

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematics & Statistics**  
**Math 132 – Syllabus**  
**2011-2012 (113)**

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**Instructor:** Dr. Muhammad Yousuf  
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**Office Phone:** 3- 860 -7196  
**Office Hours:** SUMTW 11:30-12:00 noon  
**Title:** Math 132 Applied Calculus  
**Credit:** 3-0-3

**Textbook:** *Introductory Mathematical Analysis (for Business, Economics, and the Life and Social Sciences)*, by Ernest F. Haeussler, Jr. Richard S. Paul and Richard J. Wood, 12<sup>th</sup> edition, Pearson, 2008.

**Objectives:** To provide a mathematical foundation for students in business, economics, and the life and social sciences. Topics include: Limits and continuity of functions of a single variable. The derivative. Rules for differentiation. Derivative of Logarithmic, exponential, and trigonometric functions. Differentials. Growth and decay models. Definite and indefinite integrals. Techniques of integration. Integrals involving logarithmic, exponential and trigonometric functions. Area under a curve and between curves. Functions of several variables. Partial derivatives and their applications to optimization.

**Grading Policy**

1. Exam I: 25% (100 points) --- **(written exam)**
2. Exam II: 25% (100 points) --- **(multiple choice exam)**
3. Class Work: 15% (60 points). It is based on quizzes, homework and attendance (10%, 3%, 2%). There will be a quiz every week. No makeup quiz will be given under any circumstance. The section average ( $X$ ) of the Class Work out of 60 should satisfy  $X \in [36, 45]$ .
4. Final Exam: 35% (140 points), a **comprehensive multiple choice exam.**

**Exam Questions:** The questions of the common exams are based on the examples, homework problems and the exercises of the textbook.

**Missing one of the Two Common Major Exams I or II:** No makeup exam will be given under any circumstance. When a student misses, Exam I or Exam II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the existing formula which depends on his performance in the non-missing exam and in the final exam.

**Attendance:** DN grade will be awarded to any student who accumulates 9 unexcused absences.

**Academic Integrity:** All KFUPM policies regarding ethics apply to this course.

## Math 132 Syllabus 2011-2012 (113)

Week	Date	Section	Material	Homework
1	June 09 – 13	10.1	Limits	18, 22, 32, 40, 43,44,3
		10.2	Limits (cont'd)	2, 15, 22,25,30, 39, 47, 50, 52, 57
		10.3	Continuity	5,10,12,20, 23, 30, 32,36
		11.1	The derivative	11,17, 18, 21, 26, 27
		11.2	Rules for differentiation	26, 34, 44,58,66, 72, 74,82, 85,87
2	June 16 –20	11.3	The derivative as a rate of change	8, 10, 12, 17, 22, 28, 40, 41
		11.4	Product &quot;quot; rule	10,20,30,36,58,68
		11.5	The chain rule & the power rule	6, 12, 16, 20, 27,30, 40, 44,50
		12.1	Derivative of logarithmic functions	10,12,17,21,28,31,42,48,50, 51
3	June 23 – 27	12.2	Derivative of exponential functions	7,11,14,18,26,27,28,30,32,38, 39
		12.4	Implicit differentiation	6,10, 14,20,23,26,30, 33
		12.5	Logarithmic differentiation	8, 12, 16, 19, 20, 25,28
		12.7	Higher order derivatives	1,6,9,15,18,22,30, 33, 36
		13.1	Relative Extrema	10,20,30, 39,42, 48, 52
<b>Exam I, Saturday June 30, at 07:30—09:30 pm, Material: Ch. 10.1 - 12.5 (25%)</b>				
4	Jun 30 – July 04	13.2	Absolute extrema on a closed interval	3, 11, 12
		13.3	Concavity	2,9,17, 27, 39, 43, 60, 68
		13.4	The second derivative test	5, 6, 8, 10, 12
		13.5	Asymptotes	14, 20, 22, 34, 35, 45
		13.6	Applied maxima and minima	4, 15, 18, 22, 26
5	July 07 – 11	14.1	Differentials	12, 14, 20, 22, 29
		14.2	The Indefinite integral	8, 10, 18, 27, 30, 45
		14.3	Integration with initial conditions	5, 7, 11, 14,15
		14.4	More integration formulas	9, 12, 15, 33, 35, 52
		14.5	Techniques of integration	6, 12, 23, 30, 40, 44, 53,63
6	July 14 – 18	14.7	Fundamental theorem of calculus	16,36 ,42 ,44,48
		14.9	Area	9 ,12 ,15 ,20 ,24 ,28
		14.10	Area between curves	1, 3, 5, 20, 30, 32
		15.1	Integration by parts	6, 8, 12, 18, 20, 24, 32
<b>Exam II, Saturday July 21 at 07:30—09:30 pm, Material: 12.7 - 14.7 (25%)</b>				
7	July 21 – 25	15.3	Integration by tables	2,4,9,14,20,26,30,32,44,50
		Handout	Derivative and integrals of trigonometric Functions	
		17.1	Functions of several variables	5, 9, 12, 15, 20, 24, 27
		17.2	Partial derivatives	8, 18, 20, 28, 30, 35
8	July 28 – 30	17.5	Higher order partial derivatives	6, 9, 13, 18, 20, 23
		17.7	Maxima and minima	4, 9, 17, 19, 22, 26, 35
<b>Final Exam: Thursday August 02, 2012 at 8:30 am., Material: Comprehensive (35%)</b>				

\*CAS problems require the use of a technology tool (e.g., graphing calculators or computers). You are encouraged to do these problems in order to enhance your understanding of the concepts involved.

### Tips on how to enhance your problem-solving abilities:

1. Do all the homework assignments on time.
2. Practice (but not memorize) more problems than the above lists.
3. Always try to solve a problem on your own before reading the solution or asking for help.
4. If you find it difficult to handle a certain type of problems, try more problems of that type.
5. You are encouraged to solve some of the review problems at the end of each chapter.
6. The practice doing homework and reviewing the class lectures will make exam problems easier to tackle.
7. Make proper use of office hours.