I. **Course Title:** Advanced Analysis II

II. **Course Prefix/Number:** MATH 421

III. **Credit Hours:** 3

IV. **Prerequisites:** MATH 420 minimum grade: C

V. **Catalog Description**

   This course is a continuation of Math 420 with an emphasis on integration, sequences and series of functions, uniform convergence, infinite series, and additional topics of the instructor's choosing.

VI. **Curricular Relationships**

   This course is an elective in the mathematics curriculum.

VII. **Student Learning Outcomes**

   - Students will be able to demonstrate a deep understanding of and proficiency in the fundamental concepts of integration, including the Riemann integral, and the Generalized Riemann integral or the Lebesgue integral.
   - Students will be able to prove theorems and solve problems in an abstract setting.

VIII. **Content Outline**

   - Riemann integral.
   - Sequences and Series of functions, including uniform convergence properties.
   - Generalized Riemann integral or the Lebesgue integral.

IX. **Course Procedures/Policies/Grading Scale:**

   - Homework assignments will comprise some portion of the course grade. Assignments are designed to develop a student's reading, writing, synthesis, and critical thinking skills.
   - At least three examinations are given each term.
   - A comprehensive final examination is given during finals week.
   - Computer software may be used to solve realistic problems.

X. **Required/Recommended Readings**

   A standard undergraduate book in Real Analysis. Examples:


XI. **Issues Unique to this Course**: None

XII. **Additional Departmental Issues**: None