

Virginia Western Community College

MTH 262

Applied Calculus II

Prerequisites

Completion of MTH 261 or equivalent with a grade of C or better.

Course Description

Covers techniques of integration, an introduction to differential equations and multivariable calculus with an emphasis throughout on applications in business, social sciences and life sciences.

Semester Credits: 3

Lecture Hours: 3

Required Materials

Textbook:

Calculus and its Applications. Bittinger, Ellenbogen & Surgent. 2nd edition. Pearson. ISBN: 9780134122588.

Other Required Materials:

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Course Outcomes

At the completion of this course, the student should be able to:

- Use antiderivatives and indefinite integrals, integration by substitution and solve simple variable separable differential equations stemming from growth and decay problems.
- Use the definite integral and work associated area problems. Work simple problems of business and economics using concepts of integral calculus.
- Use integration by parts and other methods of integration.
- Work with functions of two or more variables including geometric representations of functions of two variables and calculation of partial derivatives.
- Work simple maxima and minima problems with functions of two or more variables.
- Under double integrals with area and volume applications and other applications to business and economics and life and social sciences.

Topical Description

<u>Section</u>	<u>Topic</u>
4.1	Antidifferentiation
4.2	Antiderivatives as Areas
4.3	Area and definite integrals
4.4	Properties of definite integrals
4.5	Integration Techniques : Substitution
4.6	Integration Techniques : Integration by Parts
5.1	Consumer and Producer Surplus
5.2	Applications of Integrating growth and decay models
5.4	Numerical Integration
6.1	Functions of several variables
6.2	Partial derivatives
6.3	Max/Min problems
6.4	The least – squares technique
6.5	Constrained optimization
6.6	Double Integrals
8.1	Differential equations
8.2	Separable differential equations
8.3	Inhibited growth models
8.4	1 st -order linear differential equations

Notes to Instructors

None.