King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 101 – Syllabus
2009-2010 (091)
Coordinator: Dr. A. Shawky Ibrahim

Title: Calculus I
Credit: 4-0-4
Textbook: Calculus (Early Transcendentals), by J. Stewart, 6th edition, Brooks/Cole, 2008.

Objectives: To introduce the student to basic concepts and methods of Calculus. Topics include: Limits and continuity of functions of a single variable. Differentiability. Exponential, Logarithmic, Hyperbolic, trigonometric and inverse trigonometric functions. Applications: Related rates, Local linear approximation, Differentials, Curve sketching and Applied optimization problems.

Grading Policy

1. Exam I: 25% (100 points) (Monday Nov.02, 2009). A **common written exam**.
   Material: 2.1-2.7.
2. Exam II: 25 %(100points) (Monday Dec.21, 2009).A **common multiple choice   exam**. Material: 2.8-3.9
3. Class Work: 15% (60 points). It is based on quizzes (around 5 quizzes), homework, or other class activities determined by the instructor. Any quiz or test under class activity should be of written type and not of multiple choice types.
4. Final Exam: 35% (140 points), a **comprehensive common multiple choice exam.** (Saturday January 30, 2010 at 7:30 AM)

Class Work Average. The average (x out of 60) of the Class Work of the sections taught by the same instructor should be in the interval [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	Sec.	Topics
1	Oct 3-7, 2009	2.1	The Tangent Problem: **Example1**.
		2.2	The Limit of a Function
2	Oct 10-14	2.3	Calculating Limits Using the Limit Laws
		2.4	The Precise Definition of a Limit: Examples 1,and 2
3	Oct 17-21	2.5	Continuity
		2.6	Limits at Infinity; Horizontal Asymptotes
4	Oct 24-28	2.7	Derivative and Rates of Change
		2.8	The Derivative as a Function
Major Exam I : Monday November 2,2009 .Material:2.1-2.7			
5	Oct 31-Nov 4	2.8	Continued
		3.1	Derivatives of Polynomials and Exponential Functions
6	Nov 7-11	3.2	The Product and Quotient Rules
		3.3	Derivatives of Trigonometric Functions
7	Nov 14-18	3.4	The Chain Rule
		3.5	Implicit Differentiation
8	Dec 5-9	3.6	Derivatives of Logarithmic Functions
		3.7	Rates of Change (Example 1 only)
Eid Al-Adha Break: Thursday Nov 19, 2009 to Friday, Dec. 4, 2009			
9	Dec 12-16	3.9	Related Rates
		3.10	Linear Approximations and Differentials
Major Exam II: Monday December 21, 2009.Material:2.8-3.9			
10	Dec 19-23	3.10	Continued
		3.11	Hyperbolic Function
11	Dec 26- 30	4.1	Maximum and Minimum Values
		4.2	The Mean Value Theorem
12	Jan 2-6,2010	4.3	How Derivatives Affect the Shape of a Graph
		4.4	Indeterminate Forms and L'Hospital's Rule
13	Jan 9 -13	4.4	Continued
		4.5	Summary of Curve Sketching
14	Jan 16-20	4.7	Optimization Problems
		4.8	Newton's Method
15	Jan 23-27	4.9	Antiderivatives
			Review/Catching up
Final Exam :Saturday January 30,2010(7:30 AM) A Comprehensive Multiple Choice Exam,			

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Math 101 (091)
Suggested Homework and Recitation Problems
Homework and Recitation Problems

Section	Homework	Recitation	CAS*
2.2	2, 6, 9, 12,14, 14, 29, 30	4, 16, 28, 32	-
2.3	2, 4, 9, 20, 23, 26, 37, 44, 48, 49, 55	10, 15, 29, 38, 51, 56	-
2.4	3, 4, 18, 20	1, 2, 16, 21	-
2.5	4, 10, 14, 16, 20, 26, 34, 39, 42, 43(a,c), 48	3, 12, 19, 27, 43(b), 50	30
2.6	4, 9, 18, 24, 26, 33, 36, 42, 47, 50	3, 7, 23, 41, 49	-
2.7	3, 10(a,b), 15, 19, 23(a), 29, 34, 38	11, 12, 17, 20, 31	-
2.8	4, 25, 36, 41, 45, 49, 52, 54	3, 12, 43, 48, 53	30
3.1	10, 24, 32, 35, 46, 51, 58, 60, 62(b), 70, 73	23, 30, 50,(a,b), 68, 75	48
3.2	10, 24, 28, 34, 44(b,c), 48(b), 55, 58	20, 30, 47, 50(c)	40
3.3	4, 16, 18, 22, 30, 34, 41, 48, 51	19, 31, 42, 45	-
3.4	19, 36, 39, 46, 50, 53, 61, 71, 75	65, 74, 76	-
3.5	10, 19, 26, 35, 46, 53, 67(a,b)	34, 47, 65, 68	-
3.6	4, 11, 16, 22, 25, 30, 33, 38, 46, 50, 52	16, 32, 42, 53	-
3.7	1, 7	4, 5	-
3.9	4, 10, 12, 13, 15, 29, 35	5, 9, 41	-
3.10	4, 9, 11(b), 16, 20, 25, 34	2, 10, 24, 35	5
3.11	3(a), 4(b), 10, 13, 19, 20, 23(a,e), 30, 40, 42	1(b), 6(b), 17, 21, 37, 45	-
4.1	4, 8, 10, 22, 33, 39, 42, 50, 58, 68(b)	14, 28, 44, 74	-
4.2	4, 6, 12, 14, 18, 24	2, 5, 16, 20, 30	-
4.3	2, 6, 8, 14, 16, 20, 25, 37, 46, 49	35, 40, 47, 50	56
4.4	2, 4, 12, 22, 28, 31, 35, 45, 47, 60, 64	13, 30, 44, 52, 53	-
4.5	6, 10, 26, 34, 37, 50, 58, 65	18, 36, 67, 70	-
4.7	6, 11, 14, 19, 25, 27, 33, 35, 39, 50	12, 24, 46, 52	-
4.8	2, 6, 8, 12	1, 7, 11	-
4.9	12, 16, 32, 33, 42, 44, 50, 61	5, 17, 36, 49, 62	-

*   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.   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.