

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 – Syllabus
2007-2008 (073)
Coordinator: Dr. A. Shawky Ibrahim

Title: Math 102: Calculus I
Credit: 4-0-4
Textbook: Calculus (Early Transcendentals), by J. Stewart, 5th edition, Thomson, 2003

Objectives: Definite and indefinite integrals. Fundamental Theorem of Calculus. Techniques of integration. Hyperbolic functions. Applications of integration. Improper integrals. Sequences and series: convergence tests. Alternating series. Absolute and conditional convergence. Power series. Taylor and Maclaurin series

Grading Policy

1. Exam I: 25% (100 points), a **common Multiple Choice Exam (MCQ)**. It will be held on **Tuesday, July 22, 2008**.
2. Exam II: 25% (100 points), a **common Written Exam**. It will be held on **Tuesday, August 12, 2008**.
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**.

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 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.

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Title : Calculus II

Textbook : Calculus (Early Transcendentals): by J. Stewart; 5th edition, 2003

Objectives : Definite and indefinite integrals. Fundamental Theorem of Calculus. Techniques of integration. Hyperbolic functions. Applications of integration. Improper integrals. Sequences and series: convergence tests. Alternating series. Absolute and conditional convergence. Power series. Taylor and Maclaurin series

Week	Date	Sec.	Topics
1	July 5-July 9	5.1 5.2* 5.3 5.4	Areas and Distances The Definite Integral The Fundamental Theorem of Calculus Indefinite Integrals and the Net Change Theorem
2	July 12-July 16	5.5 5.6 6.1 6.2	The Substitution Rule The Logarithm Defined as an Integral Areas between Curves Volumes
3	July 19-July 23	6.2 6.3	Volumes (continued) Volumes by Cylindrical Shells
		Exam I (25%): Tues, July 22, 2008. Material 5.1→6.2	
		6.5 7.1	Average Value of a Function Integration by Parts
4	July 26-July 30	7.2 7.3 7.4 7.5	Trigonometric Integrals Trigonometric substitution Integration of Rational Functions by Partial Fractions + Exc. # 55 Strategy for Integration
5	Aug 2-Aug 6	7.8 11.1 11.2 11.3	Improper Integrals (up to page 536 only) Sequences (up to page 708 only) Series The Integral Test and Estimates of Sums
6	Aug 9-Aug 13	11.4 11.5 11.6	The Comparison Tests Alternating Series Absolute Convergence and the Ratio and Root Tests
		Exam II (25%): Tues, Aug. 12, 2008. Material 6.3→11.4 (As covered)	
		11.7	Strategy for Testing Series
7	Aug 16-Aug 20	11.8 11.9 11.10**	Power Series Representation of Functions as Power as Power Series Taylor and Maclaurin Series (Remainder Theorem is not included)
8	Aug 23-Aug 25	8.1 8.2	Arc Length Area of a Surface of Revolution
Final Exam (35%): Tuesday, Aug. 26, 2008 at 7:30 a.m. Comprehensive. MCQ Exam			

* Students must know formulas: 4, 5, 6, and 7 (p. 383)

** Students must know the Maclaurin Series listed in the Table of p. 767.

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Math 102 (073)
Homework and Recitation Problems

Section	Homework Problems	Recitation Problems	CAS*
5.1	3, 12, 18, 20	2, 21,22	9
5.2	1, 18, 23, 27, 34, 37, 52, 68	9, 28, 40, 48, 61	-
5.3	2, 8, 27, 42, 50, 53, 61	48, 52, 55, 62	-
5.4	8, 13, 34, 35, 54	25, 40, 45, 56	-
5.5	12, 22, 36, 43, 60, 65, 80	38, 44, 57, 73	71
5.6	1(a), 3	4	-
6.1	4, 14, 18, 24, 29, 47	10, 26, 46	33
6.2	4, 12, 36, 43, 49, 58	6, 16, 35, 57	40
6.3	5, 11, 16, 23, 37	12, 19, 26, 38	36
6.5	7, 10, 14	4, 13	11
7.1	8, 12, 16, 28, 35, 46, 52, 58, 63	10, 22, 29, 34, 48	38
7.2	3, 15, 30, 42, 56, 61	10, 38, 45, 48	-
7.3	8, 21, 26, 30, 41	5, 12, 28, 34	37
7.4	6, 9, 20, 28, 46, 54, 58	22, 37, 40, 50, 57	52
7.5	14, 23, 32, 52, 59, 69, 70	31, 44, 65, 68, 78	-
7.8	2(a, c), 8, 23, 28, 30, 40	2(b, d), 22, 37, 59	-
8.1	6, 8, 16, 31, 37	12, 20, 29	3
8.2	10, 11, 14, 15, 26	25, 29	24
11.1	6, 14, 18, 34, 35, 39, 51, 59	12, 25, 32, 58	43
11.2	9, 12, 20, 26, 29, 33, 40, 45, 50	14, 23, 32, 44, 53	5
11.3	8, 10, 19, 24, 25, 30	12, 20, 28, 32	-
11.4	4, 12, 24, 27, 32	6, 15, 28, 37	-
11.5	4, 10, 14, 24, 27, 32	16, 17, 28, 34	22
11.6	5, 11, 16, 21, 28, 30, 33	4, 9, 24, 26	-
11.7	5, 6, 14, 17, 22, 29, 35, 38	8, 18, 23, 31	-
11.8	6, 17, 24, 27, 30	8, 20, 29	-
11.9	4, 9, 11, 14, 18, 25, 38(a, b)	8, 16, 30, 38(c)	-
11.10	1, 10, 14, 28, 40, 46, 51, 56	18, 30, 48, 52, 60	-

* 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.