



## **Strategies for Covering Content Series**

### **PART 1: Covering Content More Effectively During Lecture**

Helping students learn and internalize content knowledge is a complex task that requires instructors to be both proactive and creative. Ambrose et al. (2010) define learning as “a *process* that leads to *change*, which occurs as a result of *experience* [emphasis original] and increases the potential for improved performance and future learning (adapted from Mayer, 2002)” (p. 3). Furthermore, the authors emphasize that learning is something that students must actively do themselves, not something that they passively receive from an instructor (Ambrose et al., 2010). Despite this, traditional lecture is still likely the most widely used form of content delivery in colleges and universities (Nilson, 2010). Although lecture certainly has its place in today's classrooms, there are other strategies can be used to engage students while still promoting learning. Varying your instructional strategy also has benefits for low-income and first-generation students, who may feel isolated when more traditional pedagogies are used exclusively (Engle & Tinto, 2008).

#### **Getting more creative with lecture through active learning activities**

Lecture can be an efficient way to communicate information to students, especially when paired with active learning activities (Gregory, 2013; Smith & Cardaciotto, 2011). These activities can either be individual or collaborative. Collaborative learning has been found to be quite effective in a variety of class types and subjects (Barkley, Major, & Cross, 2014; Loes, An, Saichaie, & Pascarella, 2017). Here are a few strategies for pairing lecture with active and collaborative learning activities:

Strategies	Activities & Descriptions
Break up your lecture with discussion activities	<u>Think/write-pair-share</u> : For this activity, the instructor asks the class a question, and then gives students a few minutes to think about or write down a response. Students then pair up and share their ideas
	<u>Send-a-problem</u> : For this activity, students break up into groups. Each group is given a problem to solve together. After coming up with a solution, the group then passes the problem and their solution to another group. After several groups have attempted to solve the problem, the groups must work together to analyze and synthesize the responses to the problem and report the solution to the class.
	<u>Buzz groups</u> : In this activity, students form teams of 4-6 and respond informally to a series of course-related questions. One useful variation on this activity is to assign students roles in the group (e.g., recorder, time-keeper, presenter, etc.).
	<u>Active listening</u> : Ambrose et al. (2010) suggest building active listening competency by asking students to “paraphrase what someone has said, followed up by a series of questions as to whether their perception was inaccurate or incomplete” (p. 186). The authors also suggest modeling this technique by paraphrasing your students responses in classroom discussions.
Assess students’ understanding	<u>Clicker quizzes</u> : Short, in-class quizzes using clickers can be used to assess in the moment how much students’ are understanding the lecture and whether you may need to go over a topic. For more on clickers at UC Davis, visit <a href="#">EdTech Commons</a> .
	<u>Minute papers</u> : These short writing activities, where students spend a few minutes writing short responses to questions meant to gauge their understanding of a class concept, can also provide you with an opportunity to assess students’ understanding of content in a more holistic way than quizzes.



Implement reciprocal teaching activities	Note-Taking Pairs: As the name suggests, this activity works by having students take joint notes. This allows students to capture more material in their notes, likely improving both partners individual notes.
	<u>Jigsaw</u> : “Students work in small groups to develop knowledge about a given topic and to formulate effective ways of teaching it to others. These expert groups then break up, and students go to new Jigsaw groups” (Barkley, Major, & Cross, 2014, p. 212).
	<u>Group Investigation</u> : In groups, students are assigned a sub-topic in the class that they are in charge of researching and then creating a final product to teach the class about their sub-topic.

**Additional resources:**

For more strategies and suggestions on pairing active learning activities with lecture, see our resource series titled “[Activating Your Lecture.](#)”

**Citation**

Center for Educational Effectiveness [CEE]. (2018). Strategies for Covering Content Series. *Just-in-Time Teaching Resources*. Retrieved from <https://cee.ucdavis.edu/JITT>

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**Strategies for Covering Content Series**  
**PART 2: Covering content through non-lecture activities**

In her article, Oliver-Hoyo points out that “presenting information does not necessarily translate into students’ understanding” (p. 35). Instead, she advocates for reducing the quantity of content covered, so that students can engage in key course concepts at a deeper level. This contention has been corroborated by Luckie et al. (2012), who found that students in biology laboratory courses with less traditional content coverage but more inquiry-based learning tended to score higher on content exams than students in classes with less inquiry.

**Inquiry-based learning**

Nilson (2010) defines inquiry-based learning as “giving students a challenge, such as a question, a hypothesis, or simply data to interpret, and they learn whatever they must to meet that challenge, which may or may not go beyond the course material” (p. 176). Research suggests that inquiry-based learning promotes higher-level thinking in students, including critical thinking and problem-solving skills (Nilson, 2010), and can improve students acquisition of course content (Luckie et al., 2012). Additionally, Engle & Tinto (2008) suggest that incorporating more active, cooperative, and problem-based learning activities that “require students to become more involved in the learning process,” (p. 25) can be one way to promote success for diverse learners, and for low-income, first-generation college students. Below are a few suggestions for how to incorporate guided extended-learning activities into the classroom. These activities should be scaffolded, otherwise they might become frustrating, insurmountable learning tasks for some students.

Strategies	Activities & Descriptions
Consider common modes or objects of inquiry from the field	<u>Field-Based Investigations:</u> You could design activities (or a project) where students must investigate a phenomenon of interest, a controversy, or a problem currently impacting the field. Then, break up the object of inquiry into several mini-assignments that are scaffolded in complexity (from easier to more complex) over the quarter, so that the tasks are more manageable for students.
Implement “authentic” writing assignments	<u>Authentic Writing Projects:</u> Anderson, Hoffman, & Little (2014) define “authentic” writing assignments as asking students to practice the types writing and thinking professionals in their discipline actually engage in. Authentic writing projects can give students a chance to see what writing and inquiry looks like in their own disciplines while providing them with an opportunity to write to a realistic audience.
Implement problem-based learning	<u>Case study:</u> In teams, students are given a case study describing a real world and/or field-related problem. Each team must then develop a solution to the problem, using course concepts, outside research, etc.
	<u>Group Investigation:</u> In groups, students plan, conduct, and report on an in-depth research project that is topically related to the course, though not covered by the instructor. This type of project allows students to dig into a particular topic, and gain more specialized knowledge in that particular area. For step-by-step instructions on how to design a problem-based activity, see this article from <a href="#">Faculty Focus</a> .

**Writing-to-learn activities**

Writing-to-learn activities involve using writing to help students understand course concepts and content. Herrington (1981) argues that these activities can be particularly helpful in exposing students to disciplinary ways of writing/thinking, and push students to be active participants in their own learning. Similarly,



research suggests that writing-to-learn activities can promote students' learning of content, performance on content exams, and engagement in the course (Bean, 2011; Drabick et al., 2007; Reynolds et al., 2011). Writing-to-learn activities range in size and intensity; from longer research-based projects to short in-class discovery writing.

Shorter Assignments	Longer Assignments
<u>Free Writes</u> : Short, ungraded, in-class exploratory writing activities meant to get students engaged in a course topic.	<u>Inquiry/Problem-Based</u> : Students are asked to research and investigate a current issue or problem facing the field.
<u>Reading or Concept Responses</u> : Student must write a response on an online discussion board responding to specific readings or course concepts. Instructors should provide guiding questions for these responses.	<u>Compare/Contrast Analysis</u> : Students are given a series of opposing readings, and must compare/contrast how and why the scholars' perspectives differ.
<u>Lecture Summaries</u> : Students are asked to write a short summary of a class lecture. This activity can be done in or out of class.	<u>Position Papers</u> : Students are asked to research and support a specific position on a controversy impacting the field.

**Additional resources:**

For more strategies and suggestions on designing and implementing writing-to-learn activities, see our resource series titled "[Designing Effective Writing Assignments.](#)"

**Citation**

Center for Educational Effectiveness [CEE]. (2018). Strategies for Covering Content Series. *Just-in-Time Teaching Resources*. Retrieved from <https://cee.ucdavis.edu/JITT>

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## *Strategies for Covering Content Series* **PART 3: Flipped Classrooms**

A “flipped” classroom model is essentially an inversion of the traditional structure for both inside and outside class time. In a flipped classroom, students are exposed to course concepts and content prior to class (through videos, reading, podcasts, etc.), while class time is devoted to practicing and applying these course concepts through a variety of active learning activities. Research suggests that flipped models are still quite effective at covering content (e.g., Baepler, Walker, & Driessen, 2014; DesLauries, Schelew, & Wieman, 2011; Haak et al., 2011; Marshall & DeCapua, 2013). For example, Baepler, Walker, & Driessen (2014) found that students taking a high enrollment chemistry course in a flipped format performed at least as well as those in a more traditional, lecture-oriented course; additionally, “student perceptions of their learning experience tended to improve significantly with the move to the flipped, hybrid format” (p. 234).

### **Considerations for “flipping” the classroom**

“Flipping” the classroom requires a considerable amount of thought, planning, and (re)design (EDUCAUSE, 2012). However, while it may take significant time and energy, the research (as noted above) demonstrates that if done thoughtfully, “flipping” your classroom can be well worth the effort for you and your students. Before embarking on the “flipped” endeavor, reflect on the following:

Considerations	Explanations
Time intensity	“Flipping” the classroom involves carefully examining the learning objectives at multiple levels (department, course, unit, lesson) and the activities and assessments used to determine what and how students are learning. Significant time must be devoted before the term towards developing materials like recorded lectures and online modules. Because of this, EDUCAUSE notes that the “flipped” model can be easy to get wrong. In order to avoid a failed experiment and a host of confused students, make sure you have plenty of time to devote towards planning and developing materials before you start. For help with aligning objectives, see <a href="#">this resource</a> from CEE’s Program Assessment team.
Teaching style	Adopting a “flipped” model requires an adaptation of teaching style. Instructors considering this approach should reflect on their style and how that will change in both the “flipped” material and during class time. The instructor’s role will change significantly with the “flipped” model and promoting instructor “presence” is a key consideration. For more on “presence” in flipped classes, see <a href="#">this resource</a> from EdTech Commons.
Class time	With the content delivery handled outside of class, instructors should think about how they will spend class time and generate student buy-in. Many active learning strategies exist, such as problem-based learning, cooperative learning, and group work. Many of these strategies align with popular learning activities, including: case studies, debates, and simulations. For strategies on implementing active learning activities in the classroom, see <a href="#">this resource</a> from EdTech Commons, Parts 1 and 2 of this resource series, as well as our series titled “ <a href="#">Activating your Lecture.</a> ”
Assessment	Proponents of the “flipped” model suggest that students be assessed on the video/reading segments of the pre-class materials. In essence, what will the students do while they watch the video, or right after viewing a lecture? Short quizzes are an example of ways for students and instructors to determine how well the material was understood. These types of assessments may also help instructors shape the in-class time (i.e., mini lecture on challenging topics, review concepts). Other, less formal options exist as well, such as creating a backchannel for discussion via social media (e.g., Twitter) or through the course management system (e.g., Canvas).





	Regardless of approach, this type of assessment will help determine if students viewed the material prior to class. For more quick in- and out-of-class assessment activities, see PARTS 1 and 2 of this series, as well as our series titled “ <a href="#">Encouraging Student Motivation</a> .”
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**What are some first steps I can take to prepare to “flip” my classroom?**

Here are a few additional considerations and suggestions on how to get started with flipping your classroom:

Strategies	Teaching Suggestions
Begin with the end in mind	Whether redesigning an entire course or just one module, instructors should determine student learning outcomes and the activities to support and assess them, and how they will foster student learning. Think of both content-centered (e.g., students will be able to summarize the main elements of the carbon cycle) and content-neutral outcomes (e.g., students will learn to work together collaboratively).
Set expectations	Be intentional and honest. Instructor enthusiasm sets a very strong tone for the “flipped” model. Instructors should also tell students about the reasons why the model is being implemented and how it will help improve student learning.
Start smart	While the “flipped” model takes some considerable planning, one need not “reinvent the wheel,” so to speak. Think about what you have in existence, what you can enhance or what you can employ. <ul style="list-style-type: none"> <li>• <u>Existing content</u>: Much of the existing instructional materials (e.g., documents, Powerpoints, PDFs) can be repurposed for the “flipped” model.</li> <li>• <u>Enhance</u>: Adding enhancements to existing materials (e.g., voiceover slides, annotating video and documents) can be done through free or campus supported technology, such as screen capture software (e.g., Camtasia, Jing) and annotation software (e.g., Adobe Acrobat, Preview).</li> <li>• <u>Employ</u>: A number of high-quality and/or freely available resources exist to complement instructional material (e.g., <a href="#">Khan Academy</a>, <a href="#">MERLOT</a>, <a href="#">OER Commons</a>, <a href="#">TED-Ed</a>).</li> </ul>
Start small	Begin with one lesson or one unit. As previously mentioned, “flipping” takes time. When determining how to record pre-class material, consider “chunking” content into pieces.
Observe	Many instructors have used the “flipped” approach. Ask them for an opportunity to observe a planning session, video recording, and class period to get a general sense of the preparation, technology tools, classroom activities, environment, and interactions.

**Additional Resources**

For more suggestions on how to approach designing and implementing a flipped model in your own classroom see:

- UC Davis professor, Dr. Luca Comai’s blog on “[Flipping Genetics 101](#)”
- [Blended Learning Toolkit](#)
- [Flipped Classroom Infographic](#)
- [The Flipped Learning Network](#)
- [Ed Tech Commons](#)

**Citation**

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