

King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics
Dr. Mohammad Z. Abu-Sbeih
Semester II, 2008/2009 (082)
Math 102: Calculus II (3 – 0 – 3)

Course Title:	Calculus II
Course Number:	Math 102
Textbooks:	Calculus (Early Transcendentals), by J. Stewart, 5 th edition, Thomson, 2003
Prerequisite:	Math 101.
Objectives:	This course is intended to introduce students to the basic concepts of integral calculus and their applications, especially problems related to area, arc length and volume of solids. Also sequences and series will be studied and their convergence.
Instructor:	Dr. Mohammad Z. Abu-Sbeih.
Office Location:	Building 5 - Room 309.
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Office Hours:	9:38 -- 9:45 a.m. [Saturday, Monday, Wednesday] Or by appointment.

Grades:	(1) 2 Major Exams (25 points each)	50%
	(2) 5 Quizzes	15%
	(3) <u>Comprehensive Final (MULTIPLE CHOICE)</u>	35%
	Total:	100%

Attendance: The university regulations on attendance say: students are expected to attend all classes. However, valid excuses are accepted for eligible reasons.

1. The only acceptable excuse for absence is the one authorized by the Deanship of Student Affairs on their prescribed form.
2. The excuse should be presented to the instructor no later than one week following the resumption of class attendance.
3. **If the unexcused absences reach 9 classes, the student will get a “D|N” grade.**
4. Coming late to the class is not acceptable. However it will be counted as $\frac{1}{2}$ absences.

Academic Honesty: The principles of truth and honesty are fundamental in the academic work. Any type of academic dishonesty will not be forgiven.

1. If a student copies the homework from a friend, he will get ZERO on all homework's of the course.
2. A cheating in a quiz will result in a ZERO grade on all quizzes.
3. If a student cheats in a major Exam or a final, he may get an “F” in the course and he will be reported to the Dean of the College for further disciplinary action.
4. Any attempt of cheating is considered as an act of academic dishonesty.

Homework: The students are expected to do the assigned homework problems by themselves because it is an integral part of the teaching process. It teaches the students on how to write and communicate thoughts and ideas. That is why the homework should be written in a clear and detailed manner as if you are writing to explain the problem to a friend not to the instructor. **LATE HOMEWORK WILL NOT BE ACCEPTED.**

IMPORTANT NOTE: It is the student's responsibility to keep informed of any announcements, syllabus adjustments or policy changes made during scheduled classes.

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 – Syllabus
2008-2009 (082)
Coordinator: Dr. Husain Al Attas

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 31, 2009.
2. Exam II: 25% (100 points), a common written exam. It will be on Tuesday, May 12, 2009.
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
2008-2009 (082)
Coordinator: Dr. Husain Al Attas

Week	Date	Sec.	Topics (28 sections)
1	Fen. 28- March 5**	5.1 5.2* 5.3	Areas and Distances The Definite Integral The Fundamental Theorem of Calculus
Thursday March 5, 2009 is a Normal Wednesday Class			
2	March 7- 11	5.3 5.4 5.5	The Fundamental Theorem of Calculus (Continued) Indefinite Integrals and the Net Change Theorem The Substitution Rule
3	March 14- 18	5.5 5.6 6.1	The Substitution Rule (Continued) The Logarithm Defined as an Integral Areas between Curves
4	March 21- 25	6.1 6.2 6.3	Areas between Curves (Continued) Volumes Volumes by Cylindrical Shells
5	March 28- April 1	6.5 7.1	Average Value of a Function Integration by Parts
Tuesday, March 31, 2009: Exam I (25%): 5.1-6.2 (A Multiple Choice Exam)			
6	April 4-8	7.2 7.3	Trigonometric Integrals Trigonometric Substitution
7	April 11- 15	7.4 7.5	Integration of Rational Functions by Partial Fractions + Exercise #55 Strategy for Integration
8	April 18- 22	7.8 11.1	Improper Integrals (up to page 536 only, End of Example 8) Sequences (up to page 708 only)
Midterm Break April 25 to May 1, 2009			
9	May 2-6	11.2 11.3	Series The Integral Test and Estimates of Sums
10	May 9-13	11.4	The Comparison Tests
Tuesday, May 12, 2009: Exam II (25%): 6.3-11.3 (A Written Exam)			
11	May 16- 20	11.5 11.6	Alternating Series Absolute Convergence and the Ratio and Root Tests
12	May 23- 27	11.7 11.8	Strategy for Testing Series Power Series
13	May 30- June 3	11.9 11.10***	Representations of Functions as Power Series Taylor and Maclaurin Series (Remainder Theorem is not included)
14	June 6-10	8.1 8.2	Arc Length Area of a Surface of Revolution
15	June 13- 16		Review and/or Catching up
Final Exam: A Comprehensive Multiple Choice Exam, Date is to be announced			

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

** : Thursday, March 5, 2009 is a Normal Wednesday Class.

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

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics

Math 102 (082)

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	-
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	-
8.1	6, 8, 16, 31, 37	12, 20, 29	3
8.2	10, 11, 14, 15, 26	25, 29	24

* 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.