Math 310 **Introduction to Mathematical Reasoning** **Spring 2006**

Handout #1: Syllabus

ADMINISTRATIVE INFORMATION

Professor: John M. Lee
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Office Hours: Mondays & Tuesdays 2:30–3:20
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Class Web Site: *www.math.washington.edu/~lee/Courses/310-2006*, or from the Math Dept. home page, choose *Selected Class Web Pages*.

Class Meetings: Math 310A: MWF 10:30–11:20, Smith 404
Math 310B: MWF 11:30–12:20, Smith 404

Required Text: *An Introduction to Mathematical Reasoning*, by Peter J. Eccles

Exams: Midterm: Friday, May 5, in class
Final (310A): Monday, June 5, 8:30–10:20am, Smith 404
Final (310B): Wednesday, June 7, 2:30–4:20pm, Smith 404

Prerequisite: A grade of 2.0 or higher in one of the following:
Math 125, Math 135, or Math 145.

COURSE CONTENT

Here's the official catalog description: *Mathematical arguments and the writing of proofs in an elementary setting. Elementary set theory, elementary examples of functions and operations on functions, the principle of induction, counting, elementary number theory, elementary combinatorics, recurrence relations.*

We will cover virtually all of Parts I–III (Chapters 1–14) of the textbook, and, if time permits, a few chapters from Parts IV–VI.

This course will probably be unlike any other math course you've taken. Most of your courses so far have concentrated on helping you learn algorithms for solving particular types of problems; most courses after this one will focus instead on deep conceptual understanding and deductive reasoning. This course is supposed to be the "bridge" between the two ways of approaching mathematics. It will give you tools for thinking mathematically, reading critically and with understanding, solving conceptual problems, and writing mathematical proofs. You will use these tools in every math course you take from now on (and potentially in many other courses as well!).

REGISTRATION INFORMATION

Both sections of Math 310 have been filled for several weeks. If you are not currently enrolled, the only way to get in is by registering online when space becomes available; no entry codes will be given. Don't give up hope: It is likely that a few spaces will open up during the first two weeks of classes, as people decide to drop the course. If you're hoping to register, be sure to attend all classes and do all the assigned work.

REQUIREMENTS

Reading

Each week, you'll be assigned a couple of chapters in the textbook to read, usually about the material that will be discussed in the next few lectures. There will also be a few handouts to read during the course of the quarter. Both are required.

Classes

Although I won't officially take attendance, I expect you to attend all classes. In addition to lectures, discussions, and practice exercises designed to clarify the reading and prepare you for the homework, I will also be introducing new concepts that are not covered in either the textbook or the handouts. If you must miss a class for some unavoidable reason, you should find someone who takes careful and complete notes, and arrange to get a copy of them.

Reading Reports

Each week, you're required to submit a short reading report to the EPost discussion group for this course. (Follow the link on the class web page.) Your report must include at least two paragraphs, with the following content:

- Briefly describe what were, in your judgment, the most important idea(s) in this week's reading assignment.
- List one or two questions that the reading raised in your mind.

Your questions might address such issues as why something is defined the way it is, how a given concept might be of use, something you'd like to learn more about, or something that made you feel "stuck." You may respond (respectfully!) to other students' postings if you wish. In these reports, *there is no such thing as a stupid qustion!*

Your report may also include any other comments or questions you 'd like to raise concerning the course, including the lectures, the reading, the homework, or the exams. If you wish to write about specific homework problems, please confine your comments to general questions and suggestions about how to get started.

Your weekly reading report must be submitted to EPost no later than midnight Sunday each week. Part of your grade will be based on whether you've submitted all of the required reports. (The only thing that will be graded is whether you've submitted them; as long as you make a good-faith effort to include the two items mentioned above, the content of your reports won't affect your grade.) You may skip at most two weeks to get full credit.

Homework Assignments

Each week, there will be a written homework assignment to turn in for a grade. Assignments will be posted on the web each Wednesday, and are due in class the following Wednesday. These assignments are the heart of the course. Most of them will take some time to think about, so I caution you against putting them off until the evening before they're due. Late homework will not be accepted except in extraordinary circumstances and with advance permission.

More details about the homework assignments will be given in Handout #2, *Homework Instructions*.

Writing Portfolios

Early in the quarter, each of you will be assigned (based on your preferences, if you wish to express them) to a "writing group" of three or four students. Some of the proofs you write for homework will be designated as "Portfolio Proofs," usually after they've been graded and returned to you. Then you'll work together with your writing group to revise and rewrite the solutions to the portfolio problems, coming up with a single final version for the group. At the end of the quarter, each group will turn in a completed writing portfolio for a grade. There will be some class time available to work with your writing group, but you'll also have to arrange time outside of class to work together (either electronically or in person).

EXAMS

There will be two exams: a 50-minute midterm and a 110-minute final. Both exams will be closed-book, closed-notes.

You may not take exams other than at the scheduled times except for serious illness, religious reasons, or other extraordinary circumstances of grave personal import. To arrange an alternative exam time for reasons other than medical emergency, give me a written or email request, accompanied by appropriate written documentation, no later than two weeks before the exam. Approval of such requests is by no means automatic. If you are unable to take an exam for medical reasons, you must contact Professor Lee before the exam or as soon as medically possible thereafter, and you will need to provide a written medical excuse.

The only exception to the above rule is that, space permitting, you may choose to take the final exam at the scheduled time for the other section of Math 310 instead of your own. To do so, you must submit a written or email request to me no later than Monday, May 22.

GRADES

Your grade will be based on a weighted average of the following scores.

30%	Homework assignments
5%	Reading reports
20%	Midterm exam
20%	Writing portfolio
25%	Final exam