

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 101 – Syllabus-A
Summer Term : 2009-2010 (093)
Coordinator: Dr. Mohammad Z. Abu-Sbeih

Title: Math 101: Calculus I
Credit: 4-0-4
Textbook: Calculus (Early Transcendentals), by J. Stewart, 6th edition, Brooks/Cole 2008
Description: 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 (MCQ)**. It will be held on **Monday, July 19, 2010**.
2. Exam II: 25% (100 points), a **common Multiple Choice Exam (MCQ)**. It will be held on **Monday, August 9, 2010**.
3. Class Work: 15% (60 points). It is based on quizzes (about 5 quizzes), homework, or other class activities determined by the instructor. Any quiz or test under class activity should be of a written type and not of a multiple choice type.
4. Final Exam: 35% (140 points), a **Comprehensive Common Multiple Choice Exam**. **It will be held on Wednesday August 25, 2010 at 8:00 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 an Exam: 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 his average performance and the overall average. Further, the student must provide an official excuse within one week of the missed exam.

Attendance: A DN grade will be awarded to any student who accumulates 10 unexcused absences (lecture and recitation).

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

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Summer Term 2009-2010 (093)

Math 101 – Syllabus

Coordinator: **Dr. Mohammad Z. Abu-Sbeih**

Title : Calculus I

Textbook: Calculus (Early Transcendentals), by J. Stewart, 6th edition, Brooks/Cole 2008

Description: 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.

Week	Date	Sec.	Topics
1	July 3-July 7	2.1 2.2 2.3 2.4	The Tangent Problem: Example 1. The Limit of a Function Calculating Limits Using the Limit Laws The Precise Definition of a Limit: Examples 1, and 2
2	July 10-July 14	2.5 2.6 2.7 2.8	Continuity Limits at Infinity; Horizontal Asymptotes Derivative and Rates of Change The Derivative as a Function
3	July 17-July 21	3.1	Derivatives of Polynomials and Exponential Functions
		Exam I (25%): Mon., July 19, 2010. Material [2.1, 2.8]	
		3.2 3.3	The Product and Quotient Rules Derivatives of Trigonometric Functions
4	July 24-July 28	3.4 3.5 3.6 3.7	The Chain Rule Implicit Differentiation Derivatives of Logarithmic Functions Rates of Change (Example 1 only)
5	July 31-Aug 4	3.9 3.10 3.11	Related Rates Linear Approximations and Differentials Hyperbolic Functions
6	Aug 7-Aug 11	3.11 4.1	Hyperbolic Functions (Continued) Maximum and Minimum Values
		Exam II (25%): Mon, Aug. 9, 2010. Material [3.1, 3.11] (As covered)	
		4.2	The Mean Value Theorem
7	Aug 14-Aug 18	4.3 4.4 4.5	How Derivatives Affect the Shape of a Graph Indeterminate Forms and L'Hospital's Rule Summary of Curve Sketching
8	Aug 21-Aug 23	4.7 4.8 4.9	Optimization Problems Newton's Method Antiderivatives
Final Exam (35%): Wednesday Aug 25, 2010 at 8:00 am (Comprehensive).			

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Math 101 (093)

Homework and Recitation Problems

Section	Homework Problems	Recitation Problems	CAS*
2.2	2, 6, 9, 12, 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(1,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 a computer). 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

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 101 – Syllabus-B
Summer Term : 2009-2010 (093)
Coordinator: Dr. Mohammad Z. Abu-Sbeih

Title: Math 101: Calculus I
Credit: 4-0-4
Textbook: Calculus (Early Transcendentals), by J. Stewart, 5th edition, Thomson, 2003

Objectives: To introduce the student to the basic concepts and methods of Calculus. Topics include: Limits and Continuity of functions of a single variable. Differentiability. Techniques of Differentiation. Implicit Differentiation. Local Extrema. Concavity and Inflection points. Applications: Related Rates, Local Linear Approximation, Differentials, Curve Sketching and Optimization problems.

Grading Policy

1. Exam I: 25% (100 points), a **common Written Exam (MCQ)**. It will be held on **Monday, July 19, 2010**.
2. Exam II: 25% (100 points), a **common Multiple Choice Exam (MCQ)**. It will be held on **Monday, August 9, 2010**.
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4. Final Exam: 35% (140 points), a **Comprehensive Common Multiple Choice Exam. It will be held on Wednesday August 25, 2010 at 8:00 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 an Exam: 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 his average performance and the overall average. Further, the student must provide an official excuse within one week of the missed exam.

Attendance: A DN grade will be awarded to any student who accumulates 10 unexcused absences (lecture and recitation).

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

MATH 101 Syllabus

2009-2010 (093)

Coordinator: Dr. Mohammad Z. Abu-Sbeih

Week	Date	Sec.	Topics (28 sections)
1	July 3-7	2.1 2.2 2.3 2.4	The Tangent Problem: Example 1 . The Limit of a Function Calculating Limits Using the Limit Laws The Precise Definition of a Limit: Examples 1,2, 3
2	July 10-14	2.5 2.6 2.7 2.8	Continuity Limits at Infinity; Horizontal Asymptotes Tangents, Velocities, and Other Rates of Change Derivatives
3	July 17-21	2.9 3.1 3.2 3.3	The Derivative as a Function + Exercise # 46 Derivatives of Polynomials and Exponential Functions The Product and Quotient Rules Rates of Change in Physics: Example 1 .
Exam I: Monday, July 19, 2010; Materials: Chapter 2			
4	July 24-28	3.4 3.5 3.6 3.7	Derivatives of Trigonometric Functions The Chain rule Implicit Differentiation Higher Derivatives
5	July 31-Aug. 4	3.8 3.9 3.10	Derivatives of Logarithmic Functions Hyperbolic Functions Related Rates
6	Aug. 7-11	3.11 4.1 4.2	Linear Approximations and Differentials Maximum and Minimum Values The Mean Value Theorem
Exam II: Monday, August 9, 2010; Materials: Sections 3.1- 3.11			
7	Aug. 14-18	4.3 4.4 4.5 4.7	How Derivatives Affect the Shape of a Graph Indeterminate Forms and L'Hospital's Rule Summary of Curve Sketching Optimization Problems
8	Aug. 21-23	4.9 4.10	Newton's Method Antiderivatives
Final Exam (Comprehensive): Wednesday, August 25, 2010 at 8:00 am			

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Homework and Recitation Problems

Section	Homework	Recitation	CAS*
2.2	1, 6, 9, 14, 17, 27, 30	4, 13, 28, 32	-
2.3	2, 8, 18, 19, 22, 26, 36, 37, 42, 48, 49, 58	10, 14, 29, 38, 51	-
2.4	3, 5, 17, 21	4, 6, 20	-
2.5	3, 10, 17, 18, 24, 27, 34, 38, 41, 47, 50	15, 28, 43, 49	30
2.6	3, 6, 19, 25, 29, 32, 33, 40, 42, 48, 49	4, 18, 22, 46, 53	-
2.7	6, 9, 15, 18, 19	10, 12, 25	-
2.8	3, 4, 7, 14, 17, 20, 22, 25, 29	6, 16, 21, 28	-
2.9	2, 4, 6, 9, 12, 26, 30, 45	3, 11, 18, 33, 43	-
3.1	23, 30, 36, 40, 41, 46, 47, 50, 56	33, 45, 52, 55	1(b)
3.2	5, 10, 15, 17, 20, 26, 32, 36, 37	31, 38, 42	-
3.3	4, 7, 8	9	
3.4	3, 10, 15, 18, 24, 25, 30, 41, 44	7, 23, 26, 42	-
3.5	3, 9, 11, 18, 27, 31, 39, 40, 46, 49, 52, 55(a), 63(a)	42, 45, 54, 63(d)	74
3.6	1, 11, 14, 18, 20, 22, 25, 43, 46, 55	15, 21, 28, 59	-
3.7	2, 10, 15, 26, 32, 33, 37, 40, 44, 54, 60	3, 31, 34, 38, 61	-
3.8	3, 4, 6, 8, 17, 22, 25, 30, 31, 37, 41, 48, 50	20, 24, 28, 32, 46, 49	-
3.9	3, 4, 14, 17, 20, 23, 29(d), 34, 37, 43, 53	6, 19, 46, 49, 52	-
3.10	5, 8, 9, 12, 18, 21, 25, 37	1, 6, 11, 15,	-
3.11	6, 8, 17, 26, 28, 35, 38, 43, 49	7, 36, 42, 50	40
4.1	4, 8, 10, 25, 30, 42, 44, 50, 58, 69	14, 38, 40, 70	-
4.2	4, 6, 12, 14, 18, 24, 30	2, 5, 16, 20, 29	-
4.3	1, 6, 8, 16, 18, 20, 44, 46, 74	36, 50, 64	58
4.4	2, 4, 14, 22, 24, 29, 48, 58, 68	13, 30, 42, 50, 63	-
4.5	19, 26, 28, 34, 37, 47, 50, 56, 64	18, 36, 65	-
4.7	3, 6, 10, 12, 27, 35, 44, 52, 55	17, 22, 46, 57,	-
4.9	5, 11, 35(a)	7, 12, 31	-
4.10	8, 14, 27, 38, 42, 46, 61	40, 45, 62	-

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