

MTH U131 (Calculus for Business and Economics) Fall 2007

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Office Hours: M, W, Th 3:00 – 4:00

Lectures: M, W, Th 1:35 – 2:40

Materials: *Calculus Concepts (Brief Third Edition): An Informal Approach to the Mathematics of Change* by LaTorre, Kenelly, Fetta, Harris, Carpenter, Houghton Mifflin, Boston, 2007;
The **TI-83 (TI-83 Plus)** or **TI-84 (TI-84 Plus)** calculator is required. **NO OTHER CALCULATOR MAY BE USED ON TESTS OR THE PROJECT WITHOUT THE EXPLICIT PERMISSION OF YOUR INSTRUCTOR.** A class packet (for Fall 2007) must also be purchased from NU Reprographics (x2766). **Please bring your textbook, packet and calculator to each class.**

NOTE: Web HW assignments will be found on HYPERLINK "http://www.eduspace.com" www.eduspace.com. In order to register for this you will need an INDIVIDUAL eduspace code, packaged with a NEW copy of the textbook, or else purchased separately with a used text.

Eduspace Course Code: MARKR-E9A530045801D7

Course Content

This course introduces students to the use of derivatives and integrals in solving problems in business and economics, e.g., maximizing profit, calculating average investment income and consumers' surplus. (A more detailed syllabus is given below.) **A project involving optimization is also required.** This project is described in the class packet. The graphing calculator is **used extensively** and prior familiarity with graphing calculators is helpful. Prerequisites: MTH U130 or the equivalent. Note that MTH U131 may be used to satisfy the mathematics proficiency requirement of the College of Arts and Sciences.

Assignments

A list of homework exercises from the textbook and class packet is attached. (This list is subject to revision.). Homework exercises should be done by the next class after they are assigned. Homework exercises from the textbook **may** occasionally be collected and graded. Even if they are not collected, you are responsible for knowing the solutions of **all** homework exercises. There is also a set of web homework exercises posted on the eduspace web site for this section. The entire set of web homework exercises will count as one quiz. Due dates for the web exercises will be announced in class. The questions on

exams and quizzes will be based on homework exercises from the textbook, packet and the web, **quiz and test review exercises in the packet** and the material in my lectures.

Attendance

You are expected in class each day. If for some reason, you are unable to come to a class, then (if possible) please call or send an e-mail to let me know. Three or more unexplained absences will lower your final grade.

Exams

There will be 8 quizzes (20-30 minutes each), 1 hour test (the midterm), and a final exam. Eduspace assignments count as another quiz. Only the best 6 quiz grades **including** the web homework grade will be counted. Therefore there will be NO makeups for quizzes. If you miss the midterm exam I require a note from a health care professional or university official (e.g., a coach) explaining the absence. The final exam will count 40% of your course grade. **All students without legitimate conflicts approved by the instructor will take the final exam at the scheduled time:** Thursday, December 13 at 10:30am. The final exam is cumulative and is common for all sections of MTH U131. **Do not make travel plans that conflict with the final exam.**

Grading

Your final grade will be determined by the following quantities: quiz grades (30%); midterm grade (15%); project grade (15%); and final exam score (40%).

The last day to drop a course without receiving a 'W' grade is 9/21. The last date to drop a class with a 'W' is 11/16. As a matter of Math Department policy: The **I grade** (incomplete) will be given only rarely. It is intended to cover real emergency situations in which a student who is doing reasonably well (C⁻ or better) is unable, *due to circumstances beyond the student's control*, to complete all course requirements (e.g., is unable to take the final exam due to hospitalization). An **I** may not be used to rescue a failing grade, or to postpone the final.

If you want to see me, but cannot do so during my office hours, then please see me before or after any class to set up a convenient time. Also, please take advantage of the office hours of the other instructors in the course when they are more convenient.

Academic Honesty

Cheating will not be tolerated. All incidents of cheating will be reported to the Office of Judicial Affairs. The University's cheating policy and related disciplinary actions are detailed in the Student Handbook.

Tutoring: There is a free math tutoring center located in the math department on the 5th floor of Nightingale Hall (540B NI). Hours of operation for the fall will be announced. All tutoring is done on a first come first served basis. Students must come in person to schedule appointments. No appointments can be made by phone.

Resolving disputes and complaints: If you are not satisfied with my responses to your serious concerns (including your final course grade), please consult Prof. D. King, the course coordinator, 447 LA, x5679, e-mail: d.king@neu.edu.

Note that the syllabus below is tentative. The instructor reserves the right to make changes if necessary. It is the responsibility of each student to stay abreast of what happens in the classroom, changes in the assigned exercises and changes in the dates of quizzes or exams.

MTH U131	Schedule	Fall 2007
9/5: 3.1: average rate of change	HW:13a-c,17, 26a. Read project description in packet	
9/6: 3.1 QUIZ 1 Review probs 1,2 Using the TI-83/84	HW: 12, 13d,14; packet Model Read packet pages 33-34	
9/10: 3.2; 3.3: derivatives 2,5,13	HW: 3.2: 7a,8, 9a,10, 17, 21, 22; 3.3: 3.4:1a	
9/12: 4.1: slope graphs; 4.2: Deriv. Rules	HW: packet Algebra Review Probs.1-5	
9/13: QUIZ 2 ; 4.3: More Deriv.Rules	HW: 4.2: 1-6(slope equations only), 7-14 4.3: 1-6(slope equations only), 7-14	
9/17: 4.2; 4.3		
9/19: 4.4: chain rule PROJECT PART A DUE	HW 4.4: 9, 10, 14	
9/20: QUIZ 3	HW: 4.4: 17-26	
(9/21: Last day to drop a course without receiving a "W" grade)		
9/24: 4.4: chain rule	HW: 27-37	
9/26: 4.5: product rule	HW: 10-26	
9/27: 4.2 ,4.3 (word problems)	HW: 4.2: 21ab, 24, 25abcd, 26;	

Using nDeriv on the TI-83 Review Probs: 1,2	packet Compound Interest
10/1: 4.4 (word problems)	HW: 4.3:16abc, 22, 23abc
10/3: QUIZ 4 ; 4.4 (word problems) change),42ab,44, 45a	HW: 41(ignore per cent rate of
10/4: 4.5 (word problems) PROJECT PART B DUE	HW: 4, 28,30abcde
10/8: Columbus Day – No Classes	
10/10: 5.1: Approximating change 20ab,25acde $f(x+h)-f(x) \approx f'(x)h$ Marginal Revenue, Marginal Cost, Marginal Profit	HW: 3,5,6, 17abc, 18abc, 19abc, packet Algebra Review probs 6-12
10/11: 5.2: Optimization 1-10 Notes on Optimization (class packet) Second derivative and concavity	HW: packet Optimization problems
10/15: 5.2: Optimization using the calculator	HW: 17a, 24, 29 HW: 25 (like project optimization)
10/17: Midterm Review	
10/18: MIDTERM	
10/22: 5.3: Inflection Points; Point of diminishing returns PROJECT PART C DUE	HW: 2, 29 HW: packet Optimization problems 11-14

MTH U131

Schedule

Fall 2007

10/24: Finding inf. pts rate of change), 20 with theTI-83/84 Anti-derivatives	HW: 5.3: 7, 9, 14 (ignore per cent Read pages 41-42 in packet
10/25: QUIZ 5 problems 1-5 Project group meetings on parts C and D (Bring projects to class)	HW: packet Anti-derivative

Anti-derivatives

10/29: 6.4: The general anti-derivative HW: 6.4: 9-14
probs 6-11 HW: packet Additional Anti-derivative
HW: 6.4: 15, 17

10/31: 6.4: Finding a specific anti-derivative HW: 6.4: 19-21
PROJECT PART D DUE

11/1: 6.4: Word problems HW: 26,27,33

11/5: 6.1: Accumulated change HW: 6.1: 8ac, 13a, 18ab
Area approximation by rectangles

11/7: **PROJECT PART E DUE**
6.2: The definite integral HW: 1, 4
(see p390 and p393) HW: 6.4: 1-4

11/8: **QUIZ 6**
Fundamental Theorem of Calculus (see p429) HW: packet Additional Definite
integral problems 1-8

11/12: Veteran's Day – No classes

11/14: **PROJECT PRESENTATION**

11/15: **PROJECT PRESENTATION**
6.5: Evaluating def. integrals using FTC HW: 8c,9c,10,11c

(11/16: Last day to drop a course with a “W” grade.)

11/19: **QUIZ 7**
6.5: Setting up, interpreting def. ints HW: 13,15,21,23, 28a
Using fnInt on the TI-83

11/21, 11/22: Thanksgiving – No classes

11/26: 6.6: Average value of a function HW: 6.6: 2,5,10
Average value of the rate of change p467: 6
Consumers' Surplus (see packet notes) HW: 7.3: 4abc

11/28: Consumers' surplus HW: 7.3: 8cd(use $p_1=\$555$); 9cd(use
 $p_1=\$4000$)
Consumers' Surplus (For meaning of p_1 see packet notes on

11/29 **QUIZ 8**

12/3 Review for final exam
Student evaluations

12/5 Review for Final Exam

12/6 Reading Day

12/13 Final Exam 10:30am