1) What do you think should be the ideal duration of time for 1 lecture or class period?

Jen: I don’t think that there is one answer to this question, and unfortunately many faculty struggle with what is allotted at their institutions for contact time. My course is unique. It is set up in two 3-hour sessions separated by 48 hrs; I teach in a room constructed for the safety of doing learning activities and laboratory in the same room so I am able to use this time flexibly between lab/lecture.

Sue: Whatever the length of the class time, it's important to NOT lecture for the whole time. I've seen recommendations that there should be, at minimum, some sort of active learning event every 15-20 minutes. This gives students time to reflect and digest information in chunks they can handle. And it gives instructors immediate feedback as to whether they are meeting their goals.

2) Please describe the 3-minute pause and journal entries.

Jen: I believe they are referring to reflection activities. In my course, my students keep a “learning journal” (aka a notebook, but it sounds fancy). Along with any notes they are taking, I take pauses throughout activities to let them reflect on what they have learned and what questions they still have regarding materials. This way, they can see the notes themselves when they study OR when they come to see me during office hours. I can also review their responses if needed during other times when they are working.

Sue: The 3-minute pause is a break in class time where students can ask questions, answer questions, or do some other kind of reflective exercise to again, assess if the learning goals are being met. Even this small change has shown to increase learning and retention in lecture-type classrooms!

3) How do learning outcomes fit with textbook and syllabus?

Jen: Many textbooks today begin each chapter with learning outcomes and some currently link to the actual ASM Curriculum Guideline Fundamental Statements. Many of these are a good resource for you to use as a springboard to writing your own learning outcomes relating to the content and for seeing how the ASM Curriculum guidelines fundamental statements/learning outcomes align.

Sue: Your learning outcomes should dictate how you approach using a textbook. So many times, we fall into patterns of marching through a textbook in the order it is written. But we need to
view textbooks as resources that serve our learning goals. Don’t let the textbook dictate your
goals— start with goals, then assessments, THEN instruction!

4) How do your students react to these types of changes in teaching/learning in your courses?
Many students are resistant to changing the traditional lecture format, especially in large lecture
courses.

Jen: It is a struggle at first, you are right. I don’t teach new content in my courses for the first
week of class. It is merely an icebreaker period where we get through the logistics of the course
(i.e. syllabus, evaluation methods, rules and regulations, requirements) but then we spend the
rest of the time on information literacy development and an introduction into the learning
outcomes and active learning techniques. This helps put them at ease and makes them
understand how these techniques are actually helping to improve their learning and enduring
understanding of the content. In fact, they have a project ½ way into the course where they
pick a set of predetermined learning outcomes for certain chapters and they themselves have to
develop a learning activity and an assessment conveying the concept for the entire class. They
become the master of that content and truly get an appreciation for why this type of learning
format works.

Sue: I agree with Jen. If you tell students up front what you are doing and why, then I find they
are forgiving, even if things don’t go as you planned on the first or second time trying something
new. I think students appreciate the fact they you are concerned about their learning. Also, its
best to start with small changes so you and your students are not overwhelmed.

5) Which teaching tools do you use most frequently in your lecture?

Jen: Frequent formative assessments during learning activities and lab activities; pre-
assessment in laboratory sessions; a variety of projects including independent research in lab,
and a microbial poster session presented to the campus community.

Sue: I teach 2 classes of 70-180 students per class and use clicker questions constantly. We don’t
have access to classrooms that can accommodate small group work (all the chairs are attached
to the floor in rows) so I give 3-5 questions/problems in a 50-minute class for students to work
in pairs and answer. In my smaller class (30 students) we do group work and peer-learning
throughout most of the class time.

6) I teach 200 students per quarter in 5 different classes. Because of this high workload, I have had
to reduce the amount of graded assessments. What are some strategies to conduct assessments
(especially formative) without creating higher grading workload for myself?

Sue: I use clicker questions constantly in my classes, and none of them are graded. Students
know it’s a chance for them to test their knowledge. They realize that they will eventually see
many of the clicker questions on our exams. My students say the reason they come to class is
because they find the questions useful. I also give my students more thoughtful, challenging,
higher order thinking problems that they answer in a 2-3 sentences (these are the "design" or
"predict" questions). We use a check-off system for these-- not "Is the answer right or wrong?"
but "Is it reasonable and well thought out?" I can go through these pretty quickly, and give each
a check or not.