Mathematics 1210-02 Fall 2007

Class Time and Place: M, T, W, F 9:40 – 10:30 JWB 335

Class website http://www.math.utah.edu/~korevaar/1210fall07

Instructor:	Professor Nick Korevaar	581-7318
	LCB 204	korevaar@math.utah.edu

- **Office Hours**: M, W 2:20-3:00 T 10:40-11:30 Th 9:40-10:30, and by appointment
- **Texts:** <u>Calculus</u>, by Varberg, Purcell and Rigdon, Prentice-Hall, 9th edition. ISBN=0-13-230633-6 <u>Introduction to Polynomial Calculus</u> (referred to as Chapter P). Print this document from the class website
- **Course Description:** Mathematics 1210 is an introduction to differential and integral calculus. Limits, derivatives and integrals will be developed as tools to analyze the properties of functions. Application include motion and rates of change, optimization and approximation methods, differential equations and the calculation of areas, volumes and lengths.

Tutoring Lab: T. Benny Rushing Mathematics Student Center (in the basement between JWB and LCB),
M - Th 8 a.m. - 8 p.m. F 8 a.m. - 6 p.m.The Lab also offers group tutoring sessions. If you're interested, inquire at the Lab.

- Private Tutoring: University Tutoring Services, 330 SSB (low cost) <u>http://www.sa.utah.edu/tutoring/</u> There is also a list of tutors at the Math Department office, JWB 233
- Teaching Assistant: Jianyu Wang, JWB 115, wang@math.utah.edu
- Grading: The grades will be calculated as follows: WeBWork 20% Quizzes. 10%

Each midterm, 20%

Final Exam, 30%

- Weekly Homework: The assignments from the book will not be turned in, but you are responsible for knowing how to do the problems. Similar problems will appear on the quizzes and exams, and on your weekly WeBWorK assignments – all of which will be for credit. You will receive further instructions in class on WeBWorK. One approach is to work on representative book problems Monday through Thursday, then do the WeBWorK assignment over the weekend.
- Quizzes: There will be quizzes on almost all Fridays which are not exam days. You are allowed to drop two quizzes, thus **no makeup quizzes**.
- Midterms: There will be three midterms. One will be dropped, but you are encouraged to take all three. Because one is dropped, there will be **no makeup exams**.
- Final: The final will be comprehensive and given <u>only</u> on the date listed, in our classroom JWB 335.
- **Calculators:** You are encouraged to use calculators and computer software for visualization, and as computational aids on homework, but not as a substitute for learning mathematical concepts. Quizzes and exams are calculator-free.

DATES:	
Labor Day Holiday	Mon 9/3
Last day to drop	Wed 8/29
Fall break	Oct 8-12
Last day to withdraw	Fri 10/19
Thanksgiving break	Nov 22-23
Class ends	Fri 12/7

EXAMS			
Midterm 1	Fri Sept 14		
Midterm 2	Fri Oct 19		
Midterm 3	Fri Nov 16		
Final	Tues Dec 11, 8-10 am		

Problems assigned from the book. Chapter P is the Polynomial Calculus Notes (Download it.)

- We will cover approximately 3 sections per week.
 You will receive an email each Wednesday to let you know what sections will be on the Friday quiz.

Week	Topic (approximately by week)	Section	Problems
Aug 20-24	Slope of a line	P.1	1,2,4,5,7,9,11,13,15,17,20,21,23
C	Slope of a curve	P.2	1,2,3,4,7,9,10,11,12,13
	Derivative of polynomial	P.3	1,2,3,4,6,7,9,11,12,13,14
Aug 27-31	Antiderivatives	P.4	1,2,3,4,5,7,8,9,10
	Definite Integrals	P.5	1.2.3.4.5.6.7
	Graphs of equations	0.4	1.2.7.9.15.16.19.31.35.39
	Functions and their graphs	0.5	1,3,13,15,19,21,25,27,29,40
Sep 4-7	Operations on functions	0.6	1,5,13,15,17,19,23,37
, T	Trig functions	0.7	1.2.9.13.15.17.21.25.43.45
	Limits re-introduction	1.1	1-19 odd, 29,31
	Limits rigorously	1.2	1-15 odd, 23,27
Sept 11-14	Limit theorems	1.3	1-23 odd
~	Limits with trig functions	1.4	1-15 odd
	Continuity	1.6	1-23 odd, 49, 51
	Exam 1		
Sept 17-21	Derivative reintroduction	2.1	1,2,7,9,13,15,17,21,23,25,27
	Derivative rigorously	2.2	7.11.13.17.19.21.27.37.41.43
	Rules for derivatives	2.3	1-39 odd, 49,51,55,57,59
	Derivatives of Trig Functions	2.4	1-17 odd,18, 23
Sept 24-28	Chain rule	2.5	1-47 odd
1	Higher order derivatives	2.6	1,5,9,11,21,23,25,31,33,39,41
	Implicit derivatives	2.7	1,3,5,9,13,15,21,27,33,41,47
Oct 1-5	Related rates	2.8	1,7,9,11,17,27
	Differentials and approximation	2.9	1,3,5,10,11,17,19,21,24
	Maxima and minima	3.1	1,5,8,11,19,21,27,29
	Monotonicity and concavity	3.2	3,5,9,13,15,21,31,49,51
Oct 15-19	Local extrema, open intervals	3.3	3-29 odd
	Practical Max/min problems	3.4	3,7,13,15,17,23,27,33
	Exam 2		
Oct 22-26	More limits	1.5	1-43 odd, 49
	Graphing with Calculus	3.5	7,9,17,31,33,43(calculator),53
	Mean Value Theorem	3.6	1,3,7,9,11,15,19,23,51
	Solving equations numerically	3.7	1,5,9,11,35
Oct 29-	Antiderivatives	3.8	5-37 odd
Nov 2	Differential Equations	3.9	1,3,5,7,11,17,21,23,25,28,29,35,36
	Introduction to area	4.1	1-15 odd, 21-29 odd, 54, 55
	Definite integral	4.2	1,3,7,9,11,13,17,19,21,24
Nov 5-9	FTC I	4.3	5-23 odd
	FTC II	4.4	3-23 odd, 35-47 odd, 63
	MVT for integrals	4.5	1,3, 15-27 odd, 35-43 odd
Nov 12-16	Area of plane regions	5.1	5-21 odd
	Volumes by planar slabs	5.2	1-21 odd
	Exam 3		
Nov 19-21	Volumes by cylindrical shells	5.3	1-21 odd
	Length of plane curves	5.4	7-11 odd, 21-31 odd
Nov 26-30	Work and fluid force	5.5	1-29 odd
	Moments and centers of mass	5.6	1-29 odd
Dec 3-7	Probability and random variables	5.7	1-27 odd