University of Florida

Paul Robinson
Department of Mathematics

College *of* Liberal Arts *and* Sciences

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Analysis Seminar
MHF 3202 Section 3255
MAA5229 (Section 3014) MAA4227 (Section 01CH)

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Modern Analysis 2

Time and Location

MWF Period 4 (10:40-11:30) LIT 219

Office hours

To be announced

Text

Walter Rudin, *Principles of Mathematical Analysis*, Third Edition

Topics

This second-semester course has the same foundational goals as the first, but addresses a different set of topics. In principle, it will cover material from chapters six, seven, eight, and eleven of Rudin as indicated in the official syllabus, which may be found at https://math.ufl.edu/first-year-exam-syllabi/maa-5229-modern-analysis-2/.

Regarding chapter six, we shall focus primarily not on the Riemann-Stieltjes integral but on the Riemann integral, incorporating modifications that are attributable to Darboux. Our study of chapters seven and eight will be rooted in the notion of uniform convergence for sequences of functions, with excursions into approximation theory (via the Weierstrass approximation theorem and its generalizations) and differential equations (via the Arzela-Ascoli theorem on equicontinuous families of functions). Taken together, these topics are likely to take us a little way past midterm. The remainder of the semester is devoted to chapter eleven, on the Lebesgue integral; this is perhaps the most demanding part of the course, coverage of which is fully deserving of half a semester.

Homework problems will be assigned and discussed in class. Some of these problems will be officially posted to Canvas, collected and graded. There will also be a two-hour midterm (approximately half way through the semester) and a two-hour final: each of these will serve as practice for the Analysis First-Year Examination. Assignment of grades will be determined by performance in the official homework

assignments.

The Canvas page for this course will again be just that: a ‘page’. It will serve as a repository for course materials: homework problems to be submitted for grading, ‘practice’ midterm and ‘practice’ final, and whatever additional items seem appropriate.

Policies

For various matters of policy, please consult ‘Policies plus’ at the Files page.