

Math 234 BL1 - Calculus for Business I. Fall 2009.

Instructor: Youngsoo Kim

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• **Text:** “Calculus For Business, Economics, and the Social and Life Sciences (Brief Edition)” by Hoffmann & Bradley, 10th Edition.

• **Course description:** Introduction to the concept of functions and the basic ideas of the calculus. Prerequisite: MATH 012 and an adequate ALEKS score.

• **Class schedule:** Class meets on Tuesday and Thursday from 12:00 to 12:50 PM in Room 314, Altgeld Hall.

• **Discussion sections:**

MATH 234 BD1 – MW 11:00-11:50 – 149 Henry – Jonathan Troup

MATH 234 BD2 – MW 11:00-11:50 – 140 Henry – Khang Tran

MATH 234 BD3 – MW 12:00-12:50 – 142 Henry – Vyron Vellis

MATH 234 BD4 – MW 12:00-12:50 – 149 Henry – Jacob Hall

MATH 234 BD5 – MW 9:00-9:50 – 141 Altgeld – Vyron Vellis

MATH 234 BD6 – MW 1:00-1:50 – 149 Henry – Jacob Hall

MATH 234 BD7 – MW 1:00-1:50 – 243 Altgeld – Khang Tran

MATH 234 BD8 – MW 10:00-10:50 – 145 Altgeld – Jonathan Troup

• **ALEKS:** You are required to take an online assessment called ALEKS by the end of Friday, August 28. If you have not achieved a 50% between March 25, 2009 and that time, you will be automatically transferred to Math 012. If you fail to achieve 50% on your initial try, you can retake the exam as necessary until August 28. Please see the following website for details: <http://www.math.uiuc.edu/ALEKS/>

• **Homework:**

A number of problems will be assigned every week. Your TA will collect the homework on Monday before the quiz. Be sure to seek assistance if you are struggling with the homework.

• **Quizzes:** A quiz will be given every Monday in discussion class. *No makeup quiz will be given.* Instead, two lowest quiz scores will be dropped at the end of the semester to account for unavoidable absences.

• **Exams:** There will be 3 exams during the normal lecture hour. The dates are Thursdays, **September 24**, **October 22**, and **November 19**. You should plan your schedule accordingly around these days. If you miss an exam due to an illness, you'll be given a chance to make it up. A note from the emergency dean is required.

• **Final exam: Friday, December 11, 7:00–10:00 PM, in 314 Altgeld Hall.** The final exam will be comprehensive.

• **Grading:** Quizzes & homework 20%, three midterm exams 50%, final exam 30%.

• No calculators will be allowed in any quizzes or exams.

• Please do not hesitate to contact me if you need special assistance, or have questions or problems relating to this course.

1 Functions, Graphs, and Limits (4 lectures)

- 1.1 Functions
- 1.2 The Graph of a Function
- 1.3 Linear Functions
- 1.5 Limits
- 1.6 One-Sided Limits and Continuity

2 Differentiation: Basic Concepts (5 lectures)

- 2.1 The Derivative
- 2.2 Techniques of Differentiation
- 2.3 Product and Quotient Rules; Higher-Order Derivatives
- 2.4 The Chain Rule
- 2.5 Marginal Analysis and Approximations Using Increments
- 2.6 Implicit Differentiation and Related Rates

3 Additional Applications of the Derivative (4 lectures)

- 3.1 Increasing and Decreasing Functions; Relative Extrema
- 3.2 Concavity and Points of Inflection
- 3.3 Curve Sketching
- 3.4 Optimization
- 3.5 Additional Applied Optimization

4 Exponential and Logarithmic Functions (3.5 lectures)

- 4.1 Exponential Functions
- 4.2 Logarithmic Functions
- 4.3 Differentiation of Logarithmic and Exponential Functions
- 4.4 Additional Exponential Models

5 Integration (3.5 lectures)

- 5.1 Antidifferentiation: The Indefinite Integral
- 5.2 Integration by Substitution
- 5.3 The Definite Integral and the Fundamental Theorem of Calculus
- 5.4 Applying Definite Integration: Area Between Curves and Average Value
- 5.5 Additional Applications to Business and Economics

6 Additional Topics in Integration (1 lectures)

- 6.1 Integration by Parts (Do not include Integral Tables)

7 Calculus of Several Variables (4 lectures)

- 7.1 Functions of Several Variables
- 7.2 Partial Derivatives
- 7.3 Optimizing Functions of Two Variables
- 7.5 Constrained Optimization: The Method of Lagrange Multipliers
- 7.6 Double Integrals (if time permits)