

Math 23b, Introduction to Proofs

Spring 2009

Venue: Goldsmith 116

Time: MWTh 11-12, Block D.

Instructor: Bong Lian (*lian@-*, Goldsmith 314, X6-3069)

Office Hours: MW 1-2 or by appointment

I will use the course mailing list, *091math-23b-1@lists.brandeis.edu*, to communicate with you from time to time. You may send comments or questions that you think will be of general interest to the whole class. Do not reply a message sent to this list unless you want the whole class to receive your reply.

Course Description

Textbook: *Mathematical Thinking: Problem-Solving and Proofs*, 2nd edition by John P. D'Angelo and Douglas B. West

Topics to be covered will include

Logic

Sets and functions

Mathematical induction

The real numbers

The purpose of this course is to develop the ability of students to read and write mathematical proofs. We will start with elementary logic and basic proof techniques. We will then study some fundamental concepts from various areas of mathematics, and read and write proofs of varying degrees of complexity.

Grading

This course satisfies the *writing intensive* requirement. The writing will be in the form of regular homework assignments, with revisions. For this course, it is not sufficient to get “the right answer”; the answers must also be well written. For each homework assignment 1/3 of the score will come from the original version of the homework and 2/3 will come from the revision. (Exceptions: The last two assignments will not be revised.) If your score for the first version of a homework assignment is at least 90%, you need not revise it,

and you don't need to rewrite any problem for which you get full credit. You must attach the original when you hand in your revision.

Late homework, including revisions, will be accepted with a 25% penalty, up to one week after the due date. Homework more than one week late will not be accepted. Students who miss a test (or exam) will not be granted a make-up test (or exam) unless there is a documented medical or other emergencies.

Grades will be based on homework, with revisions, two one-hour quizzes (in class), and a final exam (scheduled by the registrar for this time block), weighted as follows:

Homework 50%

Quizzes 10% each Wed Feb 25* & Wed Apr 1

Final Exam 30% Wed May 6, 9:15 am - 12:15 pm

* Please note the new date.

Policies

Homework policy: You may discuss the homework problems with other students in the class; however, if you do, you should write on your homework submission the students with whom you discussed the assignment. You do not need to mention any help you received from the TA's or instructor. **You may not copy the written work of another student or allow another student to copy your written work. What you submit should be your own work.**

If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accomodation made for you in this class, please see me immediately.

Advice

I recommend the following strategy: Prepare before each class. That means you should read (carefully!) the sections to be covered *before* coming to class. Try the exercises in the book even though you may not be able to get them all. Having *thought through* the material by yourself makes it a lot easier for you to understand the lectures and ask questions in class. It is also a very economical way to learn mathematics. For every hour you spend preparing before class, the pay-off could be a saving of two to three hours after class.