

## Syllabus, MTH U130 (Math for Business and Economics)

Fall 2009

**Materials:** 1. Calculus Concepts, Brief Edition: An Informal Approach to the Mathematics of Change by LaTorre, Kenelly, Fetta, Harris, Carpenter, Houghton Mifflin, Boston, 2002; and 2. a TI-83 or TI-83 Plus calculator, which should be brought to each class: and 3. many documents (supplementary problems, quiz and test review questions, etc.) that are posted on Blackboard.

**Course Content:** An introduction to some of the important mathematical concepts and tools (e.g., modeling, exponential and logistic functions) used to solve problems in business and economics. MTH U130 is a prerequisite for MTH U131 (Calculus for Business and Economics). Note that MTH U130 may not be used to satisfy the mathematics proficiency requirement of the College of Arts and Sciences.

**Problem Sets:** The course is organized around a series of problem sets, which are detailed later on in this document. I will keep you informed of when each problem set should be completed. The problem sets include problems from the textbook, from the document “Supplementary Problems”, and review quizzes from the document “Review Quizzes”. After the discussion of a review quiz is completed in class, a corresponding quiz will be given in the following class. A midterm review (the document “Midterm Review”) will also be assigned as a problem set. After it is discussed, a midterm will follow.

**Examinations:** There will be a quiz (approximately 35 minutes) every week or two and a full period midterm. The final exam is a two hour examination. All students (without legitimate conflicts) will take the final exam at the scheduled time. The final exam is cumulative and is common for all sections of MTH U130. *Do not make travel plans which conflict with the final exam.*

**Project:** A project involving mathematical modeling is required. Instructions for this project can be found on the class website.

**Grading:** Your final course average is computed by adding the following quantities: 15% of the project grade, 30% of the weekly quiz average, 15% of the hour exam grade; and 40% of the final exam grade. It is the Mathematics Department policy that an I (Incomplete) grade is rarely given. It is intended to cover real emergency situations in which a student is doing satisfactory work (at least C minus) but 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 grade may not be used to rescue a failing grade, or to postpone the final.

**Problems with your instructor:** From time to time, students feel like they are not being treated fairly. Please do not hesitate to let me know about your problems and concerns. If there is a conflict which we cannot resolve and you want to pursue the issue, you can contact the Undergraduate Director of Mathematics, Professor Alex Martsinkovsky ([a.martsinkovsky@neu.edu](mailto:a.martsinkovsky@neu.edu)).

## Homework and Test Schedule

Quiz 1	models, functions, and graphs; straight lines; linear functions	1. Sec. 1.1: 13, 19, 21–26 2. Supplementary 1–12; Quiz Review.
Quiz 2	graphing*; 2nd-Calc/Intersect*; Statplot*; linear models; linear regression*; exponential models; exponential functions; exponential regression*	1. Sec. 1.1: 27–34, 43–45 Sec. 1.2: 17, 18, 20 2. Sec. 1.2: 21, 22, 25, 27–29 3. Supplementary 13–17; Quiz 2 Review
Quiz 3	percentage growth rate; compound interest; logarithmic functions; solving exponential equations	1. Sec. 1.3: 13, 16, 19–21, 29 2. Supplementary 18–20 3. Supplementary 21–30; Quiz 3 Review
Quiz 4	polynomial equations; factoring quadratic equations; logistic functions; selecting a model	1. Sec. 1.5: 13, 14, 16, 18, 22, 23, 26; Supplementary 36–40 2. Supplementary 31–35; Chapter 1 Review (pp. 87–89) 1–6, 13, 14 3. Quiz 4 Review
Midterm		1. Midterm Review
Quiz 5	supply and demand; logistic regression*; equilibrium prices	1. Sec. 6.3: 9, 10; Supplementary 52, 55, 56 2. Sec. 6.3: 18, 20, 22, 23; Quiz 5 Review
Quiz 6	cost, revenue, and profit	1. Supplementary 41, 42, 44 2. Supplementary 45–51, Quiz 6 Review
Quiz 7	time value of money; TVM Solver*	1. Supplementary 58–63 2. Supplementary 64–72 3. Supplementary 73–75; Quiz 7 Review
Quiz 8	average rates of change; instantaneous rates of change; derivatives	problems to be determined
Quiz 9	some algebra skills needed in MTH U131	problems to be determined

Topics marked \* are calculator skills.

**Note:** The problems relating to each quiz are divided into 2 or 3 problem sets. If, for example, your instructor says to do the second quiz 2 problem set, you should do problems 21, 22, 25, 27, 28, and 29 at the end of Section 2 in Chapter 1.

**Project** due dates: Part J on Oct. 6; Part K on Oct. 27; and Part L on Nov. 17.