

## SP25 Sets and Logic

### Lecture Times

Section 17BE: M,W,F 9:35 AM – 10:25 AM (Period 3) in Anderson Hall 32

Section 3E0B: M,W,F 3:00 PM – 3:50 PM (Period 8) in Little Hall 215

### Contact Information

Office: Little Hall 441

Office hours: M-F 10:40 AM – 11:30 AM (Period 4), W 4:05 PM – 4:55PM (Period 9), also by appointment

Email: jesse.kim@uff.edu

### Text

The textbook for the class is **How to Prove It: A Structured Approach** by Daniel J. Velleman.

### Course Objectives

This course serves as an introduction to the world of rigorous mathematical proofs and will teach you how to:

1. Read and analyze mathematical arguments and determine if they are correct
2. Communicate mathematical ideas in a clear and precise way.
3. Apply problem solving strategies to find proofs of mathematical statements.

We will work toward these goals in a variety of mathematical contexts, including sets, functions, relations, irrational numbers, and more.

### Tentative Schedule

Week 1: Introduction and  $\mathcal{P}$

Week 2-3: Proof techniques

Week 4-5: Mathematical induction

Week 6-9: Sets, relations, functions

Week 10-11: Infinite sets

Week 12-14: TBD

### Assessment

There will be three exams during class times on the following days:

1. Wednesday 2/5
2. Wednesday 3/12
3. Wednesday 4/16

There will be 10 homework assignments, due most weeks without an exam. Exams will be worth collectively 60% of your grade, and homework assignments will be worth 40%. One homework assignment will be dropped.

Letter grades will be assigned on a curve, but will be no lower than the standard 10-point scale (e.g. a 90% will guarantee you some form of A).

Exams will be in-person closed book/notes. Homeworks will be submitted online.

### Proof Grading Rubric

Most of the assignments in this class will consist of proofs, each graded out of 4 points according to the following criteria:

**0 points:** No original work towards a solution. Submissions which only consist of restating the problem and copying relevant definitions or results from the text or lecture notes will receive this score.

**2 points:** Some progress towards a proof is made, but large parts of the argument are missing or incorrect.

**3 points:** An outline of a correct proof and some of its key steps present, but there are significant holes in the argument. Also, any submission without complete sentences can receive at most this score.

**4 points:** All of the major ingredients of a correct proof are present, but minor details may be missing or incorrect, or the writing may not be sufficiently clear.

**5 points:** A clear, complete, and correct proof.

One extra bonus point will be available per assignment for very well-written and clear proofs.

### Homework and Exam Corrections

One goal of this class is to learn how to spot and fix errors in a proof. To accommodate this, for any homework or exam problem on which you receive less than 5 points you may submit a correction analyzing your previous submission to receive up to 1 point back per problem. To receive the point, you need to find the error(s) in your submission, explain why they are an error or gap, and either correct them or explain why they cannot be corrected. Simply turning in a new correct solution will not receive the point.

### Honor code

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor.

### Accommodations for students with disabilities

Students with disabilities who experience learning barriers and would like to request academic accommodations should consult with the Disability Resource Center. See the "Get Started With the DRC" webpage on the Disability Resource Center site. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.