

Things to Address in Class

We addressed many of the comments made by the graduate student TA's regarding the seminar. This was very useful. We went over our expectations of the students and exactly how we would implement a lot of the suggested changes.

- People wanted to know how to do group work and we said that we'd be doing that next time.
- Some TA's indicated that they would like to have more structure in the seminar and be clear on exactly what our expectations are.
- Others were not clear on what the goal of the seminar. It is to make us all better teachers. Some people are lazy while others simply are clueless on different class-room strategies. For the former, we simply say that this is unacceptable behavior and they have an obligation to their professional peers to teach their subject sufficiently well. For the latter, we try our best to provide support in the form of additional references, suggestions in particular situations and general teaching philosophy.
- Some indicated that not enough of the seminar pertained to recitation. We will try to fix this in the future and in the seminar next fall.

To address other comments and critiques, we sent out an email with more information.

So that we can continually address other areas of interest pertaining to a particular seminar, we will send out an email after each seminar discussing some things in a broader context or in more detail.

As a large group, we talked about creating exams.

How should exam questions differ from homework questions and quiz questions?

- Include a question that expands on the homework to differentiate A-students from B-students.
- Exams should test multiple concepts in the same problem.
- Quizzes should be more like homework problems.
- Homework problems can be tough, because students have more time to solve them.
- Exam problems should have varying difficulty.

Types of problems

- One should choose problems that test general knowledge AND specific knowledge.
- A general guideline mentioned by some of the students is that "A" students should be able to attack successfully every problem (maybe not necessarily finish every problem); "B" students may not attempt and finish

every problem, but have a solid understanding of *most* of the problems (8/10 of the problems, at least).

- Multiple choice problems can be a bad idea when testing knowledge of mathematics. However, there are settings in which multiple choice type problems are appropriate. Testing knowledge of historical facts in math, definitions, graphs that correctly correspond to certain functions. In statistics, multiple choice problems can be a good tool for testing a student's knowledge. Another technique that might be useful is giving the students a proof and leaving certain parts out. Using a multiple choice problem to test what fills in the blanks can be useful.

The students then formed small groups to discuss the following.

- How do you decide what is most important to test on?
 - What's on the syllabus? That's a good start!
 - Can one problem build on another?
 - Can material from one midterm build on material from another?
 - Try to limit unnecessary calculations when the concept is more important.
- How do you check that the problems you wrote are well written, unambiguous, and your exam is not too long?
 - Have your coordinator read your exam. Let them know well ahead of time.
 - Compare wording with that in the book, homework, and review sheets.
 - Take your exam!
 - Clarify words like 'describe', 'show', 'determine', etc.
 - When in doubt, use problems from the book. If you change numbers, make sure it can still be solved.
 - Students should have 3-4 times as much time to complete the exam.
- What should you do if you find an error in your exam while your students are taking the exam?
 - If the mistake is REALLY BAD, tell them to skip it as soon as you notice. Throw the problem out.
 - If the mistake is a small typo that make the problem impossible, but not too hard to correct, then write it on the board.
 - Walk around and check if students are working on that problem. If they are and they haven't made the change, remind them.
- What should you do if the majority of your students can't solve the same problem or all do it wrong?
 - Talk to you coordinator if you have one.
 - Not grade that problem (have test be out of fewer points).
 - It may be an indication that you didn't cover the concept well enough. When you hand the exams back talk specifically about that problem, and cover the topic that day. And have a mini-exam on that question in the

next class, if possible. Or put the question on a future quiz/midterm/final, if possible.

- Make sure you LET YOUR COORDINATOR KNOW. Make sure communication is really clear. If there are students who missed class, make sure they know. Can't give same problem.

Large Group (4:10-4:20)

- How do you reduce student test anxiety?
 - Anxiety is something that typically does not show any signs to the on-looker. If someone is anxious, you may not know it. Since it is clinically proven that anxiety affects one's ability to process logical thought, it is considered courteous and helpful if you can find ways to reduce the anxiety of your students.
 - Phrase questions similar to homework, book, and review problems.
 - Write your exam with questions roughly in ascending order of difficulty.
 - You don't have to make all numbers pretty (and shouldn't) but write your test so that students don't get bogged down by pointless computations.
 - Be clear about your calculator policy well ahead of time. Make sure your exam is written in a way that is consistent with this policy.
 - Tell students what good study strategies are.
 - Should be able to solve homework problems in a reasonable amount of time without using the book. Then they are ready.
 - Review properly
 - Tell a joke before the midterm. Laughter reduces stress and anxiety.
 - Know the calculator policy before an exam. If students think they can use calculators and you tell them otherwise (and contrary to the policy), this could cause some stress.
 - Play some relaxing music as students are entering the room. Do not play music during the exam. Not everyone likes music while testing.
 - Remind students to skip around and answer problems in any order.

Small Groups (4:20-4:35)

- How do you review for exams?
 - Can give a list of all the topics you have covered
 - ☒ list sections/chapters covered and what is important in each.
 - Can give a list of the definitions they need to know
 - Be sure that they know the exam covers all the material covered in class
 - Have students ask questions so they lead the review rather than you
 - It may not be a good idea to hand out a review sheet with problems. This could have the adverse effect of students memorizing solutions and not thinking about the concepts.
 - Pay attention to what topics students struggled with on homework and review those topics.

Large Group Discussion

- How do you proctor exams?
 - No phones, book, etc.
 - Look at your students.
 - Walk around, but let them know ahead of time you are looking around.
 - Pass out different version of the exam so students have different exam than people on either side of them.
- How do you identify cheating?
 - Look at students eyes
 - Look for phones, notes, etc.
- What do you do if you think someone is cheating?
 - If the cheating is blatant and out in the open (using a phone, notes, etc.) “ask” them to leave. If they refuse to leave, call campus security. Never take a risk you don’t have to.
 - If you think they are looking on someone else’s paper
 - Stand next to them.
 - Note who they are and who they are sitting next to.
 - Check exams for **evidence** of cheating.
 - Talk to Tamara and your coordinator if you suspect cheating
 - Consequence: 0 on exam is a good rule of thumb if they are cheating. Less paper work and student learns a lesson without going through some judicial process. Again, check with coordinator.