

MATH 301A - REAL ANALYSIS
FALL 2012

TTH: 8:00 A.M. - 9:20 A.M. (HATHORN 100)

Instructor: Peter Wong

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Textbook: *Understanding Analysis* by Stephen Abbott, Springer, New York, 2001.

Office hours: T: 1:00pm - 2:00pm, W: 9:00am - 10:00am, or by appointment

Grading: Attendance/Class Participation - 5%; homework - 40%; 1 mid-term @20%; Final Exam - 35%

Prerequisites: Math 206 and Math s21

This is a *rigorous* introduction to analysis. We study basic concepts *in depth* such as *limits*, *sequences*, *series*, *convergence*, *continuity*, *differentiability* and *integrability* (as in first year calculus). We plan to cover most of Ch.2 - Ch.7 of the text.

Note on class meetings/homework/exams:

The textbook is chosen to be read and I expect that you read the appropriate sections (assigned) before the next class. I will use regular class meetings to highlight/point out the key concepts in the assigned sections. I will illustrate new concepts with examples or exercises from the text. In other words, I will not repeat what is already done in the book and I will leave the readings to you.

Homework problems will be given on a regular basis with approximately 10 assignments throughout the semester. I intend to give you the assignment of the week on Thursdays. Each assignment will have two due dates. The first is the following Tuesday when you can hand in your written assignment (must be typed using LaTeX and no other form of typesetting will be accepted) IF you wish me to comment on your (draft) work before you submit the final version two days later. Both deadlines are firm while you have the option to submit your work by the first deadline if you wish me to give you written feedback. Late homework may not receive any credits and late drafts will not receive written feedback.

I encourage you to discuss homework problems together. I plan to divide the class into pairs and each pair must prepare their OWN write-ups and more importantly it is important that you and

your partner put in the same amount of effort. If you think your partner is not doing his/her part, be sure to let me know immediately.

There will be two exams, one mid-term and one final (on Friday December 14, 1:15 - 3:15pm). Each exam will have two parts - one in-class and the other take-home. The take home portion will be similar to homework assignments in terms of level of difficulty. The in-class exam will include problems very similar to problems from homework assignments (some will be taken directly from homework). For the take-home portion of the exams, you are not allowed to consult or discuss the problems with others while you are free to ask me or consult the textbook. Any form of plagiarism found in written homework or in take home exams will be taken seriously (likely to result in appearing before the Student Conduct Committee)

Tentative Syllabus:-

week 1: §§2.1 - 2.4;

week 2: §§2.5 - 2.7; **HW#1** - due on September 13 (draft due on Sept. 11)

week 3: §§3.1 - 3.4; **HW#2** - due on September 20 (draft due on Sept. 18)

week 4: §§4.1 - 4.3; **HW#3** - due on September 27 (draft due on Sept. 25)

week 5: §§4.4 - 4.5, §§5.1 - 5.2; **HW#4** - due on October 4 (draft due on Oct. 2)

week 6: in-class exam **HW#5** - due on October 11 (draft due on Oct. 9), take-home portion due October 16, §5.2;

Fall Recess - October 17 - 21

week 7: §§5.2 - 5.3

week 8: §5.3, §§6.1 - 6.2; **HW#6** - due on November 1 (draft due on Oct. 30)

week 9: §§6.3 - 6.4; **HW#7** - due on November 8 (draft due Nov. 6)

week 10: §6.5, §§7.1 - 7.2; **HW#8** - due on November 15 (draft due Nov. 13)

Thanksgiving Recess - November 19 - 25

week 11: §§7.3 - 7.4; **HW#9** - due on November 29 (draft due Nov. 27)

week 12: §7.5 **HW#10** - due on December 6 (draft due Dec. 4)

Final Exam (in class and take home) - Friday December 14, 2012