Math 302, Transition to Higher Mathematics
Spring 2007, 2:25–3:40 MW, LA-3

Instructor: Imre Tuba
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Office hours: 3:45–4:45 MW, 5–6 Tu.

Prerequisites: Calculus I (Math 150 or equivalent) and a thorough understanding of K–12 math.

Required text: E. Bloch: Proofs and Fundamentals: A First Course in Abstract Mathematics.

Recommended text: A. Cupillari: The nuts and bolts of proofs.

Course objective: This is an advanced undergraduate course that introduces formal mathematics. The central topic is proofs with emphasis on axiomatic thinking and problem solving. We will cover some fundamental concepts of mathematics and learn various standard techniques of proof. You will be expected to know how to use these techniques to attack familiar and unfamiliar problems appropriate to the level of the course. You will need to construct rigorous proofs of statements using known definitions and theorems.

Website: `www.rohan.sdsu.edu/~ituba/math302`.

Homework and reading will be posted on the class website regularly. You will be able to follow the progress of the course using the website. HW is an essential part of your learning. Take it very seriously. Don't leave it to the last moment, do it all, and do it on time. Treat the HW as a learning opportunity, rather than something you need to get out of the way. Reread, revise, and polish your solutions until they are correct, concise, efficient, and elegant. This will really deepen your understanding of the material. You are unlikely to succeed in a math class without doing all of the HW.

I want to be able to grade and return HW promptly. So to be fair to everyone, I will not accept late HW for credit as a general rule.

Collaboration on the HW: You will be expected to submit individual work. Limited collaboration with your fellow students in the class is OK. The purpose is to let you discuss and critique each other's ideas and not to let you split the workload. Keep collaboration constructive and reasonable. You are expected to fully understand the solution and write it up on your own. Submission of essentially identical work by two different students will not be acceptable.

Exams: There will be two in-class exams on Feb 21 and Apr 11.

Final exam: Time and place TBA.

Problem of the week: Each week I will post a puzzle to challenge your logic and problem solving skills. These will be more difficult and perhaps more fun than the HW. The points you earn on these puzzles will count as extra credit. You are not required to do them, but I hope you will want to.

Problem of the fortnight: The Math Dept posts an interesting problem every two weeks. You won't get course credit for it, but solving these sharpens exactly the kinds of skills that are the focus of this course.

Grading scheme:

Homework	30%
In-class exams	20% each
Final exam	30%
Problems of the week	1% each

A score of 90% or more will guarantee an A, 80% a B, 70% a C, and 60% a D. The curve may be adjusted lower than this.

Quality of work: It is important that you work neatly on the assignments. The quality of your work will affect your grade. Quality has to do with how easy it is for someone else to read your solution to a problem. It is not enough to do the math right, you must also communicate it well.

Students with disabilities: If you need special arrangements, let me know well in advance so we can plan to accommodate your needs.

Another general note: Learning math is much like learning to ride a bicycle in that you learn by doing it and not by watching someone else do it. Attending class and reading the textbook won't be enough to do well on the exams. You should work through every example and proof in the book and in your class notes and expect to have to re-read everything several times. It's slow, but then your reading list for this class is short.