King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
SYLLABUS
Semester I, 2005-2006(051)
(Instructor: Dr. M. T. Mustafa)

Course #: MATH 201
Title: Calculus III
Textbook: Calculus, Early Transcendentals by Anton, Bivens, and Davis, 7th edition (2002).
Objectives: Math 201 is a continuation of Math 101 (Calculus I) and Math 102 (Calculus II). These courses are designed as an introduction to the fundamental concepts of calculus and analytic geometry. The concepts studied in Math 201 include solid analytic geometry, vectors and surfaces, differentiation of functions of several variables and multiple integrals.

Week	Date	Sec. #	Description
1	Sep 10-14	11.1	Polar coordinates
		11.2	Tangent lines and arc length for parametric and polar curves
2	Sep 17-21	11.2	Continued
		11.3	Area in polar coordinates
3	Sep 25*-28	12.1	Rectangular coordinates in 3-space
		12.2	Vectors
4	Oct 01-05	12.3	Dot product; projections
		12.4	Cross product
5	Oct 08-12	12.5	Parametric equations of lines
		12.6	Planes in 3-space
			First Major Exam: Tue., Oct. 11, 2005
6	Oct 15-19	12.6	Continued
		12.7	Quadric surfaces
7	Oct 22-26	12.7	Continued
		12.8	Cylindrical and spherical coordinates
Oct. 27-Nov. 11:			**Eid al-Fitr Vacation**
8	Nov 12-16	14.1	Functions of two or more variables
		14.2	Limits and continuity
9	Nov 19-23	14.3	Partial derivatives
		14.4	Differentiability, local linearity, and differentials
10	Nov 26-30	14.5	The chain rule
		14.6	Directional derivatives and gradients
11	Dec 03-07	14.7	Tangent planes and normal vectors
		14.8	Maxima and minima of functions of two variables
12	Dec 10-14	14.8	Continued
		14.9	Lagrange multipliers
			Second Major Exam: Mon., Dec. 12, 2005
13	Dec 17-21	15.1	Double integrals
		15.2	Double integrals over nonrectangular regions
14	Dec 24-28	15.3	Double integrals in polar coordinates
		15.5	Triple integrals
15	Dec 31-Jan 04	15.5	Continued
		15.7	Triple integrals in cylindrical and spherical coordinates
Jan 05, 2006-Jan. 20, 2006			**Eid al-Adha Vacation**
16	Jan 21	15.7	Continued

- Matlab work will be assigned, where appropriate.
- KFUPM policy with respect to attendance will be enforced.
- Final Exam: Comprehensive.
- * September 24: National Holiday

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A Minimal Set of Homework Problems
MATH 201 (051)

Section	Homework
11.1	3c, 8b, 12c, 25, 34, 50, 59
11.2	5, 13, 24, 29, 36, 40, 52
11.3	4, 7, 14, 18, 22, 28
12.1	5, 10, 16, 19, 21b, 32, 39
12.2	3d, 5b, 8c, 10b, 12e, 15d, 18b, 22, 28, 36, 58
12.3	4, 11b, 16a, 22b, 34, 40, 42
12.4	4, 9, 12, 14, 18, 22, 27, 32, 39
12.5	6, 12, 14, 18, 24, 29, 34, 40, 46
12.6	9, 14c, 16b, 22, 24, 29, 32, 39, 44, 47
12.7	2d, 4d, 5c, 8b, 9f, 14, 20, 31, 35, 44
12.8	3c, 6b, 8d, 12c, 18, 28, 36, 41, 48
14.1	5, 10, 14, 18b, 22, 23c, 29, 43, 46, 50, 53c
14.2	4, 8b, 11, 17, 22, 27b, 30, 32, 35, 42
14.3	7, 12, 22, 24, 30, 34, 42, 51, 58, 62, 66, 84
14.4	9, 12, 16, 18, 29, 34, 40, 48, 50
14.5	10, 14, 18, 23, 27, 34, 39, 49c, 51b, 54, 61
14.6	8, 11, 20, 24, 27, 34, 39, 44, 46, 53, 58, 73
14.7	8, 12, 16c, 19, 24, 28, 30
14.8	2b, 15, 20, 24, 28, 34, 37, 43
14.9	7, 12, 16, 20, 23, 28, 30
15.1	12, 15, 22, 24, 28, 34
15.2	7, 12a, 14, 18, 21, 26, 29, 33, 45, 50, 52
15.3	9, 15, 20, 24, 27, 33, 35, 40
15.5	6, 8, 12, 16, 21, 23c, 31b, 35b
15.7	8, 12, 16, 19, 31