

Lecturing in the Preclerkship Curriculum

A GUIDE FOR FACULTY LECTURERS



BROWN
Alpert Medical School

“Some people talk in their sleep. Lecturers talk while other people sleep.” *Albert Camus*

“My lecture was a complete success, but the audience was a failure.” *Anonymous*

Lecturing for Learning

You have been asked to give a lecture. You are told how many minutes you will have, and what material you need to cover in that time. You head straight to your computer and start making your slides.

Stop.

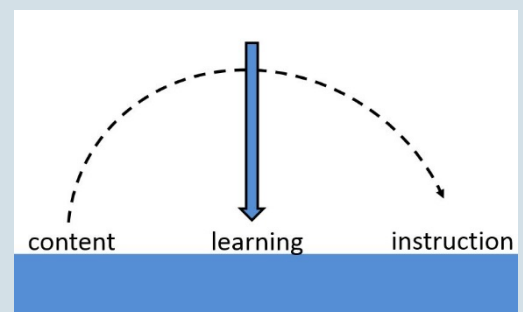
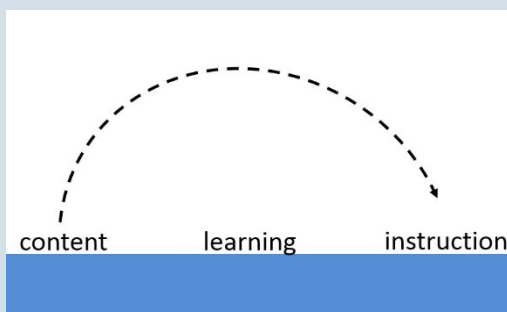
We want to help you give the best lecture you can. In order to do that we will provide tips on slide design and presentation style. But first we need to move the focus from your *teaching* (the presentation of content via slides) to the students' *learning* (what you actually want them to comprehend).

When we focus too much on the act of teaching, we tend to pay most attention to our own actions, and to “covering” all of the necessary material. “Covering” material too often involves shoveling as much content as possible into a single lecture. The number of power point slides for a single lecture becomes large, and the time afforded to each individual slide becomes shorter and shorter.

Lost in this process is a focus on student comprehension. We can cover all the material we want, but it won't matter if students don't understand what is being presented. ***The only measure of good teaching is learning.***

A shift in focus from teaching to learning keeps in mind the essential outcome- student comprehension. And there are specific ways to craft lectures that maximize that comprehension.

Before considering how you will *teach*, focus on what students will *learn*.



Facilitating Learning

The much-maligned lecture is a useful teaching method to reach large audiences. Lectures can inspire, entertain, and provoke. They can provide an organizational framework, highlight major concepts, and arouse student interest. They can also facilitate real learning.

You can facilitate learning through lectures in a number of different ways. Here we will focus on strategies that include Targeting Your Learners, Effective Slide Design, and Interactive Delivery.

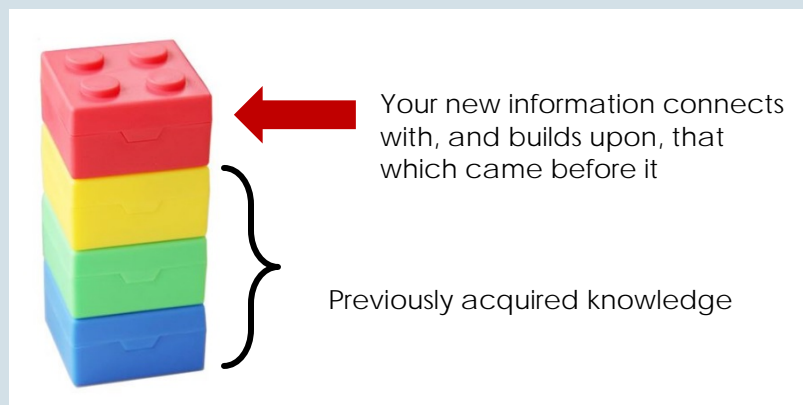
TARGETING YOUR LEARNERS

Lectures that present information that is either way above, or way below, the level of the audience are a waste of time. Lectures that present the exact same material that the learners have received previously, in the exact same way, are a waste of time (all curricular redundancy should be purposeful and used to reinforce important concepts). Lectures that present material that is completely unconnected to content presented previously are, well, not a waste of time, but not a great use of anyone's time either. You are busy. Students are busy. We want to help you craft lectures that make the best use of everyone's time.

A great lecture fits perfectly into the learners' broader educational context, builds upon previously presented concepts, and then extends students' thinking in new directions. Sounds magical, but how can you achieve it?

Situate yourself. It is essential to figure out how your lecture is situated within the broader curriculum. The Course Leader and the Office of Medical Education (OME) are your best resources to figure this out. What year are your learners? What have they been exposed to previously? What concepts will be completely new to them? How can you help them make connections to prior knowledge? Before you start outlining your lecture content, consider what content is appropriate *for these particular learners, at this particular time*.

While your busy schedule likely does not permit you to attend the lectures that precede yours, you can go online and review lectures and lecture materials related to your topic (ask OME for access). Additionally, other individuals (Course Leaders and OME faculty) have a detailed understanding of the curriculum as a whole. Use them as resources.



Begin with concepts, not slides. Before opening up a blank presentation, take a few moments and decide upon a limited array of major and supporting concepts you really want students to understand coming away from your lecture. Write them down. These will be the cornerstones of your lecture. Defining them now will help prevent you from getting lost in all of the detail that you *could* (but probably shouldn't) present. Ask yourself not "What do I need to cover?" but "What do I want student to understand?", and build your lecture around that. Only when you have defined your major and supporting concepts should you begin to design your slides.

TIP: Limit the number of slides. For a 50-minute lecture on complex biomedical material, the number of slides should not exceed about 40, or 70 for an 80-minute lecture.

Walk them through it. Whether you're presenting conceptual information or describing how to carry out a particular process or procedure (interpreting an EKG, or performing a mini-mental status exam), learners need to be led through the material with a steady hand. Orient them periodically as to what you've covered, and what you will cover next. When appropriate, include summary slides to assist students to identify main points, and to remain appropriately engaged with the material.

Probe for understanding. In order to assist with that orienting process described above, ask a question about what you just covered. What was the main point of those last five slides? Does everyone understand the mechanism you just described? Ask someone in your audience to provide a brief summary of what you covered thus far.

This technique has the lovely additional effect of getting your learners' attention, and creating goodwill as you send them the message that you care about their learning.

EFFECTIVE SLIDE DESIGN

Know how learners access material. Gone are the days when your lecture only existed in the brief moments of its delivery. Now your words (and actions) live on long after that 50 or 120 minute time slot. Students revisit your lecture in a variety of ways. They review electronic or print versions of your slides that are made available to them by the OME. OME will, by request, embed your slides into your notes so that students can refer to a single printed handout. Students also study the notes that class members compile and then share (ask one of them about the "Notes Collective").

Handouts allow you to include more extensive narrative detail not included in your slides

Lung cancers most often present with persistent cough with or without accompanying hemoptysis. Chest x-ray will often reveal evidence of a mass lesion within the lungs, and this finding may be accompanied by involvement of hilar or mediastinal lymph nodes. The local effects of pulmonary malignancies are summarized in the slide.

Squamous cell carcinomas account for 25-30% of all lung cancers. They tend to have a central location reflecting origin from a major bronchus. There is a relatively well defined series of changes that characterize the development of this tumor type. Initially, there may be evidence of goblet cell hyperplasia. This is followed by stages of basal (reserve) cell hyperplasia, squamous metaplasia, squamous dysplasia, carcinoma in situ, and finally invasive cancer. The sequence of molecular changes parallels histologic progression. Inactivation of tumor suppressor genes on 3p is an early event while p53 mutation and inactivation of RB are late events.

LOCAL EFFECTS

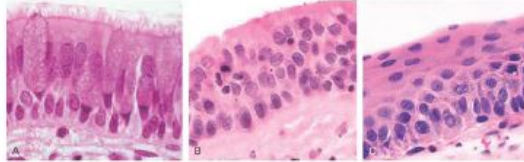
- Pneumonia, atelectasis
- Lipoid pneumonia
- Pleural effusion
- Hoarseness, dysphagia, paralysis of diaphragm
- SVC syndrome
- Horner syndrome

SQUAMOUS CELL CARCINOMA

- Mx
- Central location
- Precursor lesion is dysplasia/carcinoma in situ
- Spread to hilar nodes
- Central cavitation
- Well to poorly differentiated (extent of keratinization)

STAGES IN DEVELOPMENT OF SQUAMOUS CARCINOMA

GOBLET CELL HYPERPLASIA BASAL (RESERVE) CELL HYPERPLASIA SQUAMOUS METAPLASIA



This is an example of a handout in which OME has embedded PowerPoint slides into corresponding notes. (Students love this!)

The text in the box represents two slides from the lecturer's presentation

The handout contains images that were presented on slides, and allows students to write notes directly on them

Additionally, students view lectures, either for the first time or as a secondary way of reinforcing content, through the video recording of your lecture known here at AMS as "lecture capture". Each of these means by which students access your lecture content has implications for your lecture design and delivery. For example, because your slides are distributed in paper form, it is a good idea to keep the background of your slides a light color with a very simple design (I am a big fan of black text on a plain white background). Students who use an annotating function on their iPad to take notes will have difficulty doing so if you have used a dark background.

TIP: Students who access your lectures via lecture capture have a very different experience than those sitting in the lecture hall. Be aware of the following:

- If you step too far away from the screen, you will no longer be seen on camera.
- Questions from the audience cannot be heard on the recording. Repeat each question before answering!
- Video recording does not capture your use of a laser pointer. In order for students watching the recording to actually see what you are pointing to, use the computer mouse to move the cursor, or use the drawing tool mentioned below in the section on annotating slides.

Keep it simple. A rule of thumb for basic slide design is to keep it big and keep it simple. Use at least 20 point font size. If you're using a standard Title + Bulleted Text design, limit yourself to 4-6 bullets per slide. Keep that title (it helps orient students), but eliminate extraneous words and make all complete sentences into short phrases. Include only key points as written text, and fill in the rest of the detailed content either verbally or in a handout.

Yet make it visual. Simple does not have to mean boring. The use of relevant, high-quality images can illustrate important points, capture student attention, and help them retain information. Varying your design from slide to slide can also help wake students up!

Make your images as large as possible- fit them to the space allotted. Images should be clearly visible from the back of the room. Label each one. If you have complex tables, simplify the material by recreating a part of the original, or clearly highlight the important information. Remember to always "insert" your images, rather than cut and paste.

Reduce "cognitive load". The basic idea here is to reduce how hard our brains have to work to process new information. We can reduce the cognitive load induced by our lectures in a variety of ways. First, eliminate all extraneous information on your slides. This can include details better suited to handouts, redundant wording, slide numbers, logos, and random clip art images that don't really add anything to your content. Our brains expend precious energy attending to these pieces of information- energy that would be put to better use on more important content.

Remove any background "texture" and use light colored backgrounds

SIGNS OF SUBSTANCE ABUSE

Signs of substance abuse include the following behaviors:

- Erratic work behavior (This can include tardiness, and inappropriate language)
- Poor appearance (grooming, dress)
- Memory lapses
- Inappropriate medical care
- Risk-taking behavior
- Slurred speech

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Take out redundant sentences

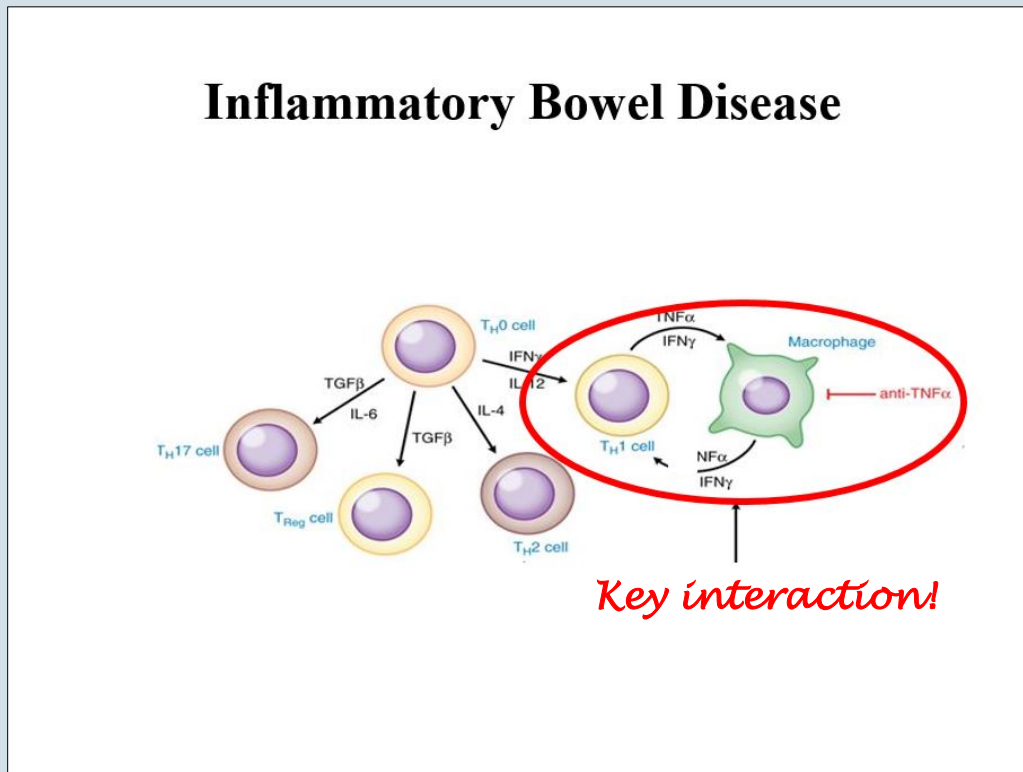
Make short phrases out of complete sentences

Take out extraneous (and possibly inappropriate) clip art

Page numbers are generally not necessary

Once you have included logos on your title slide, they do not need to be included on subsequent slides

Second, use visual signals to highlight important ideas or content. This can include drawing a shape around something, bolding text, or repeating certain words or phrases.



Finally, try to avoid having students read, attend to an image, and listen to you speak, all at the same time. Our visual and auditory “channels” are taxed when both are put to work at maximum capacity in a given moment.

Avoiding this situation can be very difficult with text-heavy presentations. The best strategy is to reduce your slide text as much as possible (rely on a handout to present additional information), and when necessary, give students a moment to read your slide before you continue your presentation. When you are presenting an image, choose to either narrate your explanation OR to include a written description of the image on the slide, but not both.

TIP: Want to know if your slides are visually appealing? Click the “View” tab at the top of your PowerPoint presentation. Then click “Slide Sorter”. Now squint. Do you see endless boxes of text? Or do you see colors and shapes, photographs and graphs, slides that look different from one another? Revise until you do!

INTERACTIVE DELIVERY

Lectures have a bad reputation. When done poorly, they can create a passive audience of individuals checking their phones. Learners come away struggling to remember what they just heard. But a really good lecture can be energizing, inspiring, and yes, very educational. You don't have to be a motivational speaker or Toastmaster to give a good lecture. But you do need to engage your learners.

Learning is an active process. Your job as a lecturer is to activate the brains, not just the highlighters, of your learners. Learners need to wrestle with content- they need to make connections, analyze, synthesize, compare, and classify. They need to integrate, construct, describe and differentiate. Okay, perhaps they can't do *all* of these during your 50 minute presentation, but there are many simple ways to promote "active learning" during lectures.

Free up some time for the strategies below by winnowing down your number of slides and transferring some of that detailed content into a handout (remember, your job as an educator is to facilitate learning, not "cover" a particular topic!).

Dive in. Yes, we want you to include a slide that outlines learning objectives for your talk. And yes, we want you to include a slide that details any financial disclosures. But how about saving those for Slides 2 and 3? On your first slide, outline a case or pose a problem. Utilize a powerful image. Wake those learners up and tell them that they are in for a fascinating ride!

Make connections. We've already indicated that students will learn best if they can see how your content connects to material they have already mastered. Additionally, you can facilitate learning by helping students understand why particular information is important, and how each piece relates to one another. Focus not just on facts, but on the reason those facts have made it onto your slides. Use the phrase, "This is important because..." often throughout your presentation.

TIP: This is truly the World's Easiest Way to Engage Learners- Don't explain the visual image (graph, photograph, chart, etc.) on your slide to the audience. Instead, first ask, "What do you see?" Try this just once during a lecture and see how it goes.

TIP²: If your audience can't answer because the image is too small or too complex, revise the image!

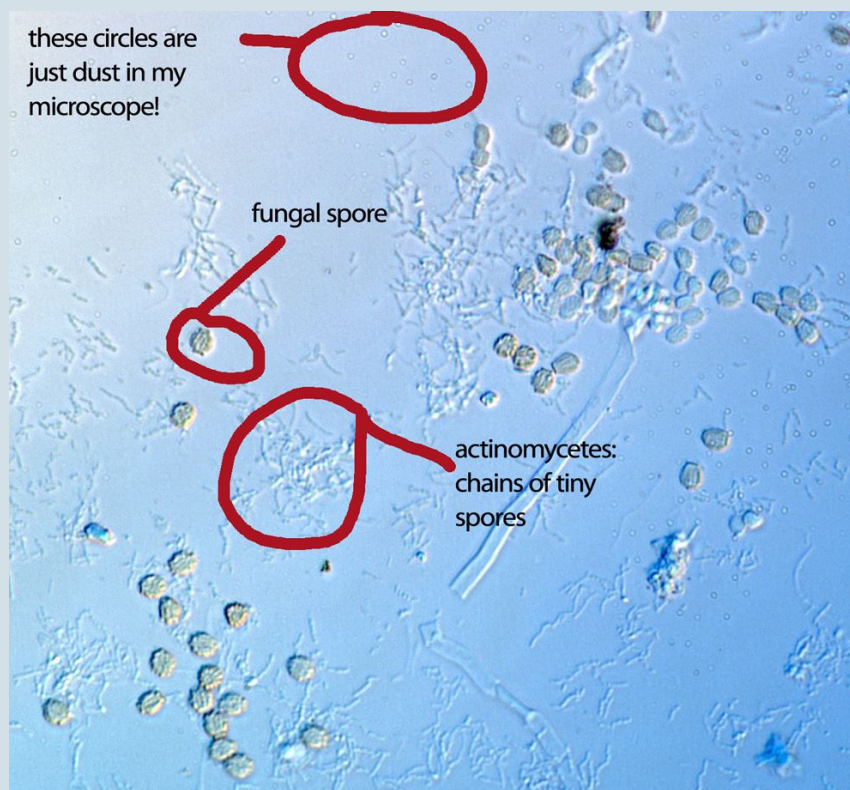
Pose a question. By far the easiest way to promote active learning is to ask a question. Questions can be open-ended ("Why do you think this mechanism is clinically important?") or close-ended ("What percentage of the population suffers from malnutrition?"). You can pose the question verbally or include the question on a slide.

The key to using questions in a lecture is to actually wait for answers! Interactive lecturing, and the facilitation of active learning on the part of students, requires that you pause long enough for everyone's brains to become engaged in figuring out an appropriate response to what you asked. Rhetorical questions do not have this same impact on the learning process.

You can gather answers from one member of the audience or many. You can look for raised hands or, if time permits, use an online audience polling system or "clickers." You can move on to the next slide, or ask a follow up question. Using questions sends the message that you care about your learners' ideas, and it is a quick, low-tech way of engaging with audiences of all sizes.

Deflect a question. Admittedly, this one can feel a bit awkward. You get a question from a student (Yay, someone is listening!) and your instinct is to launch into the answer. Resist this urge and try deflecting the questions back to the group ("Great question. Does anyone want to take a stab at it?"). Now the whole group is thinking about the answer! You've gone from two people being engaged (you and the student who asked the question), to many. You don't have to do this every time someone asks something, but give it a try once or twice and you will be surprised at how much more lively your end-of-lecture Q & A begins to feel.

Annotate your slides. Did you know that the AMS lecture halls are equipped with technology such that you can annotate your slides as you present? Similar to the overhead projectors of our youth, you can mark up your slides in real time- ask OME for a tutorial on how to do this!



Create discussion. Just because you have been asked to “give a lecture” does not necessarily mean that you have to be the one speaking the whole time. *Remember, our primary focus is students’ learning, not your teaching.* So, if time permits (perhaps at the end of a lecture), have your students talk to each other.

The easiest way to accomplish this is to pose a question, then ask students to turn to the person next to them to discuss it. (Alternately, you can have students identify a concept that still feels unclear and have the person next to them help explain it, or ask students to summarize the lecture so far to the student next to them.) After two minutes, bring the attention back to the big group and see if there are pairs who are willing to share their answer. In less than five minutes you can facilitate engagement, comprehension, *and camaraderie!*

Move. Your physical presence in the lecture hall is an important factor in keeping learners engaged and awake. Don’t be afraid to walk around, to move toward a student who is asking a question, to gesticulate. Remember, your audience *wants* to attend to what you are saying. Help them to do so.

SOME FINAL THOUGHTS...

Tell a story. Story telling isn’t “interactive” necessarily, but it does engage the brains of your students. Cognitive psychology tells us that we are hard-wired for plot. We prick up our ears at the slightest hint of narrative, and we have a natural tendency to organize information into a coherent storyline. In the preclinical years, stories that involve clinical application of basic science content have the added bonus of providing a level of relevance that students so often identify as missing in the preclinical curriculum. Where in your presentation can you integrate a story?

TIP: Clinical examples, whether in narrative or image form, should represent a diverse patient population.

Include review questions. Cognitive psychology tells us that an important study strategy is for students to test their own understanding at regular intervals. This “distributed practice” forces students to recall content. It identifies gaps in knowledge, and supports long-term retention of information. However, too often students spend hours creating detailed flash cards from lecture material, and then run out of time to actually use them! Help students by including relevant review questions in your notes or slides that they can use to better learn the material and to prepare for exams. Review questions can be presented intermittently within your presentation if time permits, or at the end of the lecture for students to use at a later time.

Honing Your Skills

Presenting in front of a big audience is not something that comes easily to most of us. Luckily there are ways to hone your presentation skills.

Utilize the IT Fellows. There will be at least one student in every preclerkship lecture who is designated as an IT Fellow. Fellows are medical students who are well-versed in the AMS lecture hall technology. Need a battery for the microphone? Ask a Fellow! Can't get your video to work? Ask a Fellow! Need a quick primer on how to get your slides into "presenter mode"? You get the idea...

Practice. The best way by far to become a good lecturer is to practice. But that's so awkward, right? No one wants to be the crazy person talking out loud in an empty room. And it is hard to force yourself to do it. But those words in your head that sound so articulate now tend to sound very different when you're up in front of an audience saying them out loud. So grab a trusted colleague, friend, or significant other and make yourself go through the presentation from start to finish, at least once or twice before the big day.

Better yet, request a Talk Review and Feedback session from the AMS Program in Educational Faculty Development. This program provides free, friendly feedback from educators trained to help with presentation design and delivery.

"Great tips on slide design and reducing anxiety.
Even an experienced presenter can use
feedback!"

*Faculty member, regarding a Talk Review and
Feedback session*

Critique yourself. Remember how I mentioned that your lectures are recorded? Access that recording after your presentation and see how it looked! What did you do well? What explanations were clear, succinct and timely? What parts of the presentation worked less well or need additional attention for next time? How was your beginning? Your ending? Were your transitions between content areas smooth? Did you highlight and reinforce those main concepts you identified ahead of time? Did you use questions to engage your audience? Watching yourself on camera can be hard, so be kind to yourself. (But use what you see to improve for next time.)

Thank You!

We greatly appreciate your contributions to the education of our medical students. Please know that you are playing an important role in their development as future physicians.

Written by Emily Green, PhD, MA, Director of Student and Faculty Development, updated 2017. Please contact the AMS Office of Medical Education with any questions. (401) 863-6234