MATH 300-C: MATHEMATICAL REASONING, WINTER 2019

Instructor: Dr. Jonah Ostroff, Padelford C-328, ostroff@uw.edu

COURSE DESCRIPTION. This is the class where you graduate into mathematical adulthood. You'll learn how to write mathematical proofs and develop your skills with logical reasoning while studying a variety of mathematical structures.

CLASS MEETINGS. Mondays, Wednesdays, and Fridays, 12:30 – 1:20 PM in GUG 204.

TEXTBOOK. We'll be using *Mathematical Reasoning: Writing and Proof* by Sundstrom, available for free here:

https://scholarworks.gvsu.edu/books/9/

You can also buy a physical copy from the bookstore if you want to.

GRADES. Your grade in the course will be based on the following:

15% Homework
10% Portfolio Proofs
15% Quizzes
25% Midterm
35% Final

LECTURES. Lectures are held on Mondays, Wednesdays, and Fridays. I don't take attendance, but you should probably show up! PDF slides of everything I write on the board will be posted to the course website after each class, but it's really hard to learn just from those.

HOMEWORK. Homework will be assigned on Wednesdays and will be due the following Wednesday. A PDF of the assignment will be posted on the course website, and will mostly consist of problems from the textbook. Please read the assignment carefully, as I sometimes will include special instructions for what proof techniques you should use.

PORTFOLIO PROOFS. Early in the quarter I will post "Challenge Problems" on the course website. These will be similar to the problem you solved in groups on the first day of class: there isn't a straightforward technique for solving them, but instead you just need to play around with mathematics until you find an answer.

Your job will be to solve any two of these problems and type up good, clear proofs. A first draft will be due February 22nd, and will be graded on mathematical correctness. A final draft will be due March 15th, and will be graded on mathematical correctness *and* clarity.

You may work with your classmates to brainstorm solutions to these problems, but *you must type up your work by yourself.* The point of this exercise is to practice expressing yourself clearly in writing, and you must do that alone.

QUIZZES. Every Wednesday (starting on the second week) there will be a short quiz at the start of class. The quiz is intended to be easy if you understand the previous night's homework. Your lowest quiz score will be dropped from your final grade.

EXAMS. There will be one midterm and one final:

- Midterm: Wednesday, February 13th (in class).
- Final Exam: Thursday, March 21st, 8:30–10:20 AM (in our usual classroom).

The exams will be similar in flavor to the homework and quizzes. You may not use a calculator or note sheet on the exams. However, a list of important axioms will be provided on the back page of the exam, and I will send you a copy of this list in advance.

OFFICE HOURS. I've got three office hours per week:

Mondays, 3:00 – 5:00 PM
Tuesdays, 1:00 – 3:00 PM
Thursdays, 1:30 – 3:30 PM

These are times when you can drop into my office (Padelford C-328) *without* making an appointment. I'll just be sitting there waiting for people to come by, so please attend if you have any questions! If these hours don't work for you, send me an email to make an appointment for another time. Note: these office hours are shared with my Math 126 class.

WEBSITE. We have a website! It's really sparse, and doesn't contain much more than what you see here, but I'll probably post more to it as the quarter progresses:

`www.math.washington.edu/~ostroff/courses/2019/math300-win19`

ACADEMIC HONESTY. I take cheating very seriously, and will report any instances to the department of Community Standards and Student Conduct.

STUDENTS WITH DISABILITIES. The University of Washington is committed to providing access, equal opportunity and reasonable accommodation in its services, programs, activities, education and employment for individuals with disabilities. To request disability accommodation, contact the Disability Services Office at least ten days in advance at: 206-543-6450/V, 206-543-6452/TTY, 206-685-7264 (FAX), or dso@u.washington.edu.

DOTS AND BOXES. At any point during my office hours, you may challenge me to a game of Dots & Boxes on a 6×6 grid of dots. If you can beat me before the end of the quarter, you'll get a bonus of 1% extra credit.