MA 126 Calculus II

Syllabus*

Course Description A continuation of MA 125. The course includes techniques of symbolic and numerical integration; applications of the definite integral to geometry, physics, economics, and probability; improper integrals; parametric equations; sequences and series; Taylor polynomials and Taylor series.

Prerequisites

MA 125.

Textbook

Jon Rogawski, *Calculus: Early Transcendentals*, W. H. Freeman, New York, 1st edition (2008). ISBN-13: 978-1-4292-1073-7

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 5:	The Integral	1 week
Chapter 6:	Applications of the Integral	2 wks
Chapter 7:	Techniques of Integration	3 wks
Chapter 8	Further Applications of the Integral	1 week
Chapter 10:	Infinite Series	4 wks
Chapter 11:	Parametric Equations, Polar Coordinates and Conic Sections	2 wks

Detailed Schedule

Below are the essential sections which should be covered by all instructors.

Chapter 5: 5.6, 5.7

Chapter 6: 6.1, 6.2, 6.3

Chapter 7: 7.2, 7.3, 7.4, 7.6, 7.7

Chapter 8: 8.1

Chapter 10: 10.1 - 10.7

Chapter 11: 11.1 - 11.4

MA 126 Calculus II Learning Objectives

*Last updated June 9, 2010

Upon successful completion of MA 126 Calculus II, students should be able to:

- understand, define, and interpret the definite integral;
- state, explain, and apply the fundamental theorem of calculus;
- perform techniques of integration including u-substitution, integration by parts, partial fraction, and trigonometric substitution;
- recognize and to calculate improper integrals;
- apply integrals to concepts such as area, volume, arc length, density, mass, work, and energy;
- understand infinite sequences and series, apply tests of convergence/divergence, and find interval of convergence for power series;
- manipulate power series within its interval of convergence and represent analytic functions as a Taylor series or MacLaurin series;
- describe curves, lines, and planes in space in terms of vector equations and parametric equations.