



**ADVANCED CALCULUS I & II**  
21:640:311 & 21:640:312 (3 credits, 3 credits)

**COURSE DESCRIPTION:**

The calculus of functions of one or more real variables; transformations and implicit functions; line and surface integrals.

**PREREQUISITES:**

21&62:640:235 (Calculus 3), 238 (Foundations of Modern Math), and 350 (Linear Algebra), or permission of instructor.

**TEXTBOOK:**

“Advanced Calculus” (2<sup>nd</sup> edition), by Fitzgerald, published by American Mathematical Society.

**DEPARTMENT WEB SITE:** <http://www.ncas.rutgers.edu/math>

**THIS COURSE COVERS THE FOLLOWING CHAPTERS AND SECTIONS:**

We will cover the following topics over two semesters. The numbers correspond to the chapters of the main textbook.

1. The real numbers.
3. Topology of euclidean space.
4. Real valued functions of one and several variables.
4. Limits and continuity.
5. Derivatives.
7. The Riemann integral.
10. Measure theory and the Lebesgue integral.

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