

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 - Term 192 – Revised Syllabus
Coordinator: Dr. Mohammad Z. Abu-Sbeih

Title	Calculus II
Credit	4-0-4
Textbook	Calculus: Early Transcendentals, 8 th Edition, Metric International Version, by James Stewart, Brooks/Cole (2016)
Description	Definite and indefinite integrals of functions of a single variable. Fundamental Theorem of Calculus. Techniques of integration. Applications 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.
Learning Outcomes	<p>Upon completion of this course, students should be able to understand:</p> <ol style="list-style-type: none"> 1. Comprehend the concept of definite and indefinite integrals; 2. Comprehend the concept of Fundamental theorem of calculus; 3. Apply various techniques of integrations; 4. Comprehend the concept of finding area, arc length, surface and volume of solid of revolution; 5. Apply improper integrals and techniques to solve improper integrals; 6. Describe infinite sequence and series and different methods to check for convergence and divergence; 7. Comprehend the representation of a function as a power series; 8. Describe Taylor and Maclaurin series representation of functions.

Grading Policy	Exam I	Material: 5.1 - 6.2	Place: Building 54	25%
	A common, multiple choice exam	Date: Tuesday, Feb 25	Time: 6:15-7:45 pm	
	4 Quizzes (or combination)	Cover the rest of the material after the first Exam	The average of each section must be in the interval [33.6 – 36] out of 48	48%
	Online Homework	The web address for online homework is https://www.webassign.net .		12%
	Class Work	It is based on quizzes, class tests, or other class activities determined by the instructor. Any quiz or test under class activity should be of written type and not of multiple-choice type. The average of each section must be in the intervals [10.5 – 11.25] out of 15		15%
	Passing Grade	A student must score at least 50% to pass the course.		

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

Attendance Attendance is a University Requirement. A DN grade will be awarded to any student who accumulates 12 unexcused absences for UTR classes, or equivalent for MW classes.

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 - Term 192 – Revised Syllabus
Coordinator: Dr. Mohammad Z. Abu-Sbeih

Academic Integrity

All KFUPM policies regarding ethics apply to this course.

Pacing Schedule

Week	Date (2016)	Section	Topics
1	Jan 19 – 23	5.1	Areas and Distances
		5.2 ⁽¹⁾	The Definite Integral
2	Jan 26 – 30	5.2	The Definite Integral
		5.3	The Fundamental Theorem of Calculus
3	Feb 2 – 6	5.4	Indefinite Integrals and the Net Change Theorem
		5.5	The Substitution Rule
4	Feb 9 – 13	6.1	Areas between Curves
5	Feb 16 – 20	6.2	Volumes
		6.3	Volumes by Cylindrical Shells
6	Feb 23 – 27	6.5	Average Value of a Function
		7.1	Integration by Parts
		Exam I	Tuesday, Feb., 25, 2020; Time: 6:15-7:45 pm Location: Building 54; Material [5.1 – 6.2]
7	Mar 1 – 5	7.2	Trigonometric Integrals
		7.3	Trigonometric Substitution
8	Mar 8 – 12	7.4	Integration of Rational Functions by Partial Fractions + Exercise 59
		7.5	Strategy for Integration
9	Mar 15 – 19	7.8	Improper Integrals (up to end of Example 8)
		8.1	Arc Length
10	Mar 22 – 26	8.2	Area of a Surface of Revolution
		11.1	Sequences
11	Mar 29 – April 2	11.2	Series
12	April 5 – 9	11.3 ⁽²⁾	The Integral Test and Estimates of Sums
		11.4	The Comparison Tests
13	April 12 – 16	11.5	Alternating Series
		11.6	Absolute Convergence and the Ratio and Root Tests
14	April 19 – 23	11.7	Strategy for Testing Series
		11.8	Power Series
15	April 26 – 30	11.9	Representation of Functions as Power Series
		11.10 ⁽³⁾	Taylor and Maclaurin Series

Notes:

(1) Students must know Formulas 5, 6, and 7 on page 381.

(2) The “Remainder Estimate for the Integral Test”. Example 5a and Example 6 are excluded.

(3) Students must know the Maclaurin Series listed in the table on page 768.

King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 - Term 192 – Revised Syllabus
Coordinator: Dr. Mohammad Z. Abu-Sbeih

Recitation and Suggested Homework Problems	Sec	Suggested Homework Problems	Recitation Problems	CAS*
	5.1	2, 7, 14, 21, 24		3, 23, 25
5.2	4, 6, 18, 22, 30, 33, 37, 47, 51, 58, 61, 63, 74		1, 9, 17, 23, 34, 40, 42, 48, 52, 57, 73	13, 31
5.3	2(a,b), 8, 16, 29, 43, 46, 56, 63, 70, 75, 83		13, 44, 48, 57, 74, 76	-
5.4	14, 18, 38, 46, 60		3, 13, 31, 40, 62	47
5.5	19, 23, 38, 39, 59, 62, 88, 91		28, 43, 69, 73, 87, 92	76
6.1	13, 17, 22, 23, 33		4, 12, 29, 35, 58(b)	30
6.2	4, 16, 17, 33, 42, 49, 54, 58		12, 34, 39, 56	37
6.3	4, 12, 19, 22, 38, 45		11, 16, 26, 37, 47	36
6.5	6, 9, 14		4, 13	12
7.1	8, 12, 18, 30, 39, 42, 54, 62, 66		11, 21, 22, 26, 33, 61	44
7.2	2, 10, 27, 41, 50, 58, 64		15, 26, 34, 43	51
7.3	8, 16, 21, 24, 28, 41		11, 27, 30, 34	36
7.4	6, 16, 20, 28, 36, 45, 49, 53, 62		15, 24, 30, 47, 61	55
7.5	6, 22, 23, 32, 52, 67, 73		39, 71, 80	-
7.8	8, 22, 27, 33, 40, 41, 57, 58		1, 2, 7, 30, 34	-
8.1	8, 14, 18, 41, 45		10, 12, 33	21
8.2	10, 11, 14, 15, 27		16, 33	24
11.1	14, 30, 42, 55, 59, 76		37, 44, 74	58
11.2	15, 20, 25, 30, 41, 44, 52, 62, 67		22, 35, 46, 59, 74	12
11.3	6, 10, 20, 30, 46		8, 12, 19, 32	-
11.4	4, 10, 24, 32		6, 13, 27, 45	-
11.5	6, 10, 12, 23, 34		5, 15, 24, 32	22
11.6	5, 11, 18, 21, 28, 32, 39		4, 13, 16, 23, 30, 37	-
11.7	5, 8, 17, 18, 20, 32, 38		14, 23, 24, 31	-
11.8	8, 17, 24, 28, 30		9, 20, 27, 29	-
11.9	4, 9, 14, 16, 28, 40(a,b)		8, 17, 32, 40(c)	-
11.10	12, 20, 33, 35, 41, 54, 63, 67, 73, 74		17, 32, 56, 59, 68	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 mathematical skills and Achieve Better grades:

1. First, Consult your instructor immediately whenever you need help.
2. Take notes during classes and study your notes and textbook on the same day.
3. Do each homework assignment immediately.
4. Master the examples and homework problems of each section plus the recitation problems.
5. Try solving the recitation problems before coming to class.
6. When practicing some problems, Time yourself to finish your solution before reading answers. That is, adapt yourself to the exam environment.
7. Solve some of the review problems at the end of each chapter.
8. Last and most important, Study in the Library.