

Math 500: Information for weeks 0 and 1

September 26, 2019

1 Immediately do the following

- Contact your instructor. Find out:
 - what format homework will be: online or physical
 - * if physical, reserve a homework dropbox in the basement (see Eric's email)
 - * limit to one box per course if possible
 - * label with course number, instructor, and quarter
 - * organize with other TAs who is responsible for picking up homework from the dropbox and handing off to the grader (see below)
 - what is expected for sections (some instructors may have special requests)
 - if instructor wishes, set up a weekly meeting time
- Respect your instructor's time. Respond promptly to emails and arrive on time for meetings.
- Co-ordinate office hour scheduling. This may have to wait until the instructor has set their office hours.
- Contact your course grader, if applicable and known (these positions sometimes are not assigned this early in the quarter)
 - if using physical homework, co-ordinate homework exchange with the grader (e.g. what day/time)
 - graders have a mailbox in the department mailroom on the 7th floor; this is usually how homework is transferred to graders

2 Suggestions for week 1 discussion

- Your students may not have any homework assigned by your first section and therefore have no questions for you. Prepare material to present.
 - Be sure to find out if the instructor has specific requests for this section.

- In some cases, the instructor will cancel the first section. Only the instructor has the authority to do so, **not you!** This is less common in the Fall quarter.
- Consider **interactive** review of high school pre-requisite math. Do **NOT** simply lecture.
- Create practice problems for students to work on in section. Give them time to think on their own, then discuss the solutions as a group. Consider having students write solutions on the board.
 - For calculus, many errors students make are actually from algebra, not the calculus material. Examples of common mistakes:
 - * $\sqrt{x+y} = \sqrt{x} + \sqrt{y}$
 - * $(x+y)^2 = x^2 + y^2$
 - * $\frac{1}{x} + \frac{1}{y} = \frac{1}{x+y}$
 - * $\frac{\sin(2x)}{\sin(x)} = 2$
 - Students also struggle with manipulating functions, especially composing functions.
 - For Math 18, consider reviewing solving systems of linear equations.

3 What can you expect students at UCSD to know?

- It is important to teach at the appropriate level of your students
- Lower division courses (e.g. Math 10/20 series, Math 18) are not proof based, and students at this level have likely never seen a proof before
- Students usually expect plenty of computational examples and struggle with abstract theory
- For Math 10/20 series, keep in mind:
 - the majority of students are not math majors, and the 10 series is largely composed of students who struggle with math
 - do not bring in any ε - δ proofs
 - for 10A/20A, do not assume your students have seen any calculus before
- For Math 18:
 - do not assume students have seen vectors or linear algebra before at any level