MA 1004: CALCULUS II, Spring 2006

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Prerequisites: MA1003 - Calculus I

Textbook: R. Larson and B. H. Edwards, *Calculus: An Applied Approach, Seventh Edition,* by Houghton Mifflin Company, 2005 (臺灣代理商：歐亞書局有限公司，請洽 02-89121188).

Course Objective: Its primary goal is to teach you the techniques of differential and integral calculus that you are likely to encounter in undergraduate courses in your major and in your subsequent professional activities. The emphasis is on four basic ideas: limit, derivative, integral, and series.

General Information: The course will mainly cover the following topics

Chapter 5 - Integration and Its Applications: antiderivatives and indefinite integrals, power rule, exponential and logarithmic integrals, the Fundamental Theorem of Calculus, area, definite integrals, volume

Chapter 6 - Techniques of Integration: integration by substitution, integration by parts, partial fractions, numerical integration, improper integrals

Chapter 7 - Function of Several Variables: 3-D coordinate system, surfaces in space, functions of several variables, partial derivatives, extrema of functions, Lagrange multipliers, least squares regression analysis, double integrals, applications

Chapter 8 - Trigonometric Functions: radian measure of angles, trigonometric functions, graphs, derivatives, and integrals of trigonometric functions, L'Hopital's rule

Chapter 10 - Series and Taylor Polynomials: sequences, series, p-series, ratio test, power series, Taylor's theorem, Taylor polynomials, Newton's method

Grading Policy: mid-terms 1, 2 and final exam: each 25%; others (quizzes, attendance, etc.) 25%

Examinations:

Mid-term 1: 03:00 ~ 04:50 p.m., **March 28**, 2006 (Tuesday)
Mid-term 2: 03:00 ~ 04:50 p.m., **May 09**, 2006 (Tuesday)
Final Exam: 03:00 ~ 04:50 p.m., **June 20**, 2006 (Tuesday)

Exercises:

Chapter 5:

5.1: #33, 35, 37, 39, 41, 53, 55, 65, 69, 79
5.2: #11, 17, 21, 25, 27, 37, 39, 41, 47, 53
5.3: #5, 9, 21, 23, 25, 41, 49, 51, 53, 55
5.4: #27, 33, 37, 39, 43, 45, 73, 75, 77, 79, 89, 91
5.5: Example 6, #19, 21, 23, 25, 27, 29, 43, 45, 49, 56, 57
5.6: #9, 11, 21, 23
5.7: Example 3, #10, 11, 16, 17, 19, 27, 31

Chapter 6:

6.1: #7, 11, 15, 17, 33, 35, 37, 43, 45, 51, 53, 63
6.2: #3, 11, 15, 19, 21, 27, 31, 41, 43, 44, 49, 51, 69
6.3: #17, 21, 25, 31, 37, 39, 55, 57
6.4: Example 4, Example 5, Example 6
6.5: #15, 17, 19, 33, 37
6.6: #7, 11, 13, 17, 19, 25, 27, 35, 37

Chapter 7:

7.1: none
7.2: none
7.3: none
7.4: #7, 11, 13, 25, 27, 31, 33, 35, 47, 59, 61, 65, 69, 71
7.5: #3, 9, 11, 13, 27, 29, 35, 37, 41, 48, 49, 50, 51
7.6: Example 5, #9, 11, 15, 17, 21, 23, 33, 41
7.7: #5, 7, 19
7.8: #17, 19, 21, 23, 29, 31, 33, 34, 43, 45
7.9: #3, 5, 7, 9, 11, 13, 27, 29, 31, 37

Chapter 8:

8.1: none
8.2: Example 6, Example 7
8.3: #80, 81, 82, 83
8.4: #9, 19, 23, 25, 31, 33, 37, 39, 43, 45, 47, 59, 61, 63
8.5: #15, 23, 25, 29, 31, 35, 37, 43, 45, 64
8.6: #17, 21, 27, 35, 39, 43, 47, 49, 51, 53, 55, 65, 67, 76, 78, 79, 80, 81

Chapter 10:

10.1: #13, 15, 17, 19
10.2: #7, 9, 11, 13, 15, 23, 27, 29, 31, 33, 39, 50, 67, 68
10.3: #11, 15, 17, 21, 25, 27, 29, 41, 43, 45, 47, 51
10.4: #5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 27, 31, 33, 35, 37, 39, 45, 47, 49
10.5: #17, 19, 21, 23
10.6: none