

King Fahd University of Petroleum and Minerals
 Department of Mathematical Sciences
SYLLABUS
 Semester II, 2003-2004(032)
 (Prepared by: Abdul Rahim Khan)

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 | Feb 14-18 | 11.1 11.2 | Polar coordinates Tangent lines and arc length for parametric and polar curves |
| 2 | Feb 21-25 | 11.2 11.3 | Continued Area in polar coordinates |
| 3 | Feb 28-Mar 03 | 12.1 12.2 | Rectangular coordinates in 3-space Vectors |
| 4 | Mar 06-10 | 12.3 12.4 | Dot product; projections Cross product |
| 5 | Mar 13-17 | 12.5 12.6 | Parametric equations of lines Planes in 3-space First Major Exam: Saturday, March 13, 2004 |
| 6 | Mar 20-24 | 12.6 12.7 | Continued Quadric surfaces |
| 7 | Mar 27-31 | 12.7 12.8 | Continued Cylindrical and spherical coordinates |
| 8 | Apr 03-07 | 14.1 14.2 | Functions of two or more variables Limits and continuity |
| 9 | Apr 10-14 | 14.3 14.4 | Partial derivatives Differentiability, local linearity, and differentials |
| 10 | Apr 17-21 | 14.5 14.6 | The chain rule Directional derivatives and gradients Second Major Exam: Wednesday., Apr. 21, 2004 |
| 11 | Apr 24-28 | 14.7 14.8 | Tangent planes and normal vectors Maxima and minima of functions of two variables |
| 12 | May 01-05 | 14.8 14.9 | Continued Lagrange multipliers |
| 13 | May 08-12 | 15.1 15.2 | Double integrals Double integrals over nonrectangular regions |
| 14 | May 15-19 | 15.3 15.5 | Double integrals in polar coordinates Triple integrals |
| 15 | May 22-26 | 15.7 | Triple integrals in cylindrical and spherical coordinates Review and catching up |

- KFUPM policy with respect to attendance will be enforced.

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A Minimal Set of Homework Problems
MATH 201

| Section | Homework |
|----------------|--------------------------------------|
| 11.1 | 2c, 7c, 18a, 26, 33, 49, 58 |
| 11.2 | 8, 11, 18, 24, 37, 46, 52 |
| 11.3 | 3, 8, 12, 21, 29 |
| 12.1 | 3, 9b, 17, 22a, 28, 40 |
| 12.2 | 3d, 6b, 11f, 17c, 22, 34, 53 |
| 12.3 | 4, 12, 17, 26, 35, 42, 45 |
| 12.4 | 6, 13, 15, 19, 25, 28, 35, 41 |
| 12.5 | 10, 14, 20, 28, 36, 43, 48 |
| 12.6 | 5, 9, 14b, 16a, 24, 33, 44, 49 |
| 12.7 | 3f, 5e, 7b, 17, 28, 36, 45 |
| 12.8 | 4d, 9b, 17, 26, 30, 41, 48 |
| 14.1 | 5, 10, 14, 18b, 22, 23c, 29, 43, 53c |
| 14.2 | 3, 9, 18, 28, 34, 44 |
| 14.3 | 6b, 16, 28f, 37a, 51, 62, 86 |
| 14.4 | 7, 16, 35, 45, 52 |
| 14.5 | 7, 17, 27, 34, 47, 56, 61 |
| 14.6 | 10, 17, 25, 38, 53, 61, 72 |
| 14.7 | 6, 10, 14, 20, 27, 30 |
| 14.8 | 4, 14, 23a, 27, 35, 41 |
| 14.9 | 3, 11, 15, 18, 22, 27, 28 |
| 15.1 | 11, 13, 15, 20, 25, 29, 32 |
| 15.2 | 12a, 18, 26, 33, 44, 51, 55 |
| 15.3 | 4, 16, 22, 28, 31, 33, 35 |
| 15.5 | 6, 12, 17, 22, 30, 34 |
| 15.7 | 5, 12, 16, 21, 26, 31 |