MAT205A REAL ANALYSIS, FALL 2019

This is the first course in the graduate real analysis sequence, covering Measure Theory, Lebesgue Integration and Lebesgue spaces, introductory Fourier analysis. I assume that the students are familiar with basic topology, Riemann integral and some basic complex analysis. If you are uncertain whether you have the necessary background, please e-mail me before the end of Week 1.

Course webpage

web.stanford.edu/ eugeniam/math205a-19.html

Instructor

Eugenia Malinnikova, 383 Y, eugeniam@stanford.edu
Office hours T 3:30-5:30 pm, W 4:30-5:30 pm, or by appointment

Course assistant

Joey Zou, 381 A, zou91@stanford.edu
Office hours T 12:30-1:30 pm and F 3:00-4:00 pm

Lectures

TTh 9:00am-10:20pm, Building 300-300

Prerequisites: **Math 171 or equivalent.**

Note that Math205A is a graduate course, a similar undergraduate course is MATH172 it will be given in Spring 2020.

Textbook

Folland, Real Analysis, Modern Techniques and their Applications, some lecture notes will be provided (see the course webpage).

Topics of the course

We will cover the basic measure theory, including Lebesgue integration, product spaces and Fubini theorem. We plan also to discuss Fourier series, Fourier transforms and classical limit theorems of Probability theory if time permits.

Grading Policy The grade will be based on the homework assignments (40%), the in-class midterm exam (25%) and the final exam (35%).

Homework assignments

- There will be eight homework assignments. Assignments can be found on the course website (at least) one week before it is due.
- Homework assignments are due on Thursday (starting Week 2) at the beginning of the lecture, except for Week 6.
- No late homework will be accepted.
- You may (and are encouraged to) discuss the homework problems with others in the class, but you must write up your own solutions.
- The final score for the homework assignments will be calculated as the average of best six of your assignments, each with an equal weight.
- I expect you to spend 2-5 hours weekly on the homework, if you would like extra challenge, just ask, if you regularly spend over 5 hours on homework assignment a week, come talk to me.

Examinations

- There will be an in-class midterm examination during week 5 (Thursday, October 24)
- The final examination will be on Wednesday, December 11. The information about the room will appear at the course webpage soon.
- Makeup midterm examination is only available to students with a clash with other classes or in exceptional situation with prior approval by the instructor. If this applies to you, you should contact me as soon as possible.
- Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request, review appropriate medical documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. The letter will indicate how long it is to be in effect. Students should contact the OAE as soon as possible since timely notice is needed to coordinate accommodations. The OAE is located at 563 Salvatierra Walk (phone: 723-1066, URL: http://oae.stanford.edu).