Analysis I, Spring 2010
Course meetings: MW 11h - 12:15 pm, CIWW 512
Recitation: Tuesday 8:00 - 9:15 am, CIWW 512, starting 1/26
(If your some reason you can not make it on Tuesday then you can go on Th 9:30 - 10:45 am, CIWW 512, starting 1/28)

Instructor: Nader Masmoudi (office: CIWW 713)
Webpages: Blackboard and http://www.cims.nyu.edu/∼masmoudi/
Instructor's office hours: Mondays 9-11 AM or by appointment.
Recitation leader (TA): Jose Alcala (office: CIWW 510)
TA's office hours: Tu 9:30 - 10:30 am, Th 11:00 am - 12:00 pm.

1 Description

Course content: The real number system. Convergence of sequences and series. Rigorous study of functions of one real variable: continuity, connectedness, compactness, metric spaces, power series, uniform convergence and continuity.

2 Components of Final Grade

- Homework (30% of final grade): written assignments due every Wednesday in class. Each problem will be graded partly on style (clarity and organization) and partly on substance (correct ideas and rigor). Late homework will not be accepted, but the lowest score will be dropped. You are welcome to collaborate on solving problems, but please write up your own solutions.
- Midterms (20% each):

  Midterm 1: February 24, over the material covered up through Feb. 17.

  Midterm 2: early April (TBA).
- Final exam (30%): Monday, May 10, from 2:00 - 3:50 p.m.

Policy on make-up exams: If you know you'll miss an exam for a legitimate reason (medical, religious, performance, family hardship), you must let me know well beforehand. If you miss an exam because of an emergency, please let me know as soon as possible afterwards.

3 Books

- Required: Real Mathematical Analysis, by Charles C. Pugh, 2002/03 ed.
- Recommended: Proof: Introduction to Higher Mathematics, by Warren Esty and Norah Esty.
- Recommended: How to Prove it: A Structured Approach, by Daniel Velleman. Available through NYU:

  http://site.ebrary.com/lib/nyulibrary/docDetail.action?docID=10129214.

- Recommended: Counterexamples in Analysis, by Gelbaum and Olmsted.

4 Schedule

Week	Dates	Section	Homework problems
1	W 1/20	1.1	Ch.1: 1, 2, 11, 12(a,b), 15. Due 1/27.
2	M 1/25, W 1/27	1.2 - 1.3	18, 19, 28 (a,c), 39, 40, 42, 44(a). Due 2/3.
3	M 2/1, W 2/3	1.3 - 1.4	
4	M 2/8, W 2/10	2.1	
5	W 2/17	2.2	
6	M 2/22, W 2/24	2.3, midterm	
7	M 3/1, W 3/3	2.4 - 2.5	
8	M 3/8, W 3/10	3.1	
	SPRING	BREAK	
9	M 2/22, W 2/24	3.1 - 3.2	
10	M 3/29, W 3/31	3.2 - 3.3	
11	M 4/5, W 4/7	3.3, midterm	
12	M 4/12, W 4/14	4.1	
13	M 4/19, W 4/21	4.2 - 4.3	
14	M 4/26, W 4/28	4.4	
15	M 5/3	last class	
Final	M 5/10	2 - 4 p.m.	

5 Tips for Success

- Before class, read over the section to be covered and formulate questions that you may have.
- Come to class on time, bring your textbook, and be prepared to participate by asking and answering questions.
- After class, re-read the section and your class notes, and start the relevant homework problems.
- Come to my office hours for help on problems, previews of later material, or just to chat about math.
- To better understand each theorem, besides proving it and drawing pictures or describing the main ideas, remove one hypothesis at a time and resolve the resulting conjectures.
- When faced with a conjecture, ask yourself whether it makes sense and then whether it's true.
- Try a special case first: simplify the assertion by making an additional assumption, and try to resolve that. This should shed some light on the general case.
- Get to know your classmates so that you can study together.

Name: Contact: