

*Montgomery College - Department of Mathematics
Germantown Campus*

**MA182 – Calculus II
4 Semester Hours**

Description A continuation of MA 181; intended primarily for students of the physical sciences, engineering, and mathematics. Further differentiation and integration of transcendental functions. Methods of integration with applications, indeterminate forms, improper integrals, Taylor's formula; infinite series; polar coordinates.

MA182 meets for 5 hours each week.

Prerequisites A grade of C or better in MA 181 or equivalent or consent of department.

Assessment levels: EN101/101A, RD120.

Topics

- I. Techniques of Integration
 1. Substitution
 2. Integration by Parts
 3. Partial Fractions
 4. Approximate Integration
 5. Indeterminate Forms and Improper Integrals
- II. Applications of Integration
 1. Area
 2. Volume
 3. Length
 4. Average Value
 5. Work
- III. Differential Equations
 1. Direction Fields
 2. Euler's Method
 3. Separable Equations
 4. Applications

IV. Infinite Sequences and Series

1. Sequences
2. Convergence and Divergence of Series
3. Power Series
4. Taylor and Maclaurin Series
5. Applications of Taylor Polynomials

V. Polar Coordinates

1. Graphs
2. Integration

Text

Calculus of a Single Variable (8th edition); Larson, Hostetler, and Edwards, Houghton-Mifflin.