MA 120 Calculus and its Applications

Syllabus*

Course Description

Introduction to calculus with an emphasis on problem solving and applications. Key concepts are presented graphically, numerically and algebraically, although the stress is on a clear understanding of graphs and tabular data. The course covers: algebraic, exponential and logarithmic functions, their properties and their use in modeling; the concepts of derivative and definite integral and their applications to marginal analysis, optimization and probability; examples of multivariable functions, partial derivatives and applications to optimization problems. Note: Credit for both MA 120 and MA 125 is not allowed.

Prerequisites

C or better in MA 112 or sufficient mathematics placement test score. MA 120 is not a prerequisite for subsequent calculus courses.

Textbook

Calculus and Its Applications, 12th Edition, by Goldstein, Lay, et al

Topics & Time Distribution

By assuming the total of 13 weeks, the instructor is given an extra week and a half to use for tests, emphasis on certain topics, etc.

Chapter 1.1-1.3, 1.6-1.8:	The Derivative	3 wks
Chapter 2.1-2.7:	Applications of the Derivative	2 wks
Chapter 3.1-3.2:	Differentiation Rules	1 wk
Chapter 4.1-4.6:	Exponential and Logarithmic Functions	2 wks
Chapter 5.1-5.3:	Applications	2 wks
Chapter 6.1-6.5:	Integrals	3 wks

Learning Objectives:

Upon the successful completion of the course a student will:

1) have an understanding of the idea of the derivative as a rate of change and as a slope;

2) be able to compute simple derivatives using the rules of differentiation;

3) be able to use the derivative as a tool for applied problems;

4) be able to compute simple antiderivatives and have an understanding of the concept of a definite integral.

*Last updated August 19, 2011