

# Discipline Cluster Outline

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## 1 Introduction

- Pass around attendance sheet.
- Introduce self.
- Go through workshop objectives.

## 2 The role of the GSI

- Explain system of lectures and discussion sections for lower division math courses. In particular: lectures generally involve hundreds of students in large hall, and there is little student interaction. Sections have  $\leq 30$  students in a classroom. This means that during sections, students have the opportunity to:
  - ask questions and get explanations of subtle or confusing material from lectures
  - spend classtime working on problems and examples, either with the GSI or in groups
  - receive feedback on daily work, quizzes, homework
- The GSI also holds office hours during which students can come in for additional help. The number of hours per week varies, depending on the course.
- The GSI usually writes and grades all the quizzes for their section and assists in the grading of exams.
- GSIs often hold review sessions before exams to help students prepare. This is not a required GSI duty.

### 3 Resources

- The professor – to an extent which depends on the professor’s approach to undergraduate teaching.
- Math 300, the department’s course for new GSIs. Videotaping procedure tends to be extremely helpful.
- Fellow GSIs.
- Older grad students.

### 4 Before the first day of class

- Register for Math 300.
- Meet with the professor to discuss duties and expectations.
- Pick up the textbook and worksheets from 970 Evans.
- Get the enrollment list from your mailbox.
- (optional) Create a web page for announcing stuff to your students.

### 5 On the first day

- Arrive early. Start class at ten minutes after the hour. (Not all first-year students will know about Berkeley time.)
- Announce the course name, section number, and CCN for the section.
- Give the name, contact information, and office hours for yourself, the professor, and the Head TA. (Your office location is likely to be temporary because of the office draw.) Also give them the URLs of the course web page and section web page, if they exist.
- Take attendance, using enrollment list. Your Head TA will let you know how long taking attendance is necessary.
- Give out the syllabus. Go through the important parts briefly, noting especially grading policies.
- Especially if you are teaching a lower division class, take a few minutes to discuss the role of the GSI and impress upon the students that you exist as a resource to help them learn. If they are having trouble, they should contact you for help sooner rather than later; getting behind is dangerous since the material builds on itself. If teaching calculus, warn them that coasting because they think they know it from high school is not going to work.

- Explain the structure of the class: homework due dates, quiz times, your policies.
- If the first discussion section precedes the first lecture, doing actual math is optional; ask your professor and use your judgment.
- Tell students to speak with you after class about any special accommodations (e.g., disabilities or religious holidays conflicting with exams). End class early.
- Deflect all enrollment questions to the Head TA.

## 6 Group work

- Describe general philosophy and logistics of group work.
- Use the worksheets! Pick (too many) problems in advance.
- Don't attempt to mix groups up by ability level.
- Insist on them going up to the board. Don't let them sit down. Be pushy.
- Early in the semester, have them write their names on the board above their work. This will help you learn their names.
- Go from group to group quickly. If a group is making progress, don't help them. If they're stuck, give them enough help to get unstuck, but no more. Once they have something good, have them explain it to you.
- Don't let one person in a group dominate, or always explain stuff. Address people by names and call on the non-dominant person to have them explain. If necessary, actually take the chalk from one person, hand it to somebody else, and tell them to do the problem.
- If lots of groups are getting stuck on a hard problem, consider breaking them up briefly for a mini-lecture on whatever topic is giving them trouble.

## 7 Classroom scenarios

Discuss in small groups, then together:

- The professor spent thirty minutes of lecture proving that matrix multiplication is associative. Your students are extremely confused and want you to clarify things.
- One particularly bright student answers nearly every question you ask the class. The other students don't seem to mind.
- Upon grading a quiz, you discover that nearly the entire section screwed up a problem that you thought was easy.

## 8 Time Management

- The first semester is always the worst; be prepared for teaching to take over your life.
- Write quiz questions that can be graded in a reasonable amount of time. Have a consistent quiz make-up policy.
- Do not get behind on grading. Use a spreadsheet, or, if you follow the weird no-spreadsheet rule, photocopy your gradesheets often.
- If you use a web page, use it only for announcements.
- Don't feel obliged to answer long e-mails. Tell them to come to office hours.
- Don't wear yourself out too much during exam time; review sessions? Practice exams? Extra office hours?
- Show up on time!

## 9 Student Interaction

- Learn and use student names. (Hand back quizzes or HW by name.)
- Make eye contact. Speak loudly and enunciate clearly.
- Anything important you say aloud should be written on the board. Don't erase stuff immediately.
- Draw lots of pictures, especially for calculus.
- Ask questions, insist on getting answers out of student. Allow awkward silences. Don't answer your own questions; just make them easier if necessary.
- Accept wrong answers from the class. See if they notice. Or, if it's subtle, come up with a counterexample. Make them figure out where the mistake is.
- If you get confused while speaking, pause, and take time to think. It's not as much time as it feels like.
- Be extremely careful with proofs. Explain the structure of any proof methodically, because they have no clue what a proof is.