Analysis: Functions of One Variable
MA 113-01, Spring 2007

MWF 10:00–10:50 am   Barus & Holley 157

Instructor: Prof. Sergei Treil,
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Office hours: MWF 1:00–2:00 pm and by appointment.

Text: Robert S. Strichartz, *The way of analysis,* Jones and Bartlett Publishers, 1995.

   The course will cover Chapters 1–6 of the book, and probably some topics from 7, 8 and 9. The main topics include basic logic (especially work with quantifiers) and set theory, topology of the real line, basic theory of limits, continuity, differential and integral calculus. The emphasis will be made not on simply proving the result you already know from Calculus, but on learning to work with objects like infinite sets, infinitely small and infinitely large quantities, i.e. with the objects for which you do not have an intuition developed, and where you common sense can just fail you.

   This course is also one of the first courses where you will learn to write a rigorous mathematical proofs. Even if you encounter proofs before, for example in linear algebra of in abstract algebra, the proofs in analysis can still be a shock for you due to extensive use of quantifiers in such proofs.

Course material on the web: You will be able to find a syllabus, course outline, homework assignments, announcements etc on my home page at
`http://www.math.brown.edu/~treil` (under construction at the present time).

Grading

midterms	40%	2 exams
homework & quizzes	15%	the lowest homework/quiz score is dropped
final	45%	

Just to give you an idea what to expect: the cutoff point for **A** is usually about 85-90% , the score below 50% usually means failing. Other cutoff points are distributed more or less uniformly.

> Other factors such as: effort, attitude, and improvement over time may figure into your final grade. I may also assign a less weight to a single exam grade that is out of line with the others.

Homework: Homework will be assigned each lecture and discussed at the beginning of the next lecture. It will be collected weekly for grading purposes. Although not all problems will be graded, it is *extremely* important to do all the homework. Test's and quizzes' problems will be often modeled after the homework problems or problems discussed in the class.

If you don't work hard on the homework, you won't know what's going on in class and do poorly on the exams!

Submitting the homework. The following rules will be strictly enforced:
1. Write your name clearly at the top of every page.
2. Put the problems in order, indicating clearly what you have skipped.
3. **Staple** your homework. Paperclips, folded corners, etc. are not acceptable.
4. Turn in assignments in time. No late homework will be accepted.
5. Write neatly. If your homework is too messy, a grader may chose not to grade it.

Quizzes: The quizzes may be given if necessary. The quizzes will be closed book, closed notes, and will consist of problems modeled after the homework. Each quiz is worth 10 points (the same as a homework assignment).

Collaboration: You can talk each other about any of homework problems, but when you write up the problems to be handed in, *you must work alone.*

Exams: There will be two exams during the semester, the dates will be announced later. Exams are closed book and closed notes.

Make-ups will not be permitted except for a severe medical problem or dire family emergency. A written note from an appropriate person (doctor, father, etc.) is required. If at all possible, you should notify me *before* the missed exam.

Final: Closed book and closed notes. The date will be announced later.

Questions: *Mathematical* questions are always appreciated any time during the class.

Notes: Taking good notes is essential for advanced mathematical classes, in particular for this class. While I like the textbook a lot, I will often explain things a bit differently. Even when I follow the textbook, you will see that the blackboard presentation is quite different from a printed page. Lectures and the textbook will augment each other, so it is essential to get good notes.

In this course I would like you to learn basics of mathematical note-taking as well. For each lecture I'll assign persons responsible for note-taking. They should take notes, check them after the lecture, and present a neatly written (or typed) version before the beginning of next class. I'll check the notes, correct if necessary, and post it on my home page. This way, at the end of the course, you will have a complete collection of notes, in addition to your own.

Everyone will be a "note-taker" for one of the lectures.

Attendance: Many college students treat class attendance as optional. This may be fine for some classes. However, in math. classes you can get way behind very fast. You should come to class every time unless you are seriously ill.

And remember: office hours are not replacements for missing classes!