MATH 104 — Fall 2016 — Introduction to Analysis

Description: Real numbers, sequences, series, limits, continuity, differentiability, mean value theorem, uniform convergence, interchange of limit operations, basics of metric spaces, Riemann integration.

Prerequisites: MATH 53 (Multivariable Calculus), MATH 54 (Linear Algebra and Differential Equations). However, it is usually advised that you have had some other upper-division math course before taking MATH 104 (such as MATH 110), since 104 is considered by many students to be the most difficult of the required core courses.

Location/time: Cory 241, MoWeFr 15:00-16:00.

Instructor: Marina Iliopoulou. 849 Evans Hall, m.iliopoulou@berkeley.edu.

Office hours: Tu 16:00-18:00, Thu 11:00-13:00. Please use the instructor's email address for true emergencies; office hours are the preferred and most productive form of communication.

Material to read: The material you are required to know is that covered in **lectures**, as well as **supplementary material** which the instructor will provide, either as **precise reading assignments from the textbook** or as **written notes**. After each lecture, the instructor will post lecture notes, including supplementary notes on points that have not been covered in sufficient detail during the limited time of the lecture. The official **textbook** for the course is Principles of Mathematical Analysis (3rd edition), by Walter Rudin. However, the topics covered in the course are basic in Analysis, and are therefore included in most Calculus textbooks, which you may prefer to use (at least to help you through the reading of Rudin's book, which is good and classic, yet a little hard). The book Calculus, by Michael Spivak (3rd or 4th edition), is a very good choice.

Required work: Reading the material (see above), one written assignment per week, one midterm exam, one final exam.

Midterm Exam: 10 October 2016, 15:00-16:00, Cory 241.

Final Exam: 13 December 2016, 19:00-22:00, location TBA. Go to http://schedule.berkeley.edu/ to keep checking.

— All exams are **closed book**. Material for the exams is everything discussed in lectures (unless otherwise stated), problem sets, supplementary notes and assigned readings from the textbook. Practice exams will be provided.

Grading: There will be no quizzes. Each written assignment, as well as the midterm and final exams, will be marked out of 100. The worst mark from your weekly written assignments will not count. Then: weekly assignments will contribute towards 20% of your final grade, the midterm exam towards 30% and the final exam 50%. This out of 100 grade will then be changed into a **letter grade**.

• **Weekly assignments:** each **Friday** a problem set will be posted, which is to be handed in the following Friday during class. There will be no such assignments due during the midterm and final exam weeks. Solutions will be posted.

• Typically, after each lecture, exercises will be posted, which you are strongly adviced to work on while you study your lecture notes. This is not required work, but it is very important to practice as much as you can. Some of these exercises may also be in the weekly assignments.

• **Missed exams:** There will be **no make-up exams**; you must attend the exams as scheduled. Permission for an absence from an exam should be granted by the instructor within the first 3 weeks of classes. Exceptions could only be granted for unusual circumstances beyond the student's control (such as sudden illness, documented by a doctor), or for participation in official university activities. If you have a conflict with the scheduled exam times, please contact the instructor asap at the very beginning of the semester.

• **bCourses:** As soon as the new Student Information System works properly, the instructor will create a course site. There, you will find weekly assignments, notes, solutions to the weekly assignments and exams, and announcements. UCB students who are registered for the course will automatically be given access to this site. Other students should contact the instructor by email to obtain access. **However**, all this is not possible yet; so, all the above will be sent to you by email, for now.

• Work on exams must be your own. Cheating and dishonesty will not be tolerated. You are encouraged to collaborate for weekly assignments, but you must acknowledge whoever helped you (e.g. "I worked with James on this problem set" or "I worked with Mary on problems 1, 2 and 5".) You should write up the solutions yourself. You are strongly discouraged from finding solutions ready elsewhere; but if you do, you must acknowledge it.