



# Prince Sultan University

## Department of Mathematical Science

### SYLLABUS

#### Semester II, 2011-2012 (Sem .112)

**Course** : MATH 211  
**Title** : Business Calculus  
**Textbook:** Calculus for Business, Economics, and the Social & life Sciences  
 By: Laurence D. Hoffmann and Gerald Bradley; 10<sup>th</sup> Edition.

Week	Date	Sec.	Material
1	Jan 28 – Feb 01	1.1 1.2	Functions The Graph of a Function
2	Feb 04 – 08	1.3 1.4	Linear Functions Functional Models
3	Feb 11 – 15	1.5 1.6	Limits One-Sided Limits and Continuity
4	Feb 18 – Feb 22	2.1 2.2	The Derivative Techniques of Differentiation
5	Feb 25 – 29	2.3 2.4	Product and Quotient Rules; Higher-Order Derivatives The Chain Rule
6	Mar 03 – 07	2.5 2.6	Marginal Analysis & Approximations Using Increments Implicit Differentiation and Related Rates
<b>Major I Exam (1.1 -2.6) Saturday March 10</b>			
7	Mar 10 – 14	3.1 3.2	Increasing and Decreasing Functions; Relative Extrema Concavity and Points of Inflection
8	Mar 17 – 21	3.3	Curve Sketching
	Mar 24 – 28	<b>Midterm Vacation</b>	
9	Mar 31 – Apr 04	3.3 3.4	Curve Sketching Optimization
10	Apr 07 – 11	3.5 4.1	Additional Optimization Problems Exponential Functions
11	Apr 14 – 18	4.2 4.3	Logarithmic Functions Differ. of Logarithmic & Exponential Functions
<b>Major II Exam (3.1 – 4.3) Saturday April 21</b>			
12	Apr 21 – 25	5.1 5.2	Anti-differentiation: The Indefinite Integral Integration by Substitution
13	Apr 28 – May 02	6.1 5.3	Integration by Parts The Definite Integral & The Fundam. Theo. of Calculus
14	May 05 – 09	5.4 5.5	Area between curves & Average Value Applications for Business and Economics
15	May 12 – 16	7.1 7.2	Functions of Several Variables Partial Derivatives
<b>16</b>	<b>May 17 – 29</b>		<b>Final Exams</b>

## Course Description:

The course includes the following materials:

- Functions, Graphs, and Limits: Functions, The graph of a function, Linear Functions, Limits, and Continuity.
- Differentiation: The Derivative, Techniques of Differentiation, The product and quotient Rules, Marginal Analysis, The chain Rule, The second Derivative, Implicit Differentiation and related rates.
- Additional Applications of the Derivative: Increasing and Decreasing Functions, Concavity, Limits involving Infinity, Optimization.
- Exponential and Logarithmic Functions: Exponential Functions, Logarithmic Functions, Differentiation of Logarithmic and Exponential Functions.
- Integration: The Indefinite Integral, Integration by Substitution, and by Parts.
- Further Topics in Integration: Definite Integral and its interpretation as area, The fundamental Theorem of Calculus.
- Calculus of Several Variables: Functions of several Variables, Partial Derivatives, Optimization Functions of two Variables, The Method of Lagrange Multipliers.

## Grading Policy:

➤ First Exam	20%
➤ Second Exam	20%
➤ Quizzes	10%
➤ Homework	5%
➤ Attendance	5%
➤ Final Exam	40%

## Class attendance:

- Students should not miss any class lecture without a legitimate excuse.
- In case a student misses a class, he must contact any one of his classmates to get all information and topics covered of classes he missed.
- “DN Grade” will be issued to a student who misses 13 classes.