies that can be used to help make high enrollment classes more interactive. These technologies include classroom response systems (i.e., clickers) and webcasting/podcasting lectures, among other technologies and programs. Education technologies like these provide students with opportunities to more actively engage in course material (MacArthur & Jones, 2008), and can help to improve students academic performance (Mayer et al., 2009; Traphagan et al., 2010).

How can "clickers" help?

Integrating classroom response systems (e.g., clickers) into high enrollment lectures has been shown to increase student engagement and collaboration (MacArthur & Jones, 2008). In-class, low-stakes assessments (like the ones that clickers make possible) can help instructors quickly identify common misconceptions and measure specific learning outcomes, making the teaching environment more effective (Sevian & Robinson, 2011). A large-scale study of clickers found that students who responded to questions with clickers had a higher gain in understanding than students who responded to questions on paper (Mayer et al., 2009). For help integrating clickers into your classroom, see Academic Technology Services. Below are a few suggestions to help you get started:

Strategy	Example Question #1	Example Question #2
Make sure your questions focus on higher-order understanding of concepts, as well as rote memorization or recall. While clickers lend themselves well to yes/no questions, you can build up to questions requiring problem-solving, the demonstration and/or application of new skills, or the integration of ideas across topics.	*Think about the different mental biases we've gone over today. Nikki decides to buy a small car because it is good for the environment. When she goes to look at small cars, she is surprised that they came in luxury versions because she expected them to be very basic and uncomfortable. What bias has Nikki been using? What does this suggest about Nikki and her bias(es)?*	*Today we've been discussing climate change. Think about climate change in a broader context. Given what you know about the water cycle from last week's discussion, what part of the water cycle is under the biggest threat from climate change, and why?*

If technology doesn't appeal to you or your classroom faces some possible connectivity issues, try using analog clickers made from differently colored index cards or sheets of paper with different colors in each quadrant. Students can hold up the color which represents their response option, allowing you to easily see trends in student responses.

Does webcasting/podcasting really work?

There are numerous benefits to students when instructors webcast or podcast their classes. Podcasting has been shown to lead to less absenteeism than posting powerpoint slides online, and students who watched webcasts multiple times saw an increase in academic performance (Traphagan et al., 2010). Podcasting can support active learning because it enables students to assess their own understanding of course content (for example if they listen to a podcast after studying a chapter on the same material); it encourages efficient and independent time management; and it enhances students' motivation (Fernandez et al., 2009). Podcasting can also be particularly useful for English-language learners and international students, because it allows them to repeat sections of the lecture that may include difficult academic language or jargon. Here are a few factors to consider before deciding to incorporate webcasting or podcasting with your lecture:

- Some UCD classrooms are already configured for both video and audio recording, allowing you to webcast full lectures and post them online for students to view. Check the listing on the Registrar's Office website for details on existing classroom setups.
- UCD has a limited amount of portable podcasting equipment available for instructor use, allowing you to record audio-only versions of lecture and post them online for students to download. Contact Academic Technology Services to find out if this technology is available for your use.
- If official equipment is not available, consider asking a student to record class on their personal device and send it to you for posting online, or use your own personal device to record the lecture.

Where can I find more resources?
- On integrating effective classroom practices, visit the CEE teaching support website
- For academic technology support, visit either Academic Technology Services or EdTech Commons, a site designed to help support teaching with technology.
- For the TA handbook and instructional materials, visit the CEE's TA orientation webpage.

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