

Math 3283W: Sequences, Series & Foundations

Prof. Jonathan Rogness

University of Minnesota

September 7, 2016

Today's Plan

- ▶ Discuss the course.
- ▶ Discuss the syllabus.
- ▶ Do some math!

All of the syllabus and other course information can be found on the course website.

Tip: Google “rogness umn” and you’ll find the page.

<https://www.google.com/search?q=rogness+umn>

My Information

Prof. Jonathan Rogness

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Phone: 612-625-2861

Email: rogness@umn.edu (*By far the best way to reach me!*)

Webpage: <http://www.math.umn.edu/~rogness>

Course Webpage:

<http://www.math.umn.edu/~rogness/math3283w/>

Watch out: the department sometimes lists my office as Vincent 431!

Course Description

Math 3283W is a “bridge” course. The specific material chosen by our department for its bridge course is a careful study of sequences and series, but the real goal of the course is to make you comfortable with the techniques and language of mathematical writing and proof:

- ▶ Basic logic
- ▶ Methods of proof
- ▶ Basic set theory
- ▶ The precision of mathematical writing

Sequences and series don't appear until the last half of the semester.

An Analogy

Learning to read and write mathematics is very much like learning a foreign language!

Textbook

Analysis: With an Introduction to Proof, Fifth Edition.

By Steven R. Lay. (Required. Annoyingly.)

Writing / Communication Component

In addition to midterms and the final exam, 30% of your grade will be based on three components:

15% Writing Quizzes (most Thursdays)

5% Oral Presentation

10% \LaTeX Writing Project and Rewrite

Writing Quizzes

Most weeks a selection of writing problems will be posted; one or more will form the basis for an **in-class writing quiz** on Thursday, graded for both mathematical correctness and the quality of your exposition.

Quiz Dates: 9/15, 9/22, 9/29, 10/13, 10/20, 10/27, 11/3, 11/17, 12/1

Your eight highest quiz scores comprise your Writing Quiz grade.

Oral Presentation

Mathematicians often communicate with one another by talking at a board. The oral presentation is meant not as an examination but rather an opportunity to practice this form of communication.

The presentation will be short – no more than five minutes – and can take many forms: presenting an example during lecture or discussion, presenting an example during the lecturer's or a TA's office hour, or taking a short oral quiz with the lecturer or the TA.

(More info to come)

\LaTeX Writing Project

Communicating about mathematics requires careful use of language and symbols. Typesetting mathematics is an essential skill for anyone who wants to communicate technical information in a readable format.

The project will consist of a one-page typeset document containing your solution to a problem in the course's textbook or another source, planned in advance with your TA. Your TA will determine how you should submit your electronic solution. Your TA will respond with suggestions for revisions or extensions, and you will have one week to submit an updated file.

(More info to come)

Writing Problem Grading Rubric

- 6/5:** Exceptionally well written. A joy to read, and significantly better than other solutions.
- 5/5:** Clear, concise, and complete. A few issues about formatting or writing may receive written comments, but they do not detract from the reader's ability to understand the solution.
- 4/5:** Well organized with reasonable explanations. Minor formatting problems, or use of English that needs improvement, such as sentence fragments, poor punctuation, or spelling mistakes.
- 3/5:** Minor justification or organization problems. Contains an unjustified statement or a statement that is not central to the solution. Or, minor organizational problems that do not make the document too difficult to read.

...see the webpage for the rest.

Interlude - Math Fun Fact!

Imagine a rubber rope one meter long. An inchworm starts at one end and travels along the rope at 1 cm/sec. At the end of every second, the rope gets stretched so that it was one meter longer than before (the worm is carried along with the stretching).

So the worm travels 1 cm, the rope gets stretched 1 whole meter, then the worm travels 1 cm farther on the stretched rope, the rope gets stretched again by another meter, and the worm travels 1 cm farther, etc.

Does the worm ever reach the end of the rope?



Grading Scheme

The components of the course will be weighted as follows:

15%	Writing Quizzes
5%	Oral Presentation
5%	TeX Project
5%	TeX Project Rewrite
45%	Midterms (15% each)
25%	Final Exam

30%

Tentative (but fairly solid) midterm dates: 10/6/16, 11/10/16, 12/8/16

Final Exam: 1:30pm-3:30pm on Thursday, December 22.

Resources

- ▶ Course Webpage – lecture notes, exam guides, etc.
- ▶ Email (your TA, me...)
- ▶ Moodle forum (course announcements)
- ▶ Office Hours

Office Hours

You can attend *anybody's* office hours. They'll be posted on the course website. The table below is NOT current.

Office hours will begin during the second week of class.

Time	Mon	Tue	Wed	Thu	Fri
9:05		Honda		Honda	
10:10	Ismail	Discussion	Ismail	Discussion	
11:15	Lecture	Discussion	Lecture	Discussion	Lecture
12:20			Rogness		Rogness
1:25		Ewing		Ewing	
2:30	Morawski		Morawski		
3:35					
4:40					

Tips for Success

- ▶ Don't be embarrassed to ask for help! Everybody hits a wall at some point in their studies.

It doesn't mean you're a bad student, or bad at math.

- ▶ Make use of all of the resources.
- ▶ If you're stuck, try *something*, even if you just write out the definitions for the terms in the problem.

What NOT to do

In past semesters, large numbers of 3283W students have handed in solutions taken more-or-less directly from the solutions manual. This behavior is academically dishonest and not appropriate for students in a University level course. Such actions can result in a score of zero on the problem, the entire assignment, and for your entire course grade.

Wait 30 minutes. If you can still write out the solution on your own, without looking at the resource, showing all the steps and *in your own words*, then you have learned the material and the work is your own.

(PS - the solutions manual has lots of easy-to-spot typos.)

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