**OFFICIAL SYLLABUS**

# MATH 450-RealAnalysis I

**Adopted Spring 2019**

(Committee: Drs. S.-F. Chew, J. Loreaux, J. Parish, M.-S. Song)

**Catalog Description.** Integration; infinite series, sequences and series of functions and their properties.
**Prerequisites:** 250, 321 and 350 with a C or better.

**Textbook:** *A Friendly Introduction to Analysis Single and Multivariable, 2nd edition by Witold A. J. Kosmala* ISBN: 978-0130457967

## Course Outline:

**Chapter 6, Integration**
**6.1** Riemann Integral
**6.2** Integrable Functions
**6.3** Properties of the Riemann Integral
**6.4** Integration in Relation to Differentiation
**6.5** Improper Integral

**Chapter 7, Infinite Series**
**7.1** Convergence
**7.2** Tests for Convergence
**7.3** Ratio and Root Tests
**7.4** Absolute and Conditional Convergence

**Chapter 8, Sequences and Series of Functions**
**8.1** Pointwise Convergence
**8.2** Uniform Convergence
**8.3** Properties of Uniform Convergence
**8.4** Pointwise and Uniform Convergence of Series
**8.5** Power Series
**8.6** Taylor Series
**8.8** Projects*:
Part 1 Limit Superior
Part 3 An Everywhere Continuous but Nowhere Differentiable Function
Part 4 Equicontinuity

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