

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 132 – Syllabus
2008-2009 (083)
Coordinator: Dr. Issam LOUHICHI

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Title: Applied Calculus
Section: 02
Credit: 4-0-4
Class Meetings: SUMTW from 10:30 am to 11:30 am in Building 5, Room # 104.
Office Hours: S from 12:30 pm to 3:00 pm; M from 12:30 pm to 3:00 pm.

Textbook: *Introductory Mathematical Analysis (for Business, Economics, and the Life and Social Sciences)*, by Ernest F. Haeussler, Jr. Richard S. Paul and Richard Wood, 11th edition, Pearson, 2005.

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), a **common multiple choice exam**. It will be on **Sunday, August 02, 2009, from 4:00pm to 6:00pm at Building 5, Room 201.**
2. Exam II: 25% (100 points), a **common multiple choice exam**. It will be on **Sunday, August 23, 2009, from 4:00pm to 6:00pm at Building 5, Room 201.**
3. Class Work: 15% (60 points). It is based on quizzes. There will be at least one quiz per week. Any quiz or test under class activity should be of written type and not of multiple choice type.
4. Final Exam: 35% (140 points), a **comprehensive common multiple choice exam**. It will take place on **Thursday, September 03, 2009 (time and place TBA).**

Class Work Average. The section average (X) of the Class Work out of 60 should satisfy

$$X \in [36, 45].$$

Exam Questions: The questions of the common exams are based on the examples, homework problems, recitation 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: A DN grade will be awarded to any student who accumulates 12 unexcused absences (lecture and recitation).

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

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Week	Date	Section	Material	Homework
1	July 11-15	10.1 10.2 10.4 11.1 11.2	Limits Limits (cont'd) Continuity The derivative Rules for differentiation	17, 19, 32, 40, 44 2, 15, 30, 40, 45, 50, 52, 57 5, 11, 22, 30, 38 12, 15, 16, 20, 25, 27 21, 33, 60, 72, 76, 85
2	July 18-22	11.4 11.5 11.6 12.1	Differentiability & continuity Product & Quotient Rules The chain rule & the power rule Derivative of logarithmic functions	21, 33, 60, 72, 76, 85 8, 10, 12, 16, 22, 27, 40, 41 6, 8, 18, 40, 44, 60, 69, 72 16, 18, 20, 24, 28, 30, 32, 50
3	July 25-29	12.2 12.4 12.5 12.7 13.1	Derivative of exponential functions Implicit differentiation Logarithmic differentiation Higher order derivative Relative Extrema	10, 14, 16, 22, 28, 30, 38, 39 10, 12, 20, 22, 30, 34 8, 14, 30, 42, 50, 60, 65 2, 8, 14, 30, 33, 35 16, 18, 30, 38, 48, 52
Exam I: 08/02/2009. Material: From 10.1 until 12.4 (25%)				
4	August 1-5	13.2 13.3 13.4 13.5 13.6	Absolute extrema on a closed interval Concavity The second derivative test Asymptotes Applied maxima and minima	2, 10, 12 12, 28, 40, 42, 60, 68 5, 6, 8, 10, 12 14, 20, 22, 33, 35, 45 2, 14, 18, 22, 26
5	August 8-12	14.1 14.2 14.3 14.4 14.5	Differentials The indefinite integral Integration with initial conditions More integration formulas Techniques of integration	12, 14, 18, 22, 28 9, 10, 18, 22, 30, 45 5, 7, 11, 13, 14 9, 12, 15, 33, 35, 52 6, 12, 20, 30, 40, 44, 55
6	August 15-19	14.8 14.10 14.11 15.1	The fundamental theorem of Int. Area Area between curves Integration by parts	16, 36, 42, 44, 48 9, 12, 15, 20, 24, 28 1, 3, 5, 20, 30, 32 6, 8, 12, 18, 20, 24, 32

Exam II: 08/23/2009. Material: From 12.5 until 14.8 (25%)				
7	August 22-26	** 17.1 17.2 17.5	Trigonometric Functions Functions of several variables Partial derivatives Higher Order Partial Derivatives	2, 3, 5, 12, 15, 20, 24, 28 4, 6, 18, 20, 28, 30, 34 5, 9, 13, 18, 20, 21
8	August 29-31	17.7	Maxima and minima for functions of two variables	4, 8, 15, 19, 22, 26, 29
Final Exam: 03/09/2009, 12:30pm. 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 on how to enhance your problem-solving abilities:

1. Please do all the homework assignments on time.
2. You are urged to practice (but not memorize) more problems than the above lists.
3. You should 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, you should try more problems of that type.
5. You should try the recitation problems before coming to class.
6. You are encouraged to solve some of the review problems at the end of each chapter.
7. The practice you get doing homework and reviewing the class lectures and recitations will make exam problems easier to tackle.
8. Try to make good use of the office hours of your instructor.