MATH 5153 - Real Analysis II - Spring 2012

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OFFICE HOURS: MWF 9:30-10:20 p.m. and by appointment
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TEXT: *Real Analysis. Modern Techniques and Their Applications*, second edition, by Gerald B. Folland.

GENERAL INFORMATION: This course is a continuation of Reak Analysis I. There are three equally important goals: (i) to understand the theory and how the various peices fit together, (ii) to obtain the ability to use the theory to solve typical problems that arise in the subject and (iii) to present clearly written detailed solutions to these problems. The website `http://www.math.okstate.edu/~zierau/` will contain homework assignments as well as a small amount of useful information and should be consulted.

COURSE CONTENT: We will often use the material on measure theory and integration from the fall semester as we continue our study of real analysis. The semester will begin with some point-set topology. This is typically considered undergraduate or masters level material, so it is assumed students know some general topology. However, the point of view we need is likely to be a bit different than what is most familiar, so we will cover (much of) Chapter 4. Then we will cover all of Chapter 5 and parts of Chapters 6, 7, 8 and 9.

COURSEWORK and GRADES: Homework is extremely important for learning the material; the homework will follow the same format as last semester.

There will be three inclass exams during the semester as well as a final exam. These exams will consist of two parts; the first part will be very routine (statements of definitions and theorems, and questions with rather short answers) and the second part will consist of substantial problems. To earn a B a student will be expected to complete %70 of the homework and routine part of the exams successfully. To earn an A students will also need to give complete, well-written solutions to at least %70 of the substantial problems on the exams. The substantial problems will be problems like those appearing on the real analysis comprehensive exams. Old comprehensive exams may be found on the Mathematics Department's website (see link on my webpage). Students are expected to pracitice these problems as part of their studies.

SOME SUGGESTIONS: It will take considerable effort to master real analysis. Here are some things you might try. (i) Rework all proofs and calculations given in class. (ii) Make a list of all definitions and theorems covered. (iii) Do all homework carefully. (It is rare that a homework problem can be done on the first attempt. Solutions should usually be written and rewritten several times until you are satisfied that you have presented a good solution.) (iv) Do one old comprehensive exam question each week; pick one on a recently covered topic. (v) Ask when you have questions.

UNIVERSITY SYLLABUS ATTACHMENT: Supplementing our syllabus is the university syllabus attachment containing numerous tidbits of information, which is available at `http://academicaffairs.okstate.edu/images/documents/sylatspr.pdf`