Analysis II (MAA6617)

Time and Location
M W F 4, Little 219

Description and Goals
This course treats the fundamentals of measure and integration theory, including Lp spaces and the Radon-Nikodym theorem; and an introduction to functional analysis, including Banach spaces, Hilbert spaces, and the theory of linear operators. Other topics that may be included (depending on time and interest) are harmonic analysis and the Fourier transform, the theory of distributions, the spectral theorem, and an introduction to probability.

Text: There is no required text for this course. A complete set of lecture notes will be posted on the webpage as the course progresses. Of the texts listed below, the course will come closest to the treatment in Folland, so if you would like to have a book to look at, that is the one I recommend. The first two-thirds of the course (all of the fall semester and continuing into the spring) will correspond roughly to Chapters 2, 3, 5, and 6 of Folland.

Some standard texts that treat the material covered in this course are:

Real Analysis: Modern Techniques and Their Applications by Gerald B. Folland
Real and Complex Analysis by Walter Rudin
Real Analysis by H. L. Royden
Real Analysis: Measure Theory, Integration, and Hilbert Spaces by Eli Stein and Rami Shakarchi

Some additional references for the first part of the course (on measure theory) are:

Measure Theory by Paul Halmos
An Introduction to Measure Theory by Terence Tao

Lecture Notes
Current lecture notes (updated 4/16/14)
Fall 2013 lecture notes (updated 1/6/14)

Homework
Homework will be assigned and graded weekly; assignments will be posted below as the semester progresses.

Midterm exam: Wednesday 3/12

Homework 8 (due Friday 4/11/14): Problems 35.23, 35.24
Homework 7 (due Friday 3/28/14): Problems 35.4, 35.8
Homework 6 (due Friday 3/21/14): midterm exam corrections
Homework 5 (due Wednesday 2/26/14): Problems 28.3, 28.4
Homework 4 (due Wednesday 2/19/14): Problems 26.6, 26.12
Homework 3 (due Monday 2/10/14): Problems 22.6, 24.5, 24.6
Homework 2 (due Friday 1/31): Problems 20.18, 20.19, 22.5
Homework 1 (due Wednesday 1/14): Problems 20.2 and 20.3 (see current lecture notes)

University policies and resources

Dean of Students:
Academic Honesty Guidelines
(includes Code of Student Conduct, University of Florida Honor Code)

Disability Resources
Americans with Disabilities Act Compliance
Mathematics Department Policy on Incompletes

UF Policies for assigning grade points
(This link has nothing to do with the grading policies of this course; rather it explains how letter grades are converted to grade points for the purpose of computing GPAs.)