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:
None required. Course is OER.

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

Section	Topic
4.1	Antidiffentiation
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.