

Math 16600 - Analytic Geometry and Calculus II

Course Content and Approximate Syllabus

Objectives

Students will build on their understanding of the concepts of Calculus of one variable covered in Math 16500. Their use of the basic concepts should be broadened to include the exponential, logarithmic, and inverse trigonometric functions and the use of parametric equations and polar coordinates. Applications of integration and techniques of integration will be developed more fully. Finally, students should develop broader understanding of limit concepts such as improper integrals and convergence of sequences and series.

Textbook

Calculus, James Stewart, Brooks/Cole Publishing Co., Seventh Edition, 2010.
ISBN: 978-0-538-49782-4

This textbook was used in Math 16500, and will also be used in Math 171, Math 26100.

Approximate Syllabus

The details of the syllabus, homework, and quizzes (if any) are up to each instructor. Typically three or more tests are given during the semester. A (common) departmental Final Examination for all students in Math 16600 is given the Saturday afternoon of the last full week of classes. All instructors will be expected to proctor and grade in that Saturday.

<i>Week</i>	<i>Chapter</i>	<i>Topics</i>
1	6, App. D	construction of exponential, logarithmic, and inverse trigonometric functions
2, 3	6	calculus of exponential, logarithmic, and inverse trigonometric functions
4	7	integration by parts
5	7	trigonometric integrals and trigonometric substitutions
6	7	using partial fractions in computing integrals of rational functions
7	7	improper integrals, techniques for approximating values of integrals
8	8	application of integration to arc length, surface area
9	8	appl. of integration to problems from physics/engineering not in Math 165
9,10	11	definition of a sequence and the concept of convergence of a sequence
11	11	definition of an infinite series and concept of convergence of such series
12	11	tests for convergence of infinite series
13	11	representing functions as power series and relation to calculus concepts
13, 14	10	representation of functions and graphs in parametric and polar forms
14	10	using calculus to understand functions and graphs in such forms
15		review

Note that Chapters 10 and 11 might be taught in the opposite order as they are independent.