Math 142a Winter 2014: Introduction to Analysis I

MWF 1-1:50pm, PCYNH 122
Professor D. Rogalski

1. CONTACT INFORMATION

Prof. Rogalski's Office: 5131 AP&M

E-mail: drogalsk@math.ucsd.edu

Class web site: *www.math.ucsd.edu/~drogalsk/142a.html*. Check here for announcements, homework assignments, and the lecture and exam schedules. You can also find a link by following "resources" and then "course websites" from the math department homepage.

Office hours: T 2-3pm, W 11am-2pm

Section Leader 1: Rob Won (6321 AP&M)

E-mail: rwon@ucsd.edu

Meeting Times: W 6-6:50pm, 7-7:50pm, HSS 2150

Office hours: M 2:30-3:30pm, Th 10-11am

Section Leader 2: Jay Cummings (6321 AP&M)

E-mail: jjcummings@ucsd.edu

Meeting Times: W 5-5:50pm, AP&M 5402

Office hours: Th 1-2pm

2. BASIC COURSE INFORMATION

• **Course description and placement information** This is a first class in analysis, or in other words the theory of calculus with proofs. The main topics will be continuity, limits, and derivatives; the sequel course math 142b will discuss the theory of integration. There is overlap between this course and Math 140a. Compared to Math 140a, Math 142a covers less material and is less rigorous. It suffices to introduce the basic ideas of the subject, which is enough for most students who plan to take their math major on to a career in industry or education. Students who are considering graduate study in pure mathematics, or who want to challenge themselves with a more rigorous course, should consider taking Math 140a instead.

• **Prerequisites** The prerequisite is Math 109. Enrollment without Math 109 (or concurrent enrollment in Math 109) is usually not recommended. If you feel that this is the right course for you even though you have not yet passed Math 109, please come see me so we can discuss your particular case.

- **Textbook** The textbook is *Advanced Calculus* by Patrick M. Fitzpatrick, 2nd Edition. We will cover primarily Sections 1.1-1.3, 2.1-2.4, 3.1-3.7, and 4.1-4.4 of the text in this course. A tentative calendar of what will get covered when is on the website and will be updated as we go. It is important that you read the text as well as attend the lectures.

- **Discussion section** This is your opportunity to get a review of some of the basic concepts, ask questions about the homework, and see worked examples, in a smaller group. The section will meet for the first time on Wednesday January 8th (week 1).

- **Homework** Homework will be assigned weekly; the list of problems for the week will be posted on the class website. Homework will be due on Fridays in the homework box which your TA will set up in the basement of AP&M; the deadline for handing it is 5pm. Please hand in the homework to the box with your TA's name. Note that the first homework is due quickly, at the end of week 1. I plan to have 8 Homework assignments, with no homework due the weeks we have midterm exams. Late homework will not be accepted, but the lowest two homework scores will be dropped. I try to assign a mix of straightforward problems which help you to work through the definitions and concepts, together with some more challenging problems.

  You should expect to spend a lot of time thinking about some of these exercises, doing scratch work and playing with examples, until you start to get insight into the problem. This process does not have time to play itself out if you start the homework at the last minute. It is extremely important for this reason that you start the homework early. This will also allow you to take better advantage of the office hours of the instructor and TAs.

  The write-up of the solutions you submit should be neat and well-organized. I usually recommend a first draft where you write out a solution which is as messy as you want, scratch things out if necessary, etc., and then a final draft in which you rewrite your solutions carefully. If your proof is not legible or we cannot follow it, then we can't give your credit. *See the section below on academic honesty for more rules/advice about homework.*

- **Exams** There will be 2 in-class midterms on Friday 1/31/14 (week 4) and Friday 2/28/14 (week 8), and a final exam on Friday 3/21/14 from 11:30am-2pm. You are required to provide your own bluebooks. No books, notes, or calculators are allowed during exams. The final exam will be cumulative. Note that the drop deadline is the same day as Midterm 1. If you are not sure if you should continue in the course, you should use your performance on the first three homeworks as a guide, and/or discuss your situation with me.

- **Office Hours** Both I and your TAs will have several office hours a week at times TBA where we will be available for your questions. Please make an appointment (either ask in person or send an e-mail) with one of us if you cannot make the regularly scheduled office hours.

• **Grading** Your final average will be calculated by using either the percentages HW 20%, Midterm 1 20%, Midterm 2 20%, Final Exam 40%, or else HW 20%, Best of 2 midterms 20%, Final Exam 60%, whichever is better. Because of this policy, no makeup midterms will be given for any reason. Your final grade will be at least as good as the grade given by the following standard scale:

97	93	90	87	83	80	77	73	70	60
A+	A	A-	B+	B	B-	C+	C	C-	D

The final grading scale will almost surely be more lenient than this, depending on the class average.

3. Academic Honesty

Academic honesty is important to me and I expect you to abide by the university's policies. Serious cases of dishonesty will be reported. You all know that during the exam, copying from or otherwise collaborating with a neighbor, or using unapproved notes, calculators, or other aids, is forbidden.

Here are my honesty rules on homework, which may be less obvious to you.

1. The homework you hand in should be your own written work, and your own only. It is not acceptable to copy word for word, or paraphrase, the work of another student in the class, or a solution found elsewhere (for example on the internet or in a solutions manual), and hand it in as your own work. Please note that such dishonesty is extremely likely to give you an advantage anyway, since the homework score is a small percentage of the grade and a poor understanding of the homework typically leads to poor exam scores.

2. It is fine to talk to others about the homework, just be careful not to violate rule 1. You should not write up the homework as a group, because your written work should reflect your own final understanding of the problems. Getting help/advice from the professor/TA/classmates on especially difficult problems that you have already thought hard about yourself and are stuck on is OK. But remember that the more time you put into thinking hard about the problems yourself, the more prepared you will be for exams.