Mathematical Methods Refresher Course: Calculus Section

Instructor: Ivan Savic

Text: Simon, Carp P. and Lawrence Blume, *Mathematics for Economists*, W. W. Norton & Co., (New York:1994)

Available: Math/Science Library Reserves, 303 Mathematics Building

Course Goal: Introduction to the basics and uses of mathematical relationships, functions, derivatives and integration.

Day 1: Single Variable Calculus I:

- Introduction to functions
- Derivatives
- Second Derivatives and Convexity
- Maxima and Minima

Readings: *Ch 2 (pp. 10-38), and Ch 3.1-3.5 (pp. 39-57)*

Day 2: Single Variable Calculus II:

- Composite functions and the Chain Rule
- Inverse functions and their derivatives
- Exponential functions and their derivatives
- Log functions and their derivatives

Readings: *Ch 4 (pp. 70-81) and Ch 5 (pp. 82-97)*

Day 3 Multiple Variable and Integral Calculus:

- Functions of Several Variables
- Partial Derivatives
- Antiderivatives
- Indefinite Integral
- Definite Integral
- Integration by Parts
- Fundamental Theorem of Calculus

Readings: *Ch 13.1 (pp. 273-77), Ch 13.3-13.5 (pp. 287-99), Ch 14.1 (pp. 300-2), Ch 14.8 (328-332), and A4 (pp. 887-893)*