

Handout 1: Syllabus

Professor:	Jack Lee Padelford C-527, 206-543-1914 johnmlee@uw.edu math.washington.edu/~lee Office Hours: <i>to be announced</i>
Class Meetings:	Math 300D: Mon/Wed/Fri 12:30-1:20, ECE 025 Math 300E: Mon/Wed/Fri 1:30-2:20, ECE 025
Exams:	Quiz 1: Friday, Jan 27 (tentative), in class Midterm Exam: Friday, Feb 10 (tentative), in class Quiz 2: Friday, Feb 24 (tentative), in class Math 300D Final: Thursday, Mar 16, 8:30-10:20AM Math 300E Final: Monday, Mar 13, 2:30-4:20PM
Course Canvas:	canvas.uw.edu/courses/1613665 (for both sections)

Required Textbook

Mathematical Reasoning: Writing and Proof, Version 2.1, by Ted Sundstrom.
Available at these locations:

- A free PDF copy can be downloaded from the author's website:
www.tedsundstrom.com/mathematical-reasoning-writing-and-proof
- A printed copy is on reserve in Odegaard
- You can purchase a printed copy from Amazon

General description

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 designed 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 probably use these tools in every math course you take from now on (and potentially in many other courses as well!).

The primary goal of this course is to help you learn how to start thinking like a mathematician, and how to communicate effectively about mathematical ideas; primarily this means learning what mathematical proofs are and developing your ability to understand, write, and critically evaluate them. A major part of this process will be learning to understand and use "mathematical English," so this course is in many ways similar to a language course. These skills are essential to most upper division mathematics courses. You can think of this as the course where you graduate into mathematical adulthood.

We will cover all of the textbook except Chapters 7 and 8. The mathematical topics include the following:

- elementary mathematical logic
- methods of proof
- mathematical induction
- elementary set theory
- properties of functions
- cardinality of sets

These topics provide a setting for working on proof skills, and also provide a complement to calculus by introducing ideas of discrete mathematics.

Registration Information

Both of my sections have been full for the past couple of weeks. I will not be overloading either section, but slots may open up during the first two weeks. Starting on January 10, you'll need permission to register—contact the Math Advising Office (advising@math.washington.edu, PDL C-36, 206-543-6830) to find out if and how you may add the course.

Requirements

Classes: Although I won't keep a formal attendance record, *class attendance is expected*. Much of what I talk about in class will be designed to *supplement* the reading, not repeat it.

If the technology cooperates, I plan to record the 12:30 lectures and make them available in the *Panopto Recordings* section of Canvas. (I won't be recording the 1:30 lectures, but I expect the content to be almost identical in both sections.) These recordings should be useful if you have to miss class due to illness, or if you want to go back and hear something again to better understand it. But attending in person is far preferable because of the opportunity to interact and ask questions.

If you will miss a class due to religious commitments, see the section below on *Religious Accommodations*. If you must miss a class for some other unavoidable reason, be sure to watch the recorded lecture and contact me if you have any questions. Missing classes unnecessarily will dramatically reduce your chances of doing well in the course.

Course Canvas: All of the material for these sections will be posted on Canvas (see the URL on the first page of this syllabus). There you will find basic information about the course, handouts, and homework assignments. I will use Canvas for important announcements about the course, so be sure your Canvas profile is set to receive immediate notifications when new announcements appear. There will also be a discussion board where anyone in the class can ask and answer questions.

Reading Assignments: After most classes, I'll post a reading assignment, either part of the textbook or one of the supplementary handouts I'll be providing. The reading assignments will typically cover the material that will be discussed in the next one or two lectures. You should read through each assignment quickly before class, and then read it again more carefully after we've discussed it. I really mean *read it*. This is not the kind of material that can be learned by looking at a homework problem and then leafing back through the book to find an example showing how to do that kind of problem.

Homework Assignments: After most classes, I'll assign some practice problems (to do for your own good), and some written homework problems to turn in for a grade, all posted on Canvas. When there's a new homework assignment, I'll post it as soon as possible after class—usually, by about 5:00PM, sometimes sooner—and I'll post a Canvas announcement when it's ready. 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.

All homework must be submitted electronically using Canvas. If you're comfortable doing so, I encourage you to submit computer-typeset assignments. I highly recommend L^AT_EX, since that's the de facto standard in mathematics; but any typesetting program that can handle mathematical symbols (such as Microsoft Word) will do. I've posted some helpful typesetting links on Canvas. It's also OK to submit handwritten assignments, as long as they're neat and legible. When you've finished the assignment, create a PDF copy of your solutions and upload it to Canvas. If you need to scan handwritten pages and don't have a regular scanner, try the smartphone app called *Genius Scan*, which is available free for iPhone and Android.

Each Wednesday, all the homework assignments from the preceding week will be due by 5:00PM. It's important to submit your homework on time—both to ensure that the graders can start their work and to ensure that you don't fall behind in the course—so there will be a 20% deduction for homework submitted after 5PM, and homework submitted after midnight that same day will not be accepted. In unusual circumstances, I might allow a late assignment if you request permission in advance (or as soon as possible in case of emergencies). When computing grades, I'll drop your lowest homework score. More details about how to write up homework assignments will be explained in a *Homework Presentation Guidelines* handout during the first week of the quarter.

Collaboration and Academic Integrity: I strongly encourage you to work together in groups on the written assignments. It's fine to help each other think through the problems, and even to explain your solutions to other students. However, when you write up your solutions to hand in, you must *write your own solutions in your own words*. Even if you work out a solution as a group, it's not acceptable for one person to write down the solution and for others to copy it. To avoid inadvertent or deliberate plagiarism, you shouldn't show your written work to anyone else in the class. If I receive assignments that include answers that are suspiciously similar to those of another student, or answers that have been copied from a published or online source, they will be treated as instances of academic dishonesty and reported to the Dean's office.

Quizzes: There will be two quizzes during the quarter on dates to be announced in advance. Quizzes cannot be made up, but if you must miss a quiz because of a religious commitment or an emergency, that quiz will not be counted.

Exams: There will be a 50-minute midterm and a 110-minute final. Both will be closed-book, closed-notes. You may not take exams other than at the scheduled times except for religious reasons, emergencies, or DRS-approved disability accommodations. If you need to make special arrangements due to religious commitments, see *Religious Accommodations* below. If you are unable to take an exam for medical reasons, contact me before the exam or as soon as medically possible thereafter and we'll arrange a makeup exam.

Religious Accommodations: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at *Religious Accommodations Policy*:

registrar.washington.edu/staffandfaculty/religious-accommodations-policy

Accommodations must be requested within the first two weeks of this course using the *Religious Accommodations Request Form*:

registrar.washington.edu/students/religious-accommodations-request

Disability Accommodations: It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course. If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations, contact DRS at disability.uw.edu.

Grading: Your course grade will be based on a weighted average of the following scores:

- homework (25%)
- quizzes (10%)
- midterm (25%)
- final exam (40%)

Individual homework and quiz scores will be recorded as percentages and averaged (after dropping your lowest homework score). I don't grade on a strict curve (which would mean that only a certain percentage of the class could earn A's, a certain percentage B's, etc.). Instead, I will start with a "default" grading scale (roughly 93% for a 4.0, 73% for a 2.0, and linearly interpolated or extrapolated from there), and adjust the scale if necessary in case the exams, quizzes, or homework turn out to be unusually hard or unusually easy. In any case, if your final average is 75% or better, you are guaranteed to get at least a 2.0.