C-ID Descriptor
Single Variable Calculus II Early Transcendentals

Descriptor Details

- **Descriptor Title**: Single Variable Calculus II Early Transcendentals
- **Parent Descriptor**: Single Variable Calculus II Late Transcendentals MATH 221
- **C-ID Number**: 220
- **Units**: 4.0
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General Description

A second course in differential and integral calculus of a single variable: integration; techniques of integration; infinite sequences and series; polar and parametric equations; applications of integration. Primarily for Science, Technology, Engineering & Math Majors.

Prerequisites

Single Variable Calculus I Early Transcendentals (Math 210, CAN 18).

Corequisites

No information provided

Advisories

No information provided

Content

1. Areas between curves;
2. Volume, volume of a solid of revolution;
3. Additional techniques of integration including integration by parts and trigonometric substitution;
4. Numerical integration; trapezoidal and Simpson's rule;
5. Improper integrals;
6. Applications of integration to areas and volumes;
7. Additional applications such as work, arc length, area of a surface of revolution, moments and centers of mass, separable differential equations, growth and decay;
8. Introduction to sequences and series;
9. Multiple tests for convergence of sequences and series;
10. Power series, radius of convergence, interval of convergence;
11. Differentiation and integration of power series;
12. Taylor series expansion of functions;
13. Parametric equations and calculus with parametric curves; and
14. Polar curves and calculus in polar coordinates;

Lab Activities

No information provided

Objectives

Upon successful completion of the course, students will be able to:

1. Evaluate definite and indefinite integrals using a variety of integration formulas and techniques;
2. Apply integration to areas and volumes, and other applications such as work or length of a curve;
3. Evaluate improper integrals;
4. Apply convergence tests to sequences and series;
5. Represent functions as power series; and
6. Graph, differentiate and integrate functions in polar and parametric form.

Evaluation Methods

Tests, examinations, homework or projects where students demonstrate their mastery of the learning objectives and their ability to devise, organize and present complete solutions to problems.

Textbooks

A college level textbook designed for science, technology, engineering and math majors, and supporting the learning objectives of this course.