Interactive Lecturing

Tips for transforming lectures into opportunities for students to engage in their own learning.

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Introduction

Interactive lecturing is this "ongoing interaction with your class that has to look spontaneous but actually be very planned. [The goal is to] create a really comfortable environment for learning and create an environment that students want to be in versus not want to be in." (Debby Good, Department of Human, Foods, Nutrition, and Exercise)

Lecturing can be one of the most effective ways to deliver large amounts of content to a variety of class sizes. To contribute to higher levels of student success, incorporating strategies to make lectures more interactive is a way to engage students in the learning process. The process of developing engaging lectures encourages instructors to identify ways to activate and apply student knowledge through methods that are most appropriate within and across disciplines. To create more interactive and engaging lectures, instructors can explore a number of strategies, such as incorporating questioning techniques or facilitating students through activities where knowledge is sought and/or applied.Other strategies include more appropriate navigation of the learning environment and being aware of non-verbal cues. This guide was created to offer a number of quick tips that can be easily incorporated into classrooms of any size and discipline. Tips were derived from both research-based practice as well as Virginia Tech instructors who regularly provide interactive lectures.

General Tips for Getting Started

- Set expectations from the first day of class. Create a hook and engage students from the first minute they enter class.
- Determine, from the beginning, how students' engagement in the course will be included in course assessments. Communicate these plans clearly and often with students.
- Spend time at the start of the semester and/or at several points throughout the semester to learn some things about your students. This will help you identify ways to make connections to content more relevant, align with learning preferences, or simply identify a good story to use to illustrate the application of content.
- Explore a variety of teaching techniques to engage students and determine the best, and most appropriate, method for the learning outcomes.
- Provide students with resources and lecture materials they can explore prior to, or immediately following, class meeting times. Assign these materials and tasks with purpose and hold students accountable. Resources can include readings, videos, and practice problems.
- Incorporate stories into your lectures in order to create interest, relevance, and emotion.

The material presented in this document was gathered from research-based practice as well as tips and advice from Virginia Tech instructors. Please review the remainder of this guide for more detail on how these and other tips can be valuable.

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Setting the Stage and Establishing Expectations

"From the very beginning, when I walk into the classroom on the first day, I say, 'Howdy.' More often than not, without being prompted, I get a big "Howdy" in response. I do that because I want to set the stage that I don't want to be the only one talking. And when you care, even if it's just for a few minutes at the beginning of class, and they get to talk, you're already creating that sort of culture that this is going to be back and forth." (Buddy Howell, Department of Communications)

You never get a second chance to make a first impression. This is true in every aspect of life, even teaching and learning. Students establish their strategies for class participation and commitment to courses as early as first day of class. Therefore, it is crucial to clearly communicate expectations for how students will engage with the material and participate in the lecture sessions. The first day of class is the perfect time in the semester to model behaviors you wish to see from students and provide examples for how to navigate your teaching, the learning environment, and their peers.

- Develop and clearly communicate classroom policies on efforts to minimize distractions. For some, this is a clearly stated cell phone or technology-use policy. For others, this is a well-developed attendance policy. Regardless of your policies, be sure to communicate with students early and often and model such behaviors yourself, where appropriate. Also, for more positive and respectful reception from students, offer a rationale for such policies.
- Involve students on day one of the class in an activity similar to what they will experience the rest of the semester. This helps set an early expectation of what class time will be like and what your expectations are for participation.
- Directly state what your expectations are for class participation. Do not leave it up to students to make assumptions.
- Provide clear directions for activities. It also helps to have directions presented in multiple forms. For example, in addition to verbally explaining an activity, project directions on the screen or have them written on a handout. Multiple representations help all learners, including those who may have a learning disability.
- Know that most student resistance will present itself in passive form. Determine ahead of time what course of action you will take to address those students not participating. See the section on Student Resistance for more strategies on navigating these scenarios.

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Getting to Know Your Students

"Something that's unique that begins to create your own culture in the classroom. I think as we begin to reveal something about our personalities, our students begin to see that we're human and they feel comfortable. I think part of doing well in a class is just feeling comfortable with the professor." (Buddy Howell, Department of Communications)

Just as in social situations, the more a person knows about you, the more comfortable you become. With teaching and learning, we can easily create a more comfortable and learning-focused environment by establishing a positive rapport among students and with the instructor. From the first few moments students are in your class, they will look for cues for how responsive you will be to them, as individuals, and the kind of effort you will make to care about them and their learning. Simple gestures, such as learning names or greeting them at the door, can make a significant difference in how students respond to your requests for engagement. In addition, understanding more about your students will help you make class material more relevant and, therefore, engaging.

- Consider the role a short, but well-positioned story can play in your teaching and student learning. Through the use of stories, whether it be student or faculty stories, you create a small point of access for communicating with a sense of emotion and empathy. By knowing more about your students, you can incorporate stories that are relevant to both the content and the interests or needs of the students.
- Express your passion about your subject matter. Students are much more likely to engage in a class that is designed to share someone's passion. As with stories, identify points throughout the lesson and/or semester where you can express your personal interest, and background on that interest, so students can more easily relate to you and to the content. This can easily be done without revealing specific, personal information.
- Utilize assignments and/or activities that ask students to connect course material to their own lives, personal interests, or career goals. While the process of making this connection is beneficial to the learning - through its focus on relevance, it also provides you as the instructor insight into your students' lives, interests, and ambitions.
- Incorporate getting to know you or icebreaker type activities early on in the semester to help you get to know your students and help your students get to know each other.
- Try to learn as many of your students' names as possible. Utilizing the student picture feature within Hokie SPA can assist with you learning a few names. Once you've learned some names, utilize those names during lecture to help better connect to your students.

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Non-Verbal Communication

"Teaching is the dissemination of intellectual and head material...If you can find opportunities to speak from your heart or speak from your impulses, your instincts, your gut, your passions, your listeners will be much more engaged." (Greg Justice, Department of Theatre and Cinema)

There is a large body of research that indicates the majority of communication comes in non-verbal ways - think facial expressions, eye contact, body movements, and proximity. To be even an even more effective educator, instructors can work to incorporate methods of communication, other than words, in order to maintain student interest, attention, and awareness within a classroom. While some of these methods occur naturally, it is important to be aware of ways in which you, personally, communicate through non-verbal cues. An awareness of such can help you work more intentionally to improve your methods or understand the role such cues play in student engagement and learning.

- Make eye contact with students as they're answering a question you have posed, or they are asking you a question during the class period. This helps ensure students that you are paying attention to them and value their contributions to the classroom.
- Consider collecting student questions electronically. If you know that you do not have a particularly good "poker face" or your natural expressions are often misinterpreted, consider collecting students' questions electronically via a Google doc or Canvas quiz/survey throughout the class period. At regular intervals, you can check the document to see what questions have come up, select appropriate ones to address, and help keep students' sense of anonymity in tact during the class period.
- Move throughout the room and establish physical proximity with students. Move towards students as you engage with them. Use space to emphasize important points in the lecture by moving closer to the students as you present information of higher significance.
- As with use of space, tone and volume of voice can be used to emphasize critical information. Changing the tone of your voice or talking more loudly can indicate to students that material carriers a greater level of significance and signals to them to listen more closely.

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Creating a Culture of Engagement

"...learn some names...navigate the room...decrease the space and call them by name, I think that means the world to them. If they feel like you really do care about them learning, that goes a long way to making them feel like it's a two-way thing in class."
(Buddy Howell, Department of Communications)

Lecture classes are typically taught in classrooms that are designed for one-way delivery. The learning environment can feel quite large and overwhelming to students, even when there are only 40-50 students present. In order to remove some of the anxiety students face in these spaces, faculty can practice methods of condensing the space and generating a sense of physical proximity to the students. In addition, strategic navigation of the classroom contributes to a students' sense of belonging and comfort, thus increasing their motivation to stay engaged and reducing the temptation to remain a passive member of the class.

- Create a greeting, a way to start class, that's unique to you, that can establish the culture of the class and students know what to expect.
- Try to learn as many of your students' names as possible. Utilizing the student picture feature within Hokie SPA can assist with you learning a few names. Once you've learned some names, utilize those names during lecture to help better connect to your students.
- Early on in the semester, engage students in some community building activities where they get to know some of their classmates.
- Utilize think-pair-shares and small group discussions to engage students with each other and with the content. Make these activities intentional and relevant, being sure to explain the purpose to students.
- Establish an expectation that students should ask questions. Keep in mind that asking questions in front of peers - regardless of the class size - can be intimidating. Also, students may not realize their lack of understanding until they leave the classroom and begin classwork. Some ideas for helping to establish this expectation include:
  - Incorporate learning pauses into your lectures to create opportunities for students to process content.
  - Build in opportunities for productive failure, allowing students to participate in no stakes or low stakes opportunities to gauge their understanding of class content.
  - Create opportunities for anonymous questions. This could be index cards taken up at the end of class, a Canvas quiz/survey, a Google doc that students post questions to during class time or a student response system that allows for text responses, as just a few examples.

Creating a Culture of Engagement cont...

- Ask for student feedback as a means of formative evaluation for you. The exit ticket at the end of the class period (or the week) is a great strategy. See the section on *Learning Techniques and Strategies* for more information. In place of notecards, you can set up a Google doc or a Canvas quiz/survey to collect the information at the end of the class period.
    - If you have a graduate or undergraduate teaching assistant, utilize your TA to help you preview the feedback and note themes/patterns.
    - Request a CETL staff member to conduct a formative mid-semester feedback session in your class.
- Navigate the physical space of the classroom as much as you possibly can to create proximity to your learners. To help resolve some issues, in larger or crowded environments, you may try utilizing a long range slide advancer, navigating a particular quadrant of the room one day and rotating throughout the semester, or assigning TAs to manage certain sections of the classroom to assist with proximity.

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Lecture Techniques

"Asking questions of students is so important for engagement. I do think that the question and answer process throughout the semester is the best tool I have." (Greg Justice, Department of Theatre and Cinema)

In order to make lectures more interactive and engaging, instructors will create learning pauses in their lecture. The term learning pause refers to pausing the lecture (or, more specifically, the instructor's time directly expositing content) to incorporate active learning activities that focus on students processing the information from the lecture.

These activities are designed to be less time intensive than more developed active learning strategies, and they can last from seconds to about 3-5 minutes. Of course, these can be extended if desired. These activities can be designed in a number of ways, typically following one of three formats, as described below. For a more detailed list of specific strategies, please consult our Learning Pauses guide (https://bit.ly/30nAtok).

FORMAT	IMPLEMENTATION NOTES
Individual	Students complete the activity on their own.
Think-Pair-Share	Students first do the activity on their own. Then, they pair up with a classmate to discuss their responses/answers. Finally, the pairs share out to the entire class. Note: Think-pair-shares work best when you ask students to write down their responses before being paired together.
Small Group	Students complete the activity in small groups. For these activities, 3-4 students in a group works best. To reduce class time spent organizing students in groups, you may want to consider one of the following ideas: • Utilizing the same small groups throughout the semester (or vary them up every few weeks) and ask students to sit with their groups • Use Canvas to randomize student groups • Assign students to groups as they enter the classroom and note where they should sit (alternatively, you can use name cards to do this if you're in a classroom with tables or moveable desks) • Randomize groups as students enter the classroom by giving students a handout/card with their group name/number on it. Have designated meeting areas for the group pre-labeled in the classroom

For more information on ways to engage students from day one, please explore the section on the resources page titled, "Lecture Techniques".

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Tips for Including TAs

Incorporate your teaching assistants effectively into the classroom community. Students need to feel like the TA's are part of the class, are aware of what is going on in class, and have the expertise to assist them before they will willingly seek out TA's help. If the TA is never seen or heard from, it creates the impression that the TA is not someone who can assist with the course material. To help incorporate TA's into the classroom, consider these suggestions:

- Introduce the TA on the very first day and have the TA lead a short activity. This will help create the impression that the TA is knowledgeable and integrated into the course.
- Require that your TA is present during class time. This will ensure that the TA knows what is going on during class.
- Have planning and/or feedback meetings regularly with your TA.
- Ensure that the TA is available for at least some time prior to and directly after class to help address students' questions and concerns.
- While not always possible, try to have the TA's office hours at a time most students can access. For example, office hours from 10am - noon are likely going to be when most students are in other classes. However, this allows for some creative thinking like offering virtual office hours online during the week.

Assessing the Lecture

"When students are able to feel like they are owning the learning, we're creating something together, when they've been confused and they ask a question. I say, 'well, tell me what you think' and they sort of think through it, then there's learning. There's a new perspective. We're producing something together." (Buddy Howell, Department of Communications)

Too often, and too easily, instructors get caught in the action of delivering content to students, missing a number of opportunities to gauge student interest or understanding. As instructors, it is important to remain in tune with your students and be able to respond flexibly if the material and methods you have planned are not proving effective for student learning or interest. Beyond formal assessments, such as tests, homework assignments, projects, etc., there are ways to identify, just-in-time, if students are paying attention and engaging with the class. Reading and responding to these cues can yield a much more effective learning situation and a stronger rapport between student and instructor.

- Spend some time learning how non-verbal cues can help you identify student interest and engagement. Emotions, facial expressions, and eye contact can reveal a lot. While these are helpful tips for instructors to be more effective, the same cues from students can indicate whether they are either paying attention or not, understand the material or remain confused, or are bothered by something they have heard, seen, or felt. Also, a shift in proximity from class-to-class can indicate a shift in students' attitudes and/or commitment to the class.
- Utilize formative assessments to help gauge students' understanding of the material. For ways to formally assess student knowledge, please see our guide on Classroom Assessments (https://bit.ly/31UbA49).
- Ask for student feedback at the end of a lecture to get information regarding what they did not understand, what was not entirely clear, and what they still have questions about.
- Rotate assigned student note-takers. Utilizing rotating student note takers can assist students learn how to take notes, provide access to notes for students who may need an accommodation, and serve as an assessment tool for an instructor to examine students' understanding.
- Take inventory of student behaviors. Are they making eye contact? Are they taking notes? Are they asking and/or responding to questions? Overall, how are students reacting to what you are doing and/or what you are asking them to do?

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Student Resistance

"It's unfair to ask a student to get interested in [the subject] if you're not passionate about it. If you want them to be involved in the class, you need to be involved in the class. If you are detached…if you want to be a really great teacher, you need to get off yourself and care about your students." (Greg Justice, Department of Theatre and Cinema)

Regardless of how much effort we put into creating the perfect lecture and our efforts to design relevant and intentional lessons, there will always be the student(s) who are fully resistant to those efforts. While there is a sense of students' personal responsibility for their own learning, these students can often create a negative vibe in a classroom, especially those classes that are designed to be active and engaging. By exploring methods to understand your students, this resistance can be reduced and, in some cases, completely eliminated.

- Note that most resistance to class participation will be passive in nature (e.g., not joining a group, sitting off to oneself). Determine how you will address non-participation ahead of time.
- Explore the makeup of disciplinary majors your students are pursuing. Each major has its own methods to engage students, thus creating expectations among students for what to expect for their own learning. Be sure to communicate methods and expectations clearly to students so they are prepared for your class.
- Students often fail to identify relevance in what they're being asked to do, causing them resistant to put forth the effort to complete the assignments and/or participate fully in class activities. Communicate relevance of activities and assignments, so students are aware of value.
- Most students are used to a stand-and-deliver method of instruction and have rarely been asked to participate in the learning process, other than completing homework and taking tests. Anything other than taking notes and viewing slide presentations goes beyond what they've previously been expected to do. As mentioned in other tips, setting clear expectations from the first day of class and clearly communicating intention and relevance will help lower the threshold of resistance.
- Students can sense when an instructor is ill-prepared or uncomfortable with the material they are teaching. Being fully prepared, anticipating questions or challenges from students, and having fully reviewed activities, practice problems, etc. will decrease student resistance and increase their respect for you as an instructor.
- Consider students' mental and physical states. For example, if your class is late in the day, students have likely had several classes prior to yours that day. They may be physically and cognitively tired. To help with this, incorporate an early activity into the lesson and try to engage students in movement and dialogue throughout the class period.

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Additional Resources

Below is a list of additional resources and materials that can help expand on the ideas presented in this guide. While not exhaustive, the resources presented below can help further guide you in the development of personal strategies for your course and your students.

General Resources
Websites
- Carl Wieman Science Education Initiative
  http://www.cwsei.ubc.ca/resources/
- Science Education Resource Center (SERC): Pedagogy In Action
  https://serc.carleton.edu/sp/library/interactive/index.html
- IUPUI Center for Teaching and Learning
  https://ctl.iupui.edu/Resources/Teaching-Strategies/Tips-for-Making-Lectures-More-Active
- Iowa State Center for Excellence in Teaching and Learning
  https://www.celt.iastate.edu/teaching/effective-teaching-practices/teaching-blunders-to-avoid-ten-worst-teaching-mistakes/
- UT Austin - Tips for LARGE classes
  https://facultyinnovate.utexas.edu/teaching-large
- Utah State - Resources on Active Learning
  https://cidi.usu.edu/activelearning

Books
- *Helping Students Learn in a Learner-Centered Environment* by Terry Doyle
- *Teach Students How to Learn* by Saundra Yancy McGuire
- *Dynamic Lecturing: Research-Based Strategies to Enhance Lecture Effectiveness* by Christine Harrington and Todd Zakrajsek
- *Hitting Pause: 65 Lecture Breaks to Refresh and Reinforce Learning* by Gail Taylor Rice

Setting the Stage and Establishing Expectations

Articles and Websites
- *How can I set the stage for student engagement in an active learning classroom, from the first day?*
  https://www.physport.org/recommendations/Entry.cfm?ID=101223
- First-Day Questions for the Learner-Centered Classroom
  https://onlinelibrary.wiley.com/doi/epdf/10.1002/ntlf.10101
- Carl Wieman Science Education Initiative
  First Day of Class – Recommendations for Instructors
  www.cwsei.ubc.ca/resources/files/First_Day_of_Class.pdf

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Additional Resources cont...

- Setting class norms about behavior during group activities
Carl Wieman
www.cwsei.ubc.ca/resources/files/Setting-Group-Work-Norms_Activity_Wieman.pdf
- UT Austin - Tips for Starting Strong
https://facultyinnovate.utexas.edu/starting-strong

Books

- *147 Practical Tips for Using Icebreakers with College Students* by Robert Magnan

Getting to Know Your Students

Articles and Websites

- "Getting Know Your Students as Individuals"
https://www.cmu.edu/teaching/designteach/teach/classroomclimate/strategies/individuals.html
- "Getting to Know Your Students"
https://www.csun.edu/science/ref/students/getting_to_know.htm
- Frisby, B. N., & Martin, M. M. (2010). Instructor-Student and Student-Student Rapport in the Classroom. Communication Education, 59(2), 146-64.
- University of Maryland - Fearless Teaching Framework: Climate
https://tltc.umd.edu/fearless-teaching-framework-climate
- Chronicle of Higher Education: Are You Being Rigorous or Just Intolerant?
https://www.chronicle.com/article/Are-You-Being-Rigorous-or-Just/236341?cid=cqt

Non-Verbal Communication

Articles and Websites

- VT Magazine article on Greg Justice
https://www.vtmag.vt.edu/fall16/ology.html

Creating a Culture of Engagement

Articles and Websites

- *The Argument for Making Large Classes Seem Small* by James L. Cooper & Pamela Robinson in New Directions for Teaching and Learning
https://onlinelibrary.wiley.com/doi/epdf/10.1002/tl.8101
- Vanderbilt University's Center for Teaching
https://cft.vanderbilt.edu/guides-sub-pages/teaching-large-classes

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Additional Resources cont...

Lecture Techniques

Articles and Websites
- Center for Excellence in Teaching and Learning at Virginia Tech Learning Pauses: https://bit.ly/30nAtok
- UT Austin - Checks for Learning https://facultyinnovate.utexas.edu/creating-checks-learning

Assessing the Lecture

Article and Websites
- Center for Excellence in Teaching and Learning at Virginia Tech Classroom Assessment Techniques: https://bit.ly/31UbA49
- CRLT at University of Michigan http://crlt.umich.edu/sites/default/files/instructor_resources/Defining%20Assessment.pdf
- UT Austin - Classroom Assessment Techniques https://facultyinnovate.utexas.edu/cats

Student Resistance

Articles and Websites
- https://www.facultyfocus.com/articles/effective-teaching-strategies/student-learning-six-causes-of-resistance/#sthash.3jL2D8iR.dpuf
- https://www.insidehighered.com/news/2019/01/22/study-student-resistance-curriculum-innovation-decreases-over-time-it-becomes
- https://link.springer.com/article/10.1186/s40594-018-0102-y
- https://stemeducationjournal.springeropen.com/track/pdf/10.1186/s40594-018-0102-y

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