Strategies for engaging students in large lectures

Formats for Group Work

Carousel 1. Design a series of discussion items (3 is ideal), and arrange students into small groups. Distribute the different prompts evenly throughout the class and give students 3-4 minutes to brainstorm their responses. Have students pass their sheets on so that each group ends up with a new prompt. Groups begin by placing an asterisk beside existing answers they particularly like, then begin to add additional ideas. After 3-4 minutes groups pass their sheets along again, and repeat the process with the final prompt. Return sheets to their original owners, and have the groups identify the one or two best ideas on their sheet. Ask groups to share some of the best ideas from their sheet.

Carousel 2. Have pairs/groups write the answer to the first step of a problem, on an index card. Groups them pass their card to another group, who modifies/corrects the answer on the card they receive. Groups then add then answer for the second step of the problem. Continue with this pass-clarify-solve cycle until all of the steps in the problem have been completed.

Full class discussion. Students discuss a topic in class based on a reading, video, or a problem. The instructor may prepare a list of questions to facilitate the discussion. Consider displaying questions for students to see, as you discuss.

Jigsaw 1. In this technique, a general topic or problem is divided into smaller, interrelated pieces (e.g., the puzzle is divided into pieces). Each member of a team is assigned to become an expert on a different topic (or develop an answer, solve a problem, etc.). After groups have had sufficient time to develop their answers, form new groups, consisting of members from different original groups. In their new groups, students present what they have developed with their original groups, to each other. The puzzle has been reassembled and everyone in the class knows something important about every piece of the puzzle.

Jigsaw 2. Begin as with Jigsaw 1, but construct the second groups simply by asking students to form a group with (for example) 2 other students in the class who started with a different question or problem than them. This means that students will not all hear from everyone (if there are more than three activities or topics under discussion), but they will all have to work through something well enough to explain it to others and they will all learn from their peers, *and* it will be easier for you to coordinate students for the second stage of the discussion.

Small Groups. Have students form groups of 3-8 students to discuss or work on a problem or question. Debrief with the full group to tie things together and to answer remaining questions.

Snowball. Ask students a question that requires them to take a position of some sort. Have students pair up and discuss their thoughts on the question, in an attempt to find consensus. After two minutes have the groups pair up (into groups of 4 students), and continue their discussion. 1-2 minutes later, pair the groups again (into groups of 8 students). Repeat the process and see the snowballs grow – until you need to bring the whole class together for a slightly more orderly discussion of the problem.

Talk-to-your-neighbor. Give students 60 seconds to talk about a question before returning to the large group. This is particularly useful when students seem unresponsive in class: have them turn to their neighbors and discuss their answers. If silence ensues even after you have prompted them to discuss, it is possible your question was unclear, or students are not equipped to answer it. If they begin discussing the question, then you will have a room full of students who can offer something to the larger group.

Think-Pair-Share. Have students first work on a given problem individually, then compare their answers with a partner and synthesize a joint solution to share with the class. Call on pairs at random to facilitate your large group discussion.

Gauging Student Understanding

Application Cards. Identify a concept or principle your students are studying and ask them to come up with a few (1-3) applications of the principle for everyday experience, current new events, or their knowledge of particular organizations or systems discussed in the course.

Minute Paper. Give your students 1-2 minutes to write a response to a specific prompt (e.g. "Today we discussed conductive heat transfer. List as many of the principal features of this process as you can remember."). When you collect their answers you only need to read enough to get a sense of the trends in their answers.

Muddiest Point. This is similar to the Minute Paper, but focuses on areas of confusion: ask your students to identify the muddiest point from today's lecture. Give them 1-2 minutes to record their answers, then collect their responses. Note that in some contexts you might instead collect responses by way of a Google Form – provided students can complete it during the class session.

Problem Recognition Tasks. Identify a set of problems that can be solved most effectively by only one of a few methods that you are teaching in the class. Ask students to identify by name which methods best fit which problems – without actually solving the problems. In the large group, have students identify their choices with a show of hands. Spend time talking about cases where there is lack of consensus, or where students seem overly hesitant with their votes.

Student Polls/Multiple Choice Questions. Ask students questions to test their understanding, and have them vote on answers – either via classroom response systems like iClickers, or low-tech with hand-raising.

Content for Active Learning Activities

Brainstorming. Introduce a topic or problem and then ask for student input and ideas. This works best when the answer is not obvious, the problem is complex, and/or there are multiple possibilities or interpretations available.

Case Studies. Use real-life stories that describe what happened to a community, family, school, industry or individual to prompt students to integrate their classroom knowledge with their knowledge of real-world situations, actions, and consequences.

Cooperative Note-Taking. Have students work in pairs to review their notes: prompt them to clarify difficult parts, identify important points, and answer each others' questions.

Directed Paraphrasing. Select an important theory, concept, method or argument. Ask students to explain the material in their own words, as if they are presenting it to an audience such as a grant review board, a city council member, a vice president making a related decision, and so on. Be sure to provide guidelines about the length and purpose of the paraphrased explanation.

Generating Test Questions. In pairs or small groups have students review their notes, agree on the most important point(s) covered, and write one or more multiple-choice test questions on these points. Note that the multiple choice format is ideal for this exercise because it they have to generate a question, a correct answer, and plausible alternatives.

Identifying errors. Provide an example with an error of some sort (e.g. logical, factual, procedural, computational, relational, etc.). Have students identify the error as quickly as possible, then correct the error – drawing on content from the lecture and/or related readings.

Mock testing & grading. Create a question similar to something that will appear on an upcoming test. Have students work in groups to draft an answer. Select a group to present their answer, and have the rest of the class apply your grading rubric to the answer presented. This works best with long answer questions, but can be adapted for any type of question.

Ordering concepts/procedures. Present students with an incorrectly ordered process (or method/procedure/plan/series/etc.) and prompt students to place them in their correct order.

Periodic Recall. After 10-15 minutes of lecturing have students close their notes and write down the most important (1-3) points from your lecture, and any questions they have. Have them pair up and compare, and add in things they have missed. Be sure to follow this up by asking students if they have any outstanding questions, or points that need clarifying.

Scripted Cooperation. One student summarizes the lecture material without looking at her notes, while the other gives feedback about the accuracy and completeness of the summary.

Note that content in this handout has been gathered and adapted from a variety of sources, including the following:

Angelo, Thomas A., & Cross, K. Patricia (1993). Classroom Assessment Techniques: A Handbook for College Teachers. San Francisco: Jossey-Bass.

Nilson, Linda (2013). *Creating Self-Regulated Learners: Strategies to Strengthen Students' Self-Awareness and Learning Skills*. Sterling, VA: Stylus Publishing.

University of Michigan Center for Research on Teaching and Learning. http://www.crlt.umich.edu/tstrategies/tsal