Math 711, Spring 2017
Dr. Sarah Raynor

Textbook: <u>Analysis on Metric Spaces: A First Graduate Analysis Course</u>, by Raynor and Robinson. Available for $20 from the Math Department.

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 for course materials.

Course: This course will be an introduction to several fundamental ideas of analysis. We will begin by discussing metric spaces, and the core topological and analytic ideas therein: Convergence, Cauchy sequences, Completeness, Compactness, and Continuity. This will be an expansion and deepening of the material from Math 611. We will then similarly expand upon the key ideas of multivariable calculus: normed linear spaces and the Implicit and Inverse Function Theorems, differentiation and linear approximation. Applications of these topics will also be discussed.

In this course you will learn to think, write, and speak like an analyst. We will develop your intuition by working problems, and you will study the construction of rigorous analytic proofs. By the end of the course you should have an idea of what a modern analyst does in their research.

Assignments: There will be no graded homework in this course. However, I will suggest problems for each topic which we discuss, and I expect that you will attempt to complete them to the best of your ability. I will be available to discuss these problems during office hours. I strongly encourage you to bring your questions to my office hours, and to discuss them with your classmates. I may occasionally ask you to be prepared to discuss a particular question or problem in class. This semester, Dr. Jiang is offering a 1 hour problem session in analysis, which will be a good adjunct to MTH 711.

Evaluation: There are 3 components of your final grade:

1. There will be two take-home exams during the term, which are worth 20% of your grade each. I have tentatively scheduled these exams for **the weeks of February 10 and March 17**. Please let me know ASAP if these times will be an issue for you.

2. There will be a cumulative in-class final exam at **9:00am on Monday, May 1**, worth 35% of your grade.

3. There will be a verbal communication component worth 15% of your grade. You may choose between a prepared presentation on a topic we agree on, or a 20 minute oral examination. We will discuss this further in class as the semester progresses.

4. Your positive participation in class, including presenting problems, will be worth 10% of your grade.

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 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.