

MATH 182 – Calculus II (4 Credits)

DESCRIPTION:

Topics include further applications and techniques of integration with applications, polynomial approximations, sequences, and series.

Prerequisite: MATH 181 with a Grade of C or Better

OUTCOMES:

- a. Analyze differential equations.
- b. Evaluate solids of revolution and arc lengths.
- c. Perform integration techniques such as integration by parts, trigonometric integrals, trigonometric substitution, partial fractions, and using tables.
- d. Analyze indeterminate forms and work with L'Hopital's Rule.
- e. Evaluate sequences, series, tests of convergence/divergence, and Taylor Polynomials.
- f. Find the slope of a tangent line to a polar graph and to a curve given by a set of parametric equations.
- g. Find the arc length of a polar graph and of a curve given by a set of parametric equations.
- h. Find the area of a surface of revolution (parametric and polar form).
- i. Apply and extend all concepts.

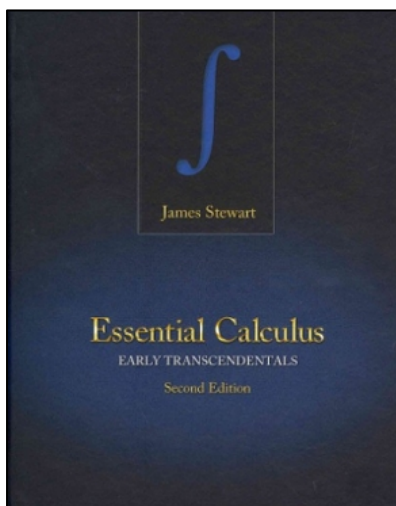
TEXT:

Title: *Essential Calculus: Early Transcendentals; 2nd Edition;

Author: James Stewart;

Publisher: Cengage;

ISBN-13: 9781133112280



*Note: Full-time instructors have the right to use no text or a different text.

OUTLINE:

- **Integration Techniques:** Integration by Parts, Trigonometric Integrals and Substitutions, Partial Fractions, Integration with Tables and Computer Algebra Systems, Approximate Integration, Improper Integrals (Stewart; Chapter 6)
- **Integral Applications:** Areas between Curves, Volumes. Volumes by Cylindrical Shells, Arc Length, Area of a Surface of Revolution, Differential Equations (Stewart; Sections 7.1-7.5, 7.7 (7.6 - Optional))
- **Series:** Sequences, Series, The Integral and Comparison Tests, Other Convergence Tests, Power Series, Representing Functions as Power Series, Taylor and Maclaurin Series (Stewart; Sections 8.1 - 8.7 (8.8 - Optional))
- **Parametric Equations and Polar Coordinates:** Parametric Curves, Calculus with Parametric Curves, Polar Coordinates, Areas and Lengths in Polar Coordinates, Conic Sections in Polar Coordinates (Stewart; Chapter 9)

EVALUATION:

Grades may be determined by student performance in one or more of the following areas: in-class tests, take-home tests, homework assignments, quizzes, special projects, papers, attendance, and class participation. Degree of importance and types of assessment used will depend on the instructor.

This course satisfies the math requirement in the General Education Core component for selected degree and certificate programs at CSN.