Revised: Fall 2016

Mth 272
Applied Calculus II

COURSE OUTLINE

Prerequisites:

Prerequisites MTH 271 or equivalent.

Course Description:

Covers techniques of integration, multivariable calculus, and an introduction to differential equations.

Semester Credits: 3 **Lecture Hours: 3 Lab/Recitation Hours: 0**

Course Outcomes

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

1. **Use antiderivatives and indefinite integrals, integration by substitution and solve simple variable separable differential equations stemming from growth and decay problems.**

2. **Use the definite integral and work associated area problems. Work simple problems of business and economics using concepts of integral calculus.**

3. **Use integration by parts and other methods of integration.**

4. **Work with functions of two or more variables including geometric representations of functions of two variables and calculation of partial derivatives.**

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5. **Work simple maxima and minima problems with functions of two of more variables.**

6. **Under double integrals with area and volume applications and other applications to business and economics and life and social sciences.**

Required Materials:

Textbook, scientific calculator

Textbook:

Calculus and its Applications (Expanded Version), Bittinger, Ellenbogen, & Surgent, Pearson
ISBN #: 9780134122588

Topical Description: (Outline chapters and sections to be covered in the book)

Section	Topic	Chapter
	Integration and Its Applications	**5**
6.1	**Antiderivatives and Indefinite Integrals**	
6.2	**The General Power Rule**	
6.3	**Exponential and Logarithmic Integrals**	
6.4	**Area and the Fundamental Theorem of Calculus**	
6.5	**The Area of a Region Bounded by Two Graphs**	
6.6	**The Definite Integral as the Limit of a Sum**	
	Techniques of Integration	**6**
7.1	**Integration by Substitution**	
7.2	**Integration by Parts and Present Value**	
	Functions of Several Variables	**7**
8.1	**The Three-Dimensional Coordinate System**	

8.2 Surfaces in Space
8.3 Functions of Several Variables
8.4 Partial Derivatives
8.5 Extrema of Functions of Two Variables
8.8 Double Integrals and Area in the Plane
8.9 Applications of Double Integrals

Differential Equations — Appendix C

C.1 Solutions of Differential Equations
C.2 Separation of Variables
C.3 First-Order Linear Differential Equations
C.4 Applications of Differential Equations

Notes to Instructors
(List information about optional topics, departmental exams, etc)

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