

# Math 311, Spring 2017

**Dr. Sarah Raynor**

**Textbook:** Understanding Analysis, Second Edition, Stephen Abbott, ISBN: 978-149392711-1.

**Office:** Manchester 343

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**Office Hours:** Mondays 2-3:30, Wednesdays 2:30-4, Thursdays 5-6:30, and Fridays 4-5.

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**Course Website:** Please see the course Sakai website at [sakai.wfu.edu](http://sakai.wfu.edu) for course materials.

**Course:** This course is a first course in real analysis, the study of functions on the real line. It will depend on your knowledge of one-variable calculus, but in this course we will be studying the rigorous notions and proofs that underly the usual ideas of calculus. Our course will discuss the nature of the real line, sequences and series, continuity and differentiability, and sequences and series of functions. If time permits we will also discuss integration. This course will comprise the first six to seven chapters of the text.

**Assignments:** This course will emphasize the creation and proper writing of mathematical proofs. It will also challenge your intuition with examples of what may go wrong, and why our definitions and proofs are formulated as carefully as they are. For this reason, it is crucially important that you work to develop your intuition and proof-writing skills by doing regular homework. I strongly recommend that you do every problem in the sections that we cover. Each week, I will assign a few problems for you to write up and turn in. Homework problems will be due on Fridays one-to-two weeks after assigned, and can be corrected and resubmitted once on the Friday three-to-four weeks after originally assigned.

In addition to regular homework, students will have an extended project assignment. Each chapter of the text has at least one project section for students to work through in groups of 2 or 3; the section numbers are 1.5, 2.8, 3.5, 4.6, 5.4, 6.6, 8.2, or 8.4. Sign up for groups and topics will take place on Friday, January 20, so please look through the book before then to see what you find interesting. You may form your own groups or I can pair people up based on interest. A complete project will contain a nice write-up of the exercises in that section as well as a 15-20 minute in-class presentation of the material.

**Evaluation:** There are 5 components of your final grade.

1. There will be two midterm examinations which will be worth 15% of your grade each. Each will have both a take-home and in-class component. I have tentatively scheduled these exams for **February 10** and **March 17**. You must let me know if you will be unable to make this date by January 20. Otherwise, you can miss the exam only in the case of serious illness or emergency.
2. There will be a cumulative final examination which will have both in-class and take-home portions, and will be worth 30% of your grade. The final is scheduled for 2:00pm on **Saturday, April 29**.
3. The written weekly homework is worth 15% of your grade.
4. The project assignment is worth 15% of your grade.
5. Positive participation in class is worth 10% of your grade.

Make-up assignments will not be given, and late work will not be accepted. If you have to miss an assignment due to a legitimate excuse, that assignment will be excused and other assignments of the same type will be weighted more heavily to replace it.

**The Honor Code:** At Wake Forest, we expect you to behave as honorable citizens of the class, the university, and the world as a whole. When you complete an assignment with your name on it, you are representing that everything you are turning in is your own work. That means that you do not copy from other students, textbooks, or websites. You do not obtain the main ideas of a proof from someone else unless I have explicitly permitted you to do so.

The honor code is a token of our respect for you as members of the academic community. When one person cheats, it diminishes the experiences of everyone else in the program, both faculty members and students. Please, respect yourselves, each other, and me, and turn in only your own personal work. If at any time I become aware of cheating or plagiarism in this course, I will submit the information to the honor council. The format of any future assignments may also be affected, for the entire class.