James Pascoe Department of Mathematics				
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(Note these my be updated semi-frequently.)

James Eldred Pascoe

MWF Period 4, LIT 205

Office Hours Period 5 MWF

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 harmoinc analysis and the Fourier transform, the theory of distributions, the spectral theorem, and an introduction to probability.

Homework problems, selected to complement each students interests and course of study, will be assigned, collected, and graded.

Course grades will be based on participation and homework. See the current UF policy on assigning grade points.

There will be an optional exam the Monday following Thanksgiving break, scheduled outside of normal class time. (November 27) Students planning to take the qualifying exam are encouraged to take the exam.

Attendance and punctuality are highly encouraged. Furthermore they are necessary for participation.

The official text will consist of notes that have been developed over several years several colleagues, including Mike Jury and Scott McCullough. Minor updates to the notes may occur throughout the semester, so printing is discouraged.

Additional, but not required references include:

Real and Complex Analysis by Walter Rudin

Real Analysis: Modern Techniques and Their Applications by Gerald B. Folland

Real Analysis by H. L. Royden

Measure Theory by Paul Halmos

An Introduction to Measure Theory

by Terence Tao

Grades.

Grading will be in accord with the UF policy stated at https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Academic Honesty.

The course will be conducted in accordance with the University honor code and academic honesty policy, which can be found in the student guide

Accommodation for students with disabilities.

Accommodations for Students with Disabilities: "Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565,

https://www.dso.ufl.edu/drc/

) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester." Online Evaluations.

"Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu

. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/." *Contact information for the Counseling and Wellness Center.* http://www.counseling.ufl.edu/cwc/Default.aspx

; 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Tentative weekly schedule

Week 1: sigma-algebras.

- Week 2: measures, outer-measures and the Caratheodory extension theorem.
- Week 3: Lebesgue measure.
- Week 4. Premeasures and the Hahn-Kolmogorov Extension Theorem.
- Week 5. Lebesgue-Stiltjes measures
- Week 6. Measurable functions.
- Week 7. Integration of simple and measurable unsigned functions.
- Week 8. Integration of signed and complex functions.
- Weeks 9 and 10. Modes of convergence.
- Weeks 11 and 12. A brief discussion of Riesz-Markov, Product measures.
- Week 13. Signed measures and the Lebesgue-Radon-Nikodym Theorem

Week 14. Thanksgiving.

Weeks 15 and 16. Normed vector spaces.

Addenda. We reserve the right to make justifiable and necessary addenda or corrections to the syllabus.

To be announced.



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