King Fahd University of Petroleum and Minerals

Department of Mathematics & Statistics

Math 101- Syllabus

2012-2013 (Term 123- Summer)

Coordinators: Dr. Al-Rasasi, Dr. Belhaiza, Dr. Al-Humaidi

Title: Calculus I (4-0-4)

Textbook: Thomas Calculus (Early Transcendentals) by G. Thomas, M. Weir, and J. Hass, 12th edition, Pearson, 2010.

Description: To introduce students to the basic concepts and methods of Calculus. Topics include: Limits, continuity, and differentiability of functions of one variable. Techniques of differentiation. Implicit Differentiation. Local extrema, first and second derivative for local extrema. Concavity and inflection points. Curve sketching. Applied extrema problems. The Mean Value Theorem and applications. Estimating area.

Grading Policy:

Exam I (Written)	Material: 2.1- 3.2 Date: Tuesday, June 25, 2013	Place: Building 54 Time: 4:30-6:30 pm	25% (100 points)
Exam II (MCQ)	Material: 3.3- 3.11 Date: Sunday, July 14, 2013	Place: Building 54 Time:	25% (100 points)
Final Exam (MCQ)	Material: Comprehensive Date: Sunday, July 28, 2013	Place: Time: 8:30-11:30 am	35% (140 points)
Class Work	**Online Homework:** www.kfupm.mylabsplus.com		5% (20 points)
	Class Activities: quizzes , class tests,… should be of a written type and not of a multiple choice type.		10% (40 points)
	The average X (out of 40) of the class activities of the sections taught by the same instructor should be in the interval [24, 30].		

Exam Questions: The questions of the common exams are based on the examples, homework and recitation problems, and the exercises of the textbook.

Missing Exam I or Exam 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 a medical emergency), his grade for this exam will be determined based on the existing formula which depends on his performance in the non-missed exam and in the final exam.

Attendance: Attendance is a University Requirement (see p. 38 of the Undergraduate Bulletin 2006-2009). A DN grade will be awarded to any student who accumulates 10 unexcused absences (lecture & recitation)

Academic Integrity: KFUPM policy regarding ethics apply to this course.

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Week	# Lectures	Dates (2013)	Sec.	Topics (27 sections)
1*	6	June 8-13	2.1	Rates of Change and Tangents to Curves
			2.2	Limit of a Function and Limit Laws
			2.3	The precise Definition of a Limit (till the end of Example 4)
			2.4	One-Sided Limits
2*	6	June 15-20	2.5	Continuity
			2.6	Limits Involving Infinity; Asymptotes of Graphs
			3.1	Tangents and the Derivative at a point
			3.2	The Derivative as a Function
3	5	June 22-26	3.3	Differentiation Rules
			3.4	The Derivative as a Rate of Change
			3.5	Derivatives of Trigonometric Functions
			3.6	The Chain Rule
Exam I: Material 2.1- 3.2; Tuesday, June 25, 2013 at 4:30- 6:30 pm in Building 54.				
4	5	June 29- July 3	3.7	Implicit Differentiation
			3.8	Derivatives of Inverse Functions and Logarithms
			3.9	Inverse Trigonometric Functions
			3.10	Related Rates
5	5	July 6-10	3.11	Linearization and Differentials
			4.1	Extreme Values of Functions
			4.2	The Mean Value Theorem
			4.3	Monotonic Functions and the first Derivative Test
6	5	July 13-17	4.4	Concavity and Curve Sketching
			4.5	Indeterminate Forms and L'Hospital's rule
			4.6	Applied Optimization
Exam II: Material 3.3- 3.11; Sunday, July 14, 2013.				
7	5	July 20-24	4.7	Newton's Method
			4.8	Antiderivatives
			5.1	Area and Estimating with Finite Sums
8	1	July 27	5.2	Sigma Notation and Limits of Finite Sums
Final Exam: Sunday, July 28,2013 at 8:30-11:30 am. A Comprehensive MCQ Exam.				

1*: Thursday, June 13 is a Normal Sunday Class.

2*: Thursday, June 20 is a Normal Monday Class.

Math 101, Term 123 (Summer)

Suggested Homework & Recitation Problems

Sec. #	Homework Problems	Recitation Problems	CAS
2.1	4, 10, 21	2, 8	18, 20
2.2	4, 8, 18, 32, 40, 47, 54, 60, 66, 71, 77, 79	3, 10, 28, 51, 65	68
2.3	10,14,16,35,38,40	12, 13, 19, 37	-
2.4	4, 9, 16, 20, 28, 29, 34, 42	2, 5, 12, 24, 30	-
2.5	8, 15, 24, 26, 30, 37, 40, 48, 72, 77	6, 16, 29, 32, 78	51, 52
2.6	A: 2, 12, 20, 29, 34, 42 B: 50, 62, 67, 72, 76, 78, 86, 102	1, 11, 30, 57, 70, 84, 101	105, 108
3.1	2, 8, 18, 22, 23, 29, 40	16, 25, 33, 38	41, 46
3.2	2, 12, 15, 22, 24, 31, 38, 41, 46, 61	10, 16, 40, 48, 54	59, 65
3.3	8, 23, 31, 44, 47, 55, 60, 63, 67, 69	43, 56, 64, 70	66
3.4	4 ,7	2, 8	33
3.5	9, 12, 24, 34, 38, 43, 54, 58, 59	21, 31, 50, 57	40, 69
3.6	6, 13, 30, 38, 53, 70, 72, 84, 86, 93	34, 50, 68, 78, 82	105
3.7	5, 13, 20, 27, 40, 42, 46	10, 22, 41, 47	53, 59
3.8	10, 18, 28, 30, 38, 51, 62, 64, 80, 90, 96	9, 24, 32, 54, 63, 76, 93	106
3.9	16, 24, 28, 34, 42, 56,	14, 22, 25, 39	63
3.10	2, 10, 11, 19, 22, 25, 31, 33, 36	14, 23, 27, 44	-
3.11	A: 2, 6(a, d), 11, 15, 16(e), 22, 24, 36, 38 B: 40, 47, 53, 54, 57	16(d), 23, 43, 51, 59	64, 70
4.1	4, 9, 18, 38, 50, 58, 66, 69, 84	6, 30, 64, 72	88, 96
4.2	3, 14, 22, 30, 38, 40, 49, 64	8, 26, 41, 66	59, 71
4.3	4, 13, 28, 40, 54, 63, 69(a), 74	44, 59, 64, 76	56, 60
4.4	7, 11, 25, 37, 49, 68, 81, 98, 115, 122	46, 82, 96, 118	123
4.5	10, 20, 32, 38, 57, 61, 64, 71, 79, 85	33, 50, 74, 80	84, 89
4.6	3, 6, 7, 11, 13, 16, 27, 30, 33, 67	4, 12, 28, 35	43, 67
4.7	2, 11, 25, 28	13, 21	18, 27(b)
4.8	8, 14, 20, 41, 66, 81, 88, 93, 112, 119 (a-i)	16, 70, 79, 104, 113	129, 132
5.1	2, 7, 9, 17	8, 18	23
5.2	8, 12, 20, 32, 33, 43	31, 46	-

*** 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.