FALL 2018 MATH 104 (SECTION 6):
INTRODUCTION TO ANALYSIS

LECTURE
Class Time: Tuesday/Thursday 9:30AM - 11AM
Class Location: 3107 Etcheverry Hall

INSTRUCTOR
Instructor: Xuwen Zhu
Email: xuwenzhu@math.berkeley.edu
Office: 837 Evans Hall
Office hour: Monday 2 - 3PM, Thursday 11AM - noon

WEBSITES
Course website:
https://math.berkeley.edu/xuwenzhu/classes/Berkeley/2018Fall104/index.html
bCourses:
https://bcourses.berkeley.edu/courses/1472873

TEXTBOOK
Elementary Analysis (Second Edition), by Kenneth Ross.

COURSE REQUIREMENTS AND GRADING
Exams: We will have one in-class midterm and a final exam. The final will be cumulative, but have a heavier focus on material not covered on the midterm. Exam dates are not negotiable, so do not make any plans conflicting with the exams. If you miss the midterm, your final exam will replace it; there will not be a makeup exam. If you do better on the final exam than on the midterm, I will replace your midterm grade with your final exam grade. If you miss the final exam for any reason other than an extreme and unpredictable emergency (with documentation), you will almost certainly fail the course.
No books, notes, or any electronic devices (including but not limited to calculators and phones) are allowed during the tests.
Homework: Homework (including problem sets and reading) is assigned weekly. These will be posted on the course webpage by midnight on Tuesday and due at the beginning of class on the following Tuesday. Late homework will not be accepted under any circumstances. If you are late to class on Tuesday, your homework is late and will not be graded. In case of extended illness, you must contact me as soon as possible. You should be discussing homework together, but you must write up your own solutions. Plagiarism, copying (from classmates, notes, the internet, etc.) are not tolerated.

Grading scheme:
- Homework (the lowest score will be dropped) 20%
- Midterm exam 35%
- Final exam 45%

Important Dates: These dates are tentative and are subject to change.
- Deadline to drop this class: September 12
- Midterm: October 18, in class
- Deadline to change to P/NP: October 26
- Final Exam: December 11, 3PM - 6PM

Class policies

Honour Code: All students are expected to act honourably and not cheat. Any evidence of cheating or other violations will be submitted directly to the appropriate authority. Cheating includes, but is not limited to: using an unapproved calculator, books, or any form of notes on tests or quizzes; copying directly from any source, including friends, classmates, tutors, or a solutions manual; allowing another person to copy your work; taking a test or quiz in someone else’s name, or having someone else take a test or quiz in your name; or asking for a regrade of a paper that has been altered from its original form.

Attendance: You are expected to come prepared and actively participate in every lecture. In the event of an absence, you are responsible for all missed material, assignments, and any announcements made in class. Class disruptions of any kind will not be tolerated and may result in your removal from the classroom. Please respect all your classmates and instructor by coming to class on time, staying for the entire class period, refrain from talking with classmates, and turning off all laptops, phones, music devices, and all other electronic devices (unless I have given you permission to use a device for note-taking).

Regrading: If an error in grading has been made, you must submit a regrade request to me, along with the homework or test, within one week of the date it was
returned in class. You may not change or add to your work. Check your answers with the posted solutions before submitting a regrade request.

**Students in need of Special Accommodations:** UC Berkeley complies with the regulations of the Americans with Disabilities Act of 1990 and offers accommodations to students with dis-abilities. If you are in need of classroom or testing accommodations, please make an appointment with the DSP office to discuss the appropriate procedures. More information is available on their website: http://dsp.berkeley.edu. Please also make an appointment with me to discuss your accommodation, if necessary, *no later than two weeks before* the special accommodation is needed.

**Announcement:** I will frequently update the class pages on my website with class information and new materials. You are responsible for making sure you are up to date with all this.

**Office hours:** Office hours are for *all* students in the course. If you are struggling, obviously you should come (and don’t feel embarrassed - not everyone naturally thinks like an analyst). If you feel you are doing well, come and discuss problems with other students anyway; you will know the material much better if you have some practice explaining things to other people. (However, if you find this course way too easy, you should probably take H104 instead.)

**Incomplete grade:** Incomplete grades will be assigned only to students with a documented medical, personal or family emergency prior to completion of the course. Students receiving such grades are required to have been doing work of passing quality up to the intervention of the emergency.
Date  | Content (subject to change)  
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8/23  | Introduction to mathematical proofs (extra material)  
8/28  | The real numbers. (Section 1-3)  
8/30  | Completeness. (Section 4)  
9/4   | Infinity, sequences. (Section 5, 7) *Homework 1 due*  
9/6   | limits. (Section 8-9))  
9/11  | Monotone sequences. (Section 10) *Homework 2 due*  
9/12  | **Drop date**  
9/13  | Subsequences. (Section 11)  
9/18  | Series. (Section 14) *Homework 3 due*  
9/20  | More on series. (Section 15)  
9/25  | Continuous functions. (Section 17) *Homework 4 due*  
9/27  | Continuous functions. (Section 18)  
10/2  | Uniform Continuity. (Section 19) *Homework 5 due*  
10/4  | Limits of functions. (Section 20)  
10/9  | Sequences of functions (Section 24). *Homework 6 due*  
10/11 | Sequences of functions (Section 24)  
10/16 | Review. *Homework 7 due*  
10/18 | **Midterm**  
10/23 | Power series. (Section 23)  
10/25 | Uniform convergence of Power series (Section 25)  
10/26 | **Deadline to change to P/NP**  
10/30 | Differentiation. (Section 28) *Homework 8 due*  
11/1  | Differentiation (Section 29)  
11/6  | Differentiation. (Section 31) *Homework 9 due*  
11/8  | Integration (Section 32)  
11/13 | Integration. (Section 33) *Homework 10 due*  
11/15 | Integration (Section 34)  
11/20 | No class  
11/22 | No class  
11/27 | Metric Spaces. (Section 13, Section 21) *Homework 11 due*  
11/29 | Metric Spaces. (Section 13, Section 21)  
12/4  | RRR week  
12/6  | RRR week  
12/11 | **Final exam**