King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
SYLLABUS & Policies
Semester II, 2004-2005 (042)

Course #: Math 102
Title: Calculus II
Textbook: Calculus (Early Transcendentals) by H. Anton, I. Bivens and S. Davis, 7th edition, 2002.

Course Description: Definite and indefinite integrals. Fundamental Theorem of Calculus. Techniques of Integration. Hyperbolic functions. Applications of integration. Improper integrals. Sequences and series: convergence tests. Alternating series. Absolute and conditional convergence. Power series. Taylor and Maclaurine series.

Week	Date	Sec. #	Topics
1	Feb. 12-16	6.1	An Overview of the Area Problem
		6.2	The Indefinite integral: Integral Curves
2	Feb. 19-23	6.3	Integration by Substitution
		6.4	Sigma Notation: Area as a Limit
3	Feb. 26-March 2	6.5	The Definite Integral
		6.6	The Fundamental Theorem of Calculus
4	March 5-9	6.8	Evaluating Definite Integrals by Substitution
		6.9	Logarithmic Functions from the integral Point of View
		8.8	Improper integrals of the form $\int_{1}^{\infty} f(x)dx$
Note: Chapters 7 & 8 will be covered after the presentation of Chapter 10				
5	March 12-16	10.1	Maclaurine and Taylor Polynomial Approx. (till p. 644)
		10.2	Sequences
		10.3	Monotone Sequences
6	March 19-23	10.3	Monotone Sequences (Continued)
		10.4	Infinite Series
		10.5	Convergence Tests
7	March 26-30	10.5	Convergence Tests (Continued)
		10.6	The Comparison, Ratio and Root Tests
		10.7	Alternating Series Test; Conditional Convergence
Midterm Exam: April 3 (Sunday) 6:30-8:30 pm [Building 10]				
8	April 2-6	10.7	Alternating Series; Conditional Convergence (Continued)
		10.8	Maclaurin and Taylor Series; Power Series
		10.10	Differentiating and Integrating Power Series
MIDTERM BREAK: Thursday, April 7—Friday, April 15, 2005				
9	April 16-20	7.1	Area Between Two Curves
		7.2	Volumes by Slicing: Disks and Washers
10	April 23-27	7.3	Volumes by Cylindrical Shells
		7.4	Length of a Plane Curve
11	April 30- May 4	7.5	Area of a Surface of Revolution
		7.8	Hyperbolic Functions and Hanging Cables(pp. 509-513 only)
12	May 7-11	8.2	Integration by Parts (Please go over sec. 8.1 before starting 8.2)
		8.3	Trigonometric Integrals
13	May 14-18	8.4	Trigonometric Substitutions
		8.5	Integrating Rational Functions by Partial Fractions
14	May 21-25	8.6	Special Substitutions (pp. 558-560 only)
		8.8	Improper Integrals
15	May 28-June 1	-	Review and/or catching up

The students are advised to go through the following Text Exercises and consult the Instructor incase of any difficulty in solving any exercise.

Sec. #	Suggested Practice Problems
6.1	2,3,10,14, 8,13
6.2	1(a),12,23,30,32,41(c),46,55(a), 2(a),15,27,33,48,55(b)
6.3	2(a),6(a),8,19,28,38,48,50,53(c),57,62, 6(d),16,26,46,54(b),55,67
6.4	1(e),2(c),5,10(a),19,25,28(a),41,49, 6,10(b),14,24,43,60
6.5	1,6,9(b),11(a),13(d),19,22(a),23, 8,14(d),20,22(b),26
6.6	5,18,29(a),31(a),39,50,54,59(a),61, 8,24,30(b),40,55,60(b)
6.8	4,17,20,23,32,37,45,55(c),70(a), 18,21,26,30,42,50,55(a),69
6.9	1(c),3(a,c),16(b),17,21(a),25,34,43, 3(b,d),22,27,30
10.1	3,7,14,22,23,25,34, 11,18,21,26,35
10.2	2,6,10,11,20,21,26,30,31,37,40, 8,12,16,22,36,43
10.3	5,10,15,23,27, 11,17,22,28,30
10.4	1,3,10,13,17,23(a),24(b),25(c),27,30, 2(a),9,14,20,25(a),33
10.5	1,4(a,d),7(b),12,16,25,29(a,c), 2(b),5(d),21,29(b)
10.6	3(a),4(a),9,11,19,32,38,43, 2,8,28,44,51
10.7	1,6,9,14,22,26,33,37,46, 12,20,30,32,36
10.8	2,5,12,15,21,24,29,35,44,50, 10,16,23,38,47
10.10	1(c,d),6(d),7(a),9(a),14(a),25,27(a),33(a),34(a), 2(a),5(d),11,15(b),26,33(b),34(b)
7.1	3,6,9,14,15,32,33,44, 4,8,18,31
7.2	3,11,15,24,25,28,31,39(a), 8,20,30,33,39(b)
7.3	4,12,16,21,27, 10,20,26
7.4	4,6,9,12, 8,13
7.5	2,8,24, 18,23
7.8	3(b,d),4(a,c),12,15,33,37,51,64(b),67, 3(a,c),17,36,56(f),63(c)
8.2	2,7,14,18,23,27,37,41(a),46,54(a), 12,20,28,38,41(b),47,57(b)
8.3	8,11,21,30,41,51,55, 15,32,44,50,64
8.4	3,8,20,24,29,38,41, 4,25,31,45
8.5	2,8,9,14,16,25,30,33, 7,13,32,36
8.6	56,59,66,69,72, 58,71
8.8	1(b,c),2(a,b),4,12,17,26,29,31,41,44,62, 2(c),5,30,33,49

Evaluation Policy

a. <u>Homework</u>, <u>Attendance & Quizzes (Weekly)</u>: 25%
b. <u>Midterm Exam</u>: 25%
c. <u>Recitation class</u> (Pop Quizzes, Quizzes on Mathematica, Presentation by Students): 15%.
d. <u>Final Exam</u>: 35%

Midterm Exam
Sunday, April 3, 2005, 6:30 pm (Building 10)

There will be no "make–ups" for exams or quizzes *unless a valid excuse is presented <u>in advance.</u>, A missed exam or quiz will receive the score 0.* Students must look at this syllabus carefully and ***<u>plan well ahead</u>***.

Homework: Weekly Homework problems will be displayed on instructors website every Tuesday-Wednesday. Students must do the homework according to the instructions. Homework should be submitted every Monday in the class.

You are encouraged to visit my office hours or make an appointment to discuss any difficulties related to the course, including the homework problems.

Remember:

"**The best way to learn Mathematics is to do Mathematics."**

Attendance: KFUPM policy with regard to attendance (**lectures and recitations**) will be enforced. Students are expected to attend all class meetings and are responsible for all of the material covered.

Changes: Any changes in the syllabus or in the scheduling of exams, quizzes, etc. will be announced during class meetings. Students who miss a class meeting should consult a classmate and also copy his notes for that meeting.

Website
http://faculty.kfupm.edu.sa/math/msamman

The students are advised to visit the website on a regular basis **and follow the announcement related to the course (e.g. syllabus, home work, quizzes, exams, handout, coverage of material, problem Solving Classes, etc.). Please be reminded that <u>no excuse will be accepted for missing any information displayed on the website</u>.**