



جامعة دبي
UNIVERSITY of DUBAI

General Education Department

Course Syllabus
Semester: Spring 2009/2010

Course code & No.: GMAT 115

Course Title: Math II for Business

Prerequisites: Math I for Business

Class Hours: Time: 7:00-10:00

Days: W

Room: 212

Brief Course Description:

This course focuses on Counting (combinations and Permutations), Probability Theory, Binomial Probability Distribution, Algebra Limits, Average Rate of Change, Derivatives of Functions, Applications of Differentiation (Marginal Analysis in Business and Economics), Optimization Methodology, and Optimization Applications.

General Education Program Outcomes:

Apply basic analytical and IT skills.

Students will develop skills in the following areas:

1. Critical thinking
2. Abstract thinking and adapt
3. Ability to be a continuous learner and trainer of others.
4. Quantitative skills.

Course Learning Outcomes (CLO):

Upon completing this course students should be able to

- Demonstrate an understanding of the Fundamental Counting Principle, combinations, and permutations,
- Understand Axioms of probability, conditional probability, and know how to compute classical probability.
- Identify and compute probabilities for a sequence of Bernoulli trials.
- Find limits of functions.
- Find derivatives of algebraic functions and use derivatives to solve applied business and economic problems.

Assessment Sc CLO Mapping

This table maps CLO's to: CO, and Program Outcomes (PO)

CLO	Skills Area	State below PO
Demonstrate an understanding of the Fundamental Counting Principle, combinations, and permutations,	1,2,3,and 4	Apply basic and analytic IT Skills.
Understand Axioms of probability, conditional probability, and know how to compute classical probability.	1,2,3,and 4	Apply basic and analytic IT Skills.
Identify and compute probabilities for a sequence of Bernoulli trials.	1,2,3,and 4	Apply basic and analytic IT Skills.
Find limits of functions.	1,2,3,and 4	Apply basic and analytic IT Skills.
Find derivatives of algebraic functions and use derivatives to solve applied business and economic problems.	1,2,3,and 4	Apply basic and analytic IT Skills.

Assessment Scheme

This Table maps CLO to the assessment scheme.

CLO	Class Work (40%)			Mid-term Exam 21 /04/ 2010 25%	Final Exam 9 / 06 / 2010 From 7:30 to 9:30 pm 35%
	Individual Assignment 15%	Two quizzes 15%	CAAP Test 10%		
#1	3 marks	3 marks		11 marks	4 marks
#2	3 marks	3 marks		14 marks	7 marks
#3	3 marks	3 marks			7 marks
#4	3 marks	3 marks			7 marks
#5	3 marks	3 marks			10marks
Total	15	15	10	25	35

Teaching Methods (Detail them)

The course should be delivered using lectures, recommended textbook, class work, and tutorial

Weekly Schedule

Day/ Week	Lecture	Chp	Chapter Objectives	Relation to CLO	Assignment	Assessment	Apply basic analytical and IT skills.
1	Basic Counting Principles	7	<ul style="list-style-type: none"> Provide an understanding of fundamental counting methods including permutations and combinations. Evaluate factorial expressions Calculate a permutation 	1	Exercises Page: 373, and 385	Quiz 1, Mid-Term, Final Exam	Apply basic analytical and IT skills.
2	Basic Counting Principles	7	<ul style="list-style-type: none"> Calculate permutation of n objects taken r at a time. Calculate a combinations. Provide an understanding of fundamental counting methods including permutations and combinations with their applications. 	1	Exercises Page: 385, 386, and 387.	Quiz 1, Mid-Term, Final Exam	Apply basic analytical and IT skills.
3	Basic Counting Principles	7	<ul style="list-style-type: none"> Calculate permutation of n objects taken r at a time. Calculate a combinations. Provide an understanding of fundamental counting methods including permutations and combinations with their applications. 	1	Exercises Page: 385, 386, and 387.		Apply basic analytical and IT skills.
4	Probability	8	<ul style="list-style-type: none"> Define experiment, outcome, event, probability and equally likely. State the formula for finding the probability of an event. Apply probability concepts to solve problems. 	2	Exercises Page: 403, 404, and 405	Quiz 1, Mid-Term, Final Exam	Apply basic analytical and IT skills.
5	Probability	8	<ul style="list-style-type: none"> Define union and intersection of an event. State the formula and procedure for finding the probability of the union and intersection of the events. Define complement of an event. State the formula and procedure for finding the probability of the complement of an event. Define independent events. 	2	Exercises Page: 415, 416, 417, and 418)	Quiz 1, Mid-Term, Final Exam	Apply basic analytical and IT skills.
6	Probability	8	<ul style="list-style-type: none"> Evaluate experiments in which a conditional probability is computed. Compute conditional probabilities. State the procedure for finding a conditional probability. Apply conditional probability procedures to solve problems. Define the tree diagram. Evaluate the probability by using tree diagram. 	2	Exercises Page: 429, 430, 431, and 432	Mid-Term, Final Exam	Apply basic analytical and IT skills.
7	Probability Distributions	8	<ul style="list-style-type: none"> Introduce the notation of random variable. Provide an understanding of probability distributions and their attributes. 	3	Hand-out assignments	Mid-Term, Final Exam	Apply basic analytical and IT skills.
8	Probability Distributions	8	<ul style="list-style-type: none"> Acquaint students with the characteristic and usage of the binomial probability distribution. 	3	Hand-out assignments	Mid-Term, Final Exam	Apply basic analytical and IT skills.
9	Limits	10	<ul style="list-style-type: none"> To find limits of polynomials and piecewise functions. 	4	Exercises Page: 511, Ex: 1-70	Mid-Term, Final Exam	Apply basic analytical and IT skills.
10	Limits	10	<ul style="list-style-type: none"> To find limits of rational functions. 	4	Exercises Page: 511, Ex: 1-70	Quiz 2 Final Exam	Apply basic analytical and IT skills.
11	Differentiation	10	<ul style="list-style-type: none"> To find derivatives of powers of x. To find the derivatives of sums and differences of functions. To use Product Rule and Quotient Rule to find the derivative of certain functions. To find the derivatives of Natural Exponential Functions $e^{u(x)}$. 	5	Exercises Page: 559, Ex:1-48, 601, Ex: 1-22, Ex: 31-42	Quiz 2 Final Exam	Apply basic analytical and IT skills.
12	Differentiation	11	<ul style="list-style-type: none"> To find the marginal cost and marginal revenue at different levels of production. To find the marginal profit function, given information about total cost and total revenue. 	5	Page 618, Ex:1-68, Page 626 Ex: 1-22	Quiz 3 Final Exam	Apply basic analytical and IT skills.
13	Differentiation	11	<ul style="list-style-type: none"> To find the marginal cost and marginal revenue at different levels of production. To find the marginal profit function, given information about total cost and total revenue. 	5	Exercises Page: 638 Ex:1-19		Apply basic analytical and IT skills.

14	Graphing and Optimization	12	<ul style="list-style-type: none"> • Enhance understanding of the meaning of first and second derivatives. • Reinforce understanding of the nature of the concavity. • Provide methodology for determining optimization conditions for mathematical functions. • Illustrate methods for sketching the general shape of mathematical functions. 	5	Exercises: Page 677 Ex: 7-24	Quiz 3 Final Exam	Apply basic analytical and IT skills.
15	Optimization Applications	12	<ul style="list-style-type: none"> • To maximize revenue, given the total revenue function. • To minimize the total cost functions. • To find the maximum profit from total cost and total revenue functions, or from a profit function. • To find the marginal cost and marginal revenue at different levels of production • To find the marginal profit function, given information about total cost and total revenue. 	5	Exercises: Page 677 Ex: 7-24	Final Exam	Apply basic analytical and IT skills.

Educational Resource	Description	Comments
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Textbooks Required	Barnett, Raymond A., Ziegler, Michael R., and Byleen, Karl E., <i>College Mathematics for Business, Economics, Life Sciences, and Social Sciences</i> , Prentice-Hall, Inc., 2008.	
Required readings:		
Supporting readings:	<ul style="list-style-type: none"> (1) Harshbarger, Ronald, Reynolds, James J., <i>Mathematical Applications for Management, Life, and Social Sciences</i>, D. C. Heath and Company. (2) Budnick, Frank S., <i>Applied Mathematics for Business, Economics, and the Social Sciences</i>, McGraw-Hill, Company, New York. 	