



**College of Arts and Sciences**  
**Department of Mathematics and Statistics**

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**MTH 102 - Mathematics for Business II**  
**Course Policy and Syllabus – Spring 2013**

**Instructor Information**

Instructor	Office Hours	Room	Ext.	E-mail
Dr. Ayman Badawi	U,T,W: 12:30-1:30	NAB 262	2573	<a href="mailto:abadawi@aus.edu">abadawi@aus.edu</a>

**Prerequisite(s):**

MTH 101 – Math for Business I

**Textbook:** *College Mathematics for Business, Economics, Life Sciences, and Social Sciences, 12<sup>th</sup> Ed.* by R. Barnett, M. Ziegler, and K. Byleen, Prentice Hall, NJ.

Some old exams will be posted on I-Learn and more exams (quizzes) are on my personal webpage: [www.ayman-badawi.com](http://www.ayman-badawi.com)

**About the course:** This is the second course in mathematics for business. It covers the techniques of calculus, which are required for business studies. The approach is intuitive with emphasis on applications rather than theory.

**Course Outcomes:** This course requires the student to demonstrate the following:

- Evaluate limit of a function.
- Understand the definition of limit, limit laws and asymptotes
- Understand the definition of derivative
- Find derivative of polynomial, exponential and logarithmic functions.
- Apply product and quotient rules, the chain rule, and implicit differentiation.
- Find derivative of polynomial, exponential and logarithmic functions.
- Find higher order derivatives of polynomial, exponential & logarithmic functions.
- Determine local and absolute extreme values (maximum and/or minimum).
- Perform curve sketching (derivatives and curve shape, graphing).

- Solve optimization problems in one variable that are relevant to business applications.
- Understand the concept of anti-derivatives and definition of integral.
- Evaluate indefinite and definite integrals for polynomial, exponential and logarithmic functions.
- Apply the substitution rule
- Understand functions of two variables and their applications.
- Find first and second order partial derivatives of two variable functions.
- Solve simple optimization problems in two variables that are relevant to business Applications. Apply the various concepts to real life application problems related to business.

**Assignments & Exams Policy:** Throughout this course, in-class quizzes, in addition to two midterm tests, and a comprehensive departmental final exam.

**No make- up quizzes will be given. Lowest Quiz will be dropped.**

### Grading and Tentative exam dates:

	Percentage	Date & Time	Material Covered	Location
<b>Quizzes</b>	15%	Every Wednesday	TBA	Classroom
<b>Exam I</b>	25%	Wednesday . March 27, (in class)	TBA	TBA
<b>Exam II</b>	25%	Wednesday. May 15, (in class)	TBA	TBA
<b>Final Exam</b>	35%	TBA	Common & Comprehensive	TBA

### Course Policies and Regulations

- 1. Academic integrity:** You **MUST** read, understand, and fully comply with the College of Arts and Sciences Academic Integrity Statement. (Attached with the syllabus.)
- 2. Math Learning Center:** The Department of Mathematics and Statistics offers a drop-in and free of charge Math Learning Center where you can find tutors that can help if you are having difficulties with math! The schedule and location of the MLC will be announced on Ilearn soon. Your questions or concerns are welcome to [skhouyibaba@aus.edu](mailto:skhouyibaba@aus.edu) or [cas-mlc@aus.edu](mailto:cas-mlc@aus.edu).
- 3. University Calendar:** It is wise to make a reminder for yourself of important dates such as last day to drop without a penalty, pre-registration, financial aid application submission, holidays, final exams, etc.

## Course structure and Assignment

Material	Exercises
<b>Chapter 10</b>	
10.1: Introduction to Limits	17, 19, 21-37(odd), 43, 45, 49, 51
10.2: Infinite Limits and Limits at Infinity	1,3,5,7,9-15(odd), 9,11,13,21,23,25,27,31, 35,37,39,47,51
10.4: The Derivative	3,7,9,17,19,25,51,53,55,57,63,64,65
10.5: Basic Differentiation Properties	1-17(odd), 25-47(odd), 49,81, 82, 83, 84
10.7: Marginal Analysis in Business and Economics	25,27, 29, 31, 33, 35, 37
<b>Chapter 11</b>	
11.2: Derivatives of Exponential and Logarithmic Functions	1-13(odd), 15, 17, 19, 20, 27, 29, 31-41(odd), 51, 52.
11.3: Derivatives of Products and Quotients	1-25(odd), 39, 43, 45, 49,51, 65, 71, 79, 83, 85
11.4: The Chain Rule	9,11,13,15, 17-42(odd), 43, 47, 51, 53, 57, 61,65, 81, 85, 91, 93
11.5: Implicit Differentiation	5-21(odd), 27, 29, 33,37,39
11.7: Elasticity of Demand	1,3,5,7,9,15,21,23,31,33,35, 36,37,41, 43, 49, 63,64, 65
<b>Chapter 12</b>	
12.1: First Derivatives and Graphs	1-7(odd),9,11,13,17,19,21,27,29,35,37,47, 49,53,59,61
12.2: Second Derivatives and Graphs	1,3,5,7,13,17,19,21,25,29,31,33,35,37,39,41, 45,53,57,61,65,67
12.4: Curve Sketching Techniques	1,3,5,7,9,11,15,17,25,29,49,53
12.5: Absolute Maxima and Minima	1, 9,11,13,15,17,25,31,33,41,47,55,57,61
12.6: Optimization	11,13,15,17,19,20,26
<b>Chapter 13</b>	
13.1: Anti-derivatives and Indefinite Integrals	1-23(odd), 35-50(odd), 51, 53, 59, 61, 65, 69, 83.
13.2: Integration by Substitution	1-35(odd), 41, 49, 55,57,59,67, 69
13.4: The Definite Integral	9,11,25, 29,33, 37, 39, 41, 43, 47
13.5: The Fundamental Theorem of Calculus	5- 39(odd), 49, 53, 73,74
<b>Chapter 14</b>	
14.2: Applications in Business and Economics	43,44,45,46,47,48,49,50
14.3: Integration by Parts	1, 3, 7-19(odd), 29, 35, 39, 55, 57, 65, 67
<b>Chapter 15</b>	
15.1: Functions of Several Variables	1,3,5,7,31, 33,37,38,49,50,51,52
15.2: Partial Derivatives	1-15(odd), 23-34(odd), 71, 72, 75, 83, 85, 87
15.3: Maxima and Minima	1,3,5,7,15,21,23

## **College of Arts and Sciences Academic Integrity Statement**

The College of Arts and Sciences is committed to promoting the highest standards of academic integrity. With this statement we set forth the terms and processes by which incidents of cheating, plagiarism and other violations of academic integrity will be addressed.

Violations of academic integrity are listed in the Academic Integrity section of the Undergraduate and Graduate Catalogues of the University. These include, but are not limited to:

- Plagiarism
- Inappropriate collaboration
- Inappropriate proxy
- Dishonesty in examinations or submitted work
- Work completed for one course being submitted for another
- Deliberate falsification of data
- Interference with other students' work
- Copyright violations
- Complicity in academic dishonesty

*Plagiarism* is the act of presenting another person's work as your own. Plagiarism can take many forms. The following is a non-exclusive list of examples that constitute the academic offense of plagiarism:

- copying another student's paper or any other written source
- submitting a paper written for you by someone else, a paid service or a Website
- downloading a paper from the Internet and presenting it as your own work
- using a sentence or even part of a sentence from any outside source without putting quotation marks around it and citing the source
- using ideas, facts, and opinions from another source without citing the source

Plagiarism is a serious form of academic dishonesty and is not tolerated at this university. Please consult the Student Academic Integrity Code in the AUS Undergraduate Catalog (pp. 22-25) for further information concerning academic dishonesty.

The College of Arts and Sciences follows a strict policy in cases where plagiarism and other academic integrity violations are determined to have occurred.

For a first offense, the student will receive an XF for the course. The professor will report the name of the offending student to both the Head of the Department in which the incident occurred and the Dean of the College of Arts and Sciences. The information is kept on file and will be shared with the Dean of CAS, the deans of all other schools/colleges at AUS, and the Office of Student Affairs.

Students so reported may not discuss the incident with the professor concerned.

A second offense, or a first offense which is particularly egregious based on the judgment of the Head of the Department and Dean, may be grounds for removal from a major, suspension, or dismissal.

By registering for this course I acknowledge that I have read and understand the CAS Academic Integrity Statement and its consequences.