

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 – Syllabus
Semester - 072
Coordinator: Dr. Mohammad Z. Abu-Sbeih

Title: Calculus II
Credit: 4-0-4
Textbook: Calculus (Early Transcendentals), by J. Stewart, 5th edition, Thomson, 2003
Description: Definite and indefinite integrals of functions of a single variable. Fundamental Theorem of Calculus. Techniques of integration. Application of the definite integral to area, volume, arc length and surface of revolution. Improper integrals. Sequences and series: convergence tests, integral, comparison, ratio and root 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. It will be on **Tuesday, March 18, 2008, at 7:00 – 9:00 pm in Bldg 54.**
2. **Exam II:** 25% (100 points), a common written exam. It will be on Monday, **May 5, 2008, at 5:00 – 7:00 pm in Bldg 54.**
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 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. 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 12 unexcused absences (lecture and recitation).

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

Math 102 Syllabus

Semester - 072

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Week	Date	Sec.	Topics (28 sections)
1	Feb. 16 - 20	5.1 5.2*	Areas and Distances The Definite Integral
2	Feb. 23-27	5.3 5.4	The Fundamental Theorem of Calculus Indefinite Integrals and the Net Change Theorem
3	Mar. 1-5	5.5 5.6	The Substitution Rule The Logarithm Defined as an Integral
4	Mar. 8- 12	6.1 6.2	Areas between Curves Volumes
5	Mar. 15-19	6.3 6.5	Volumes by Cylindrical Shells Average Value of a Function
Tuesday, Mar. 18, 2008: Exam I (25%): 5.1-6.2 (A Multiple Choice Exam) 7:00 – 9:00 pm in Bldg 54			
6	Mar. 22-26	7.1 7.2	Integration by Parts Trigonometric Integrals
7	Mar 29- Apr. 2	7.3 7.4	Trigonometric Substitution Integration of Rational Functions by Partial Fractions + Exc. #55
8	Apr. 5-9	7.5 7.8	Strategy for Integration Improper Integrals (up to page 536 only, End of example 8)
Midterm Vacation: April 12-16, 2008			
9	Apr. 19-23	11.1 11.2	Sequences (up to page 708 only) Series
10	Apr. 26-30	11.3 11.4	The Integral Test and Estimates of Sum The Comparison Test
11	May 3-7	11.5 11.6	Alternating Series Absolute Convergence and the Ratio and Root Tests
Monday, May 5, 2008: Exam II (25%): 6.3-11.4 (A Written Exam) 5:00 – 7:00 pm in Bldg 54			
12	May 10-14	11.7 11.8	Strategy for Testing Series Power Series
13	May 17-21	11.9 11. 0^	Representations of Functions as Power Series Taylor and Maclaurin Series (Remainder Theorem is not Included.)
14	May 24-28	8.1 8.2	Arc Length Area of a Surface of Revolution
15	May 31- June 4	8.2	Area of a Surface of Revolution (Continued) REVIEW
Final Exam: A Comprehensive Multiple Choice Exam, Date is to be announced			

*: Students must know Formulas 4, 5, 6, 7 in page 383.

^: Students must know the Maclaurin Series listed in the Table of page 767.

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Math 102 (072)

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.