

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 101 – Syllabus
2008-2009 (081)
Coordinator: Dr. A. Shawky Ibrahim

Title: Calculus I
Credit: 4-0-4
Textbook: Calculus (Early Transcendentals), by J. Stewart, 5th edition, Thomson, 2003

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), a **common written exam**. It will be on **Monday, Nov. 10, 2008** (in the evening).
2. Exam II: 25% (100 points), a **common multiple choice exam**. It will be on **Monday, Dec. 29, 2008** (in the evening).
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 type.
4. Final Exam: 35% (140 points), a **comprehensive common multiple choice exam**. (Monday, February 02, 2009 .7:30 AM)

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	Sec.	Topics
1	Oct 11-15, 2008	2.1 2.2	The Tangent Problem: Example1. The Limit of a Function
2	Oct 18-22	2.3 2.4	Calculating Limits Using the Limit Laws The Precise Definition of a Limit: Examples 1,2, and 3
3	Oct 25-29	2.5 2.6	Continuity Limits at Infinity; Horizontal Asymptotes
4	Nov 1-5	2.7 2.8	Tangents, Velocities, and Other Rates of Change Derivatives
Monday, November 10, 2008: Exam I (25%); 2.1-2.8			
5	Nov 8-12	2.9 3.1	The Derivative as a Function Derivatives of Polynomials and Exponential Functions
6	Nov 15-19	3.2 3.3 3.4	The Product and Quotient Rules Rate of Change in Physics: Example 1. Derivatives of Trigonometric Functions
7	Nov 22-26	3.5 3.6	The Chain Rule Implicit Differentiation
8	Nov 29-Dec 2	3.6 3.7	Implicit Differentiation Higher Derivatives
Eid Al-Adha Break: Wednesday, Dec 3, 2008 to Saturday, Dec. 13, 2008			
9	Dec 14-18*	3.8 3.9	Derivatives of Logarithmic Functions Hyperbolic Functions
10	Dec 20-24	3.10 3.11	Related Rates Linear Approximations and Differentials
Monday, December 29, 2008: Exam II (25%); 2.9-3.10			
11	Dec 27-31	4.1	Maximum and Minimum Values
12	Jan 3-7, 2009	4.2 4.3	The Mean Value Theorem How Derivatives Affect the Shape of a Graph
13	Jan 10-14	4.4 4.5	Indeterminate Forms and L'Hospital's Rule Summary of Curve Sketching
14	Jan 17-21	4.5 4.7	Summary of Curve Sketching Optimization Problems
15	Jan 24-28	4.9 4.10	Newton's Method Antiderivatives
16	Jan 31		Review
Final Exam: Monday February 02, 2009 (7:30 AM) A Comprehensive Multiple Choice Exam.			

* Thursday, December 18, 2008 is a Normal Wednesday Class.

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Math 101 (081)
Homework and Recitation Problems
Coordinator: Dr. A. Shawky Ibrahim

Section	Homework	Recitation	CAS*
2.1			3,4
2.2	2,3,7,8,12,14,19,26	4,13,28,32	-
2.3	2,7,9,12,13,20,23,26,30,37,42,48,51,56,59	10,14,22,38,50	-
2.4	3,5,16,20	4,6,21	-
2.5	4,6,12,14,16,19,26,27,34,39,42,48,52(a)	10,18,24,43,46,54(a)	30
2.6	3,7,12,21,23,30,31,32,38,41,43,48,53	4,18,,22,46,49	-
2.7	3,6,8,11,15,20	10,12,25	-
2.8	3,4,5,7,10,20,24,26,29	1,6,17,21,28	-
2.9	2,4,6,9,12,13,16,26,29,42,45,46,47	3,11,18,30,33,43	-
3.1	2(b,c),24,28,32,39,42,46,49,51,54,56,63	33,45,52,55	-
3.2	4,6,10,20,23,32,34,41,44(a,b)	31,35,38	-
3.3	4,7,8,14	6,10	
3.4	10,15,24,30,37,38,47	7,23,26,44,46	-
3.5	10,20,22,31,37,41,46,57,63(a,c)	14,42,45,54,63(d)	74
3.6	10,14,20,22,23,26,43,46,48,55,60,67	15,21,28,59,68	-
3.7	2,10,16,27,32,40,46,54,58,61,67	3,31,37,38,47	-
3.8	4,6,8,18,22,25,29,31,37,42,48,50,51	12,24,28,32,46,49	-
3.9	4(b),5(b),12,18,20,23,29(a,b),32,38,44,54	6,19,46,49,52,53	-
3.10	4,7,8,12,13,21,25,31	1,6,15,36	-
3.11	6,8,17,24,30,33,35,39,43,45,49	7,36,42,50	40
4.1	3,6,8,10,22,26,30,43,49,56,60	14,38,40,70	-
4.2	4,6,12,14,18,19,24,26,32	2,5,16,20,27,29	-
4.3	2,6,8,13,16,18,20,24,28,37,43,45,47	36,50,74,75	58
4.4	2,4,29,31,35,40,48,58,62,76	13,21,30,42,50	-
4.5	6,10,26,28,34,37,50,56,58,61	22,36,65,68	-
4.7	6,9,12,17,23,25,31,33,37,44	22,46,57,61(a)	-
4.9	6,8,12	7,11,31	-
4.10	10,14,28,40,46,61	45,49,62	-

* 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. 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.