

## MTH U130 (Math for Business and Economics)

Fall 2005

**Instructor:** John Frampton

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**Materials:** 1. Calculus Concepts (Brief Third Edition): An Informal Approach to the Mathematics of Change by LaTorre, Kenelly, Fetta, Harris, Carpenter, Houghton Mifflin, Boston, 2002; 2. a TI-83 or TI-83 Plus calculator, which should be brought to each class; and 3. a class packet, which can be purchased from NU Reprographics (x2766).

**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 on a separate handout. I will keep you informed of when each problem set should be completed. The problems come both from the textbook and the class packet. The class packet contains 8 review quizzes, which will be assigned as problem sets, or parts of problem sets. After a review quiz is discussed in class, a corresponding quiz will be given in the following class. A 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. This project is described in detail in the class packet.

**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 reasonably well (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 teacher:** 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 consider the problem serious, you can contact the Vice-Chair of the Mathematics Department, Professor Donald King: 447 Lake, 373-5679, [donking@neu.edu](mailto:donking@neu.edu).

**Office hours:** Monday 1–2pm, Wednesday 12:15pm to 1:30pm, and by appointment. If you want to see me, but cannot do so during my office hours, then please see me before or after class or contact me via email to try to arrange an appointment.

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## Homework and Test Schedule

Quiz 1	models, functions, and graphs; straight lines; linear functions	1. Sec. 1.1: 13, 17, 19, 22, 24, 27–30 2. Extra 1–12, Quiz 1 Review.
Quiz 2	graphing*; 2nd-Calc/Intersect*; Statplot*; linear models; linear regression*; exponential models; exponential functions; exponential regression*	1. Sec. 1.1: 31–38; Sec. 1.2: 3, 6, 33a–b; Sec. 1.4: 8, 10, 11 2. Sec. 1.4: 12, 21, 23a–f, 24–26 3. Extra 13–17; Quiz 2 Review
Quiz 3	percentage growth rate; compound interest; logarithmic functions; solving exponential equations	1. Sec. 2.1: 9, 12, 16, 18, 19, 20 2. Extra 18–20 3. Extra 21–30; Quiz 3 (alternate) Review
Quiz 4	polynomial equations; factoring quadratic equations; logistic functions; selecting a model	1. Sec. 2.4 7cd, 10, 12, 13ab, 25bc, 26a–c, 27ab; Extra 36–40 2. Extra 31–35; 2.5: 1–6, 11, 13; 3. Quiz 4 Review
Midterm		1. Midterm Review
Quiz 5	supply and demand; logistic regression*; equilibrium prices	1. Sec. 7.3: 9a–c, 10a–c; Extra 52, 55, 56 2. Sec. 7.3: 16, 19a–c, 20a–c; Quiz 5 Review
Quiz 6	cost, revenue, and profit	1. Extra 41, 42, 44 2. Extra 45–51, Quiz 6 Review
Quiz 7	time value of money; TVM Solver*	1. Extra 58–63 2. Extra 64–72 3. Extra 73–75; Quiz 7 Review
Quiz 8	average rates of change; instantaneous rates of change; derivatives	1. Sec. 3.1: 11–14, 17, 26a 2. Sec. 3.2: 7a, 8, 9b, 10, 17, 21, 22 3. Sec. 3.3: 2, 4, 5, 13, 15; Sec. 3.4: 1, 2 4. Sec. 3.5: 5, 11, 13, 15; Quiz 8 Review

Topics marked \* are calculator skills. Quiz 3 (alternate) Review can be found on the class website, <http://www.math.neu.edu/~frampton/U130>, not in the Classpac.

**Project** (see Classpac) due dates: Part J on Oct. 5; Part K on Oct. 26; and Part L on Nov. 16.