

Math 8: Transition to Higher Mathematics

UCSB, Summer 2012

Course Logistics

Lecture: MWF 11:00-11:50
Phelps 1448

Section: TR 11:00-11:50 or 12:30 - 1:20
Ellison 2816

Textbook: None required; we'll rely on course notes and homework problems

Instructor: Charles Martin
csmart07 (-at-) math.ucsb.edu (disclaimer: talking to me in person is always better/faster than email)
www.math.ucsb.edu/~csmart07/8_Sum_2012.html
Office hours: South Hall 6432F, Wednesdays 12-3

TA: Alex Troesch
atroesch (-at-) math.ucsb.edu
Office hours TBA in section

Course Overview

This course is different from any other math class you've had before. For one thing it's worth more units than any other course we offer, and you see your TA twice a week. Moreover, the list of required topics is very short—basically just sets, induction, and equivalence relations. The most important goal of the course is developing “mathematical maturity,” a pedagogical *je ne sais quoi* meaning one's ability to learn and understand abstract ideas in the subject. As such, we'll take a guided tour through a few different mathematical topics with an emphasis on different styles of proof and problem solving. See the course calendar for more info.

Assignments and Grading

The major focus of the course is homework. The problems are hard and presentation is important. In section you'll work together and present ideas to your peers; in lecture we'll discuss the fundamentals—definitions, techniques, and important results. There will be 3 exams which should be easy to anyone who triumphed over homework.

A Note about LaTeX: Ever wonder how people produce pretty math formulas in print such as

$$\sum_{A \subseteq B} \int_A \frac{x}{e^x + 1} dx = \mu_1 \otimes \mu_2 \otimes \cdots \otimes \mu_n?$$

The gold standard of math and physics document preparation (and to a lesser extent, the other sciences) is LaTeX (pronounced “Lay-Tek”), a typesetting system which is coded much like HTML. Producing LaTeX documents is surprisingly easy, yet it is still a very valuable skill for anyone who wants to pursue a math or science career. It's also a way to impress your grader in undergrad classes. We won't require LaTeX in this class, but will offer generous amounts of extra credit to those who attempt it. Talk to Alex about setting up and using LaTeX.

The relative grade weights are as follows.

- Homework — 30%
- Section Participation — 10%
- 2 Midterms, tentatively July 20 and August 10 — 20% each
- Final, August 31 — 20%

The final course letter grade will be some monotonically nondecreasing function of the numeric course grade.