King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics
Math 132 – Syllabus
2012-2013 (121)
Instructor: Dr. Abdallah Laradji

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Title: Applied Calculus
Credit: 3-0-3

Textbook: *Introductory Mathematical Analysis (for Business, Economics, and the Life and Social Sciences), by E. F. Haeussler, Jr. R. S. Paul and R. J. Wood, 12th 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.

Week	Date	Section	Material	Homework
1	Sep 1-5	10.1 10.2 10.3	Limits Limits (cont'd) Continuity	18, 22, 32, 40, 43 2, 15, 30, 39, 45, 50, 52, 58 6, 11, 22, 30, 36
2	Sep 8-12	11.1 11.2 11.3	The derivative Rules for differentiation The derivative as a rate of change	12, 15, 18, 20, 25, 27 22, 33, 60, 72, 78, 85 8, 10, 12, 16, 21, 27, 40, 41
3	Sep 15-19	11.4 11.5	Product &quotient rule The chain rule & the power rule	9, 15, 28, 37, 57, 66 4, 14, 24, 31, 44, 58, 66
4	Sep 22-26	12.1 12.2	Derivative of logarithmic functions Derivative of exponential functions	16 ,18 ,20 ,24 ,28 ,30,32 50 10, 14, 16, 22, 28, 30, 38,39
5	Sep 29-Oct 3	12.4 12.5 12.7	Implicit differentiation Logarithmic differentiation Higher order derivative	10, 14, 20, 22, 30, 34 7, 10, 14, 18, 20, 27 2, 8, 14, 30, 33, 35
Exam I: Wednesday, Oct. 3, 2012; Material: Sections 10.1-12.4 (25%)				
6	Oct. 6-10	13.1 13.2 13.3	Relative extrema Absolute extrema on a closed interval Concavity	16, 18, 30, 38, 48, 52 2, 10, 12 12, 28, 40, 42, 60, 68
7	Oct. 13-17	13.4 13.5 13.6	The second derivative test Asymptotes Applied maxima and minima	5, 6, 8, 10, 12 14, 20, 22, 34, 35, 45 4, 15, 18, 22, 26
8	Nov. 3-7	14.1 14.2	Differentials The indefinite integral	12, 14, 20, 22, 29 8, 10, 18, 27, 30, 45
9	Nov. 10-14	14.3 14.4 14.5	Integration with initial conditions More integration formulas Techniques of integration	5, 7, 11, 14,15 9, 12, 15, 33, 35, 52 6, 12, 23, 30, 40, 44, 53,63
10	Nov. 17-21	14.7 14.9 14.10	Fundamental theorem of calculus Area Area between curves	16, 36 ,42 ,44,48 9 ,12 ,15 ,20 ,24 ,28 1, 3, 5, 20, 30, 32
Exam II: Monday, Nov. 19, 2012; Material: Sections 12.5-14.5 (25%)				
11	Nov. 24-28	15.1 15.3	Integration by parts Integration by tables	6, 8, 12, 18, 20, 24, 32
12	Dec. 1-5	Hand out	Derivative and integrals of trigonometric Functions	
13	Dec. 8-12	17.1	Functions of several variables	5, 9, 12, 15, 20, 24, 27
14	Dec. 15-19	17.2 17.5	Partial derivatives Higher order partial derivatives	8, 18, 20, 28, 30, 35 6, 9, 13, 18, 20, 23
15	Dec. 22-26	17.7	Maxima and minima	4, 9, 17, 19, 22, 26, 35
Final Exam: Wednesday, January 9, 2013 at 7:30 a.m. Material: Comprehensive (35%)				

* **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 to improve your problem-solving abilities:

1. Do all homework assignments on time.
2. Practice with many exercises from the textbook in addition to homework. This will help you acquire skill and speed in solving problems.
3. Always try to solve problems on your own. If you do not succeed ask for assistance.
4. Solved examples often help you understand the material and acquire the necessary skills.
5. Practice with review problems at the end of each chapter.
6. Dedicate as much time as necessary to understand and to practice with material you find more difficult.
7. Make good use of the office hours of your instructor.

Grading Policy:

1. Exam I: 25% (100 points).
2. Exam II: 25% (100 points).
3. Class Work: 15% (60 points). It is based on quizzes, homework and attendance. The questions of the quizzes are exercises from the textbook.
4. Final Exam: 35% (140 points).

Homework: You are required to submit homework each Monday, in class, on the sections completed the week before.

Exam Questions: These are based on the examples, homework problems and the exercises of the textbook.

Attendance: DN grade will be awarded to any student who accumulates 9 unexcused absences or 15 (excused or unexcused) absences.

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