Math 321 – Real Analysis II – Measure theory, integration, and Fourier series

Instructor: William T. Ross – Jepson Hall 215 – 289 – 8090

Text: *Real Analysis*, N. Carothers, Cambridge, 2000 (paperback)

Other materials: Let's face it, your handwriting is a bad as mine. You will be required to type all of your assignments in LaTeX. In addition, many of you will be off to graduate school in a mathematics related field where typing in LaTeX will be a required skill. So learning this typesetting package will serve you well beyond RA II. Get MikTeX (the TeX compiler) and WinEdt (the GUI) off of Blackboard (under Course Docs). You will eventually need to send $30 to WinEdt. If you have some other LaTeX setup, great. Convert your files to pdf's and submit them via Blackboard. I'll mark them up with Acrobat and return them to you via Blackboard.

Schedule:

Week 1: 1/10 – Chapter 16 – Lebesgue measure
Week 2: 1/17 - " "
Week 3: 1/24 - " "
Week 4: 1/31 – Chapter 17 – Measurable functions
Week 5: 2/7 - " "
Week 6: 2/14 – Chapter 18 – Lebesgue integral
Week 7: 2/21 - " "
Week 8: 2/28 - " "
Week 9: 3/7 – Spring Break
Week 10: 3/14 – Chapter 19 – Lp spaces
Week 11: 3/21 - " "
Week 12: 3/28 - " "
Week 13: 4/4 – Chapters 15, 19 – Fourier series
Week 14: 4/11 - " "
Week 15: 4/18 - " "

Grades: Grades will be based on lots of written (typed) assignments (80%) and a take home final (20%).

Special notes:

(1) A clear and lucid mathematical writing style will be very important in this course. If I have to dig out your arguments, your grade will suffer. The same goes for typesetting. Real analysis should be beautiful – both in argument and in typeset.
(2) The book is fantastic! It is well written and easy to understand. I would like to spend some class time on the assigned problems and will not always have time to cover every single technical detail of the formal theorems. I expect you do work through some of these details on your own.