

OFFICIAL SYLLABUS
MATH 545 – Real Analysis II

Adopted: Fall 2008

(Committee: Drs. Jarosz, Ledzewicz, Pelekanos, Rigdon)

Catalog description.

Riemann, Riemann-Stieltjes, and Lebesgue integrals. Differentiation of functions of n variables. Multiple integrals. Measure and probability. Differential forms. Stokes' Theorem, Prerequisites: MATH 321 and MATH 450.

Textbook.

Principles of Mathematical Analysis, by W. Rudin, McGraw-Hill

Course Outline and Topics

Chapter 6. ***The Riemann-Stieltjes Integral*** - the section on Rectifiable Curves is optional

Chapter 7. ***Sequences and Series of Functions***

Chapter 8. ***Some Special Functions*** – the section on Fourier Series and the results that are required for that section; other sections are optional (part of the material of this chapter was discussed in MATH 450)

Chapter 9. ***Functions of Several Variables*** - the section on the Rank Theorem and the following sections are optional

Chapter 10. ***Integration of Differential Forms*** – the sections on¹: Change of Variables (10.9), Stokes Theorem (10.33), the last section on Vector Analysis, and the results required for these sections; the discussion may be limited to 2-dim and 3-dim Euclidean space

Chapter 11. ***The Lebesgue Theory*** - the sections on Integration of Complex Functions and on Functions of Class L^2 are optional

Any instructor should cover all of the material specified, additional sections are optional.

¹ The material of this chapter may be supplemented or replaced by instructor's notes or other handouts provided the same topics are covered.