ECON1078-200 Math Tools for Economists
Summer 2007

Instructor:	Henry Chen PhD Candidate Research interests: Applied Econometrics, Computational Economics, and International Trade.
Class Meeting Times:	MTWRF 11-12:35 @ DUAN G2B47
Office Location:	Econ 307 (3rd Floor of the Economics Building)
Office Phone:	303-492-7617 (Please don't leave message to the answering machine)
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Website:	http://ucsu.colorado.edu/~chenyh
Office Hours:	MW 9-10:30am **AND** by appointment

Course Description and Objectives:

The goal of this course is to provide students the basic mathematical tools needed for economic analysis. In other introductory economic courses, you will learn many economic concepts and analyses simply by drawing graphs. For example, other things unchanged, outward shift of the demand curve will push up the equilibrium price. However, when you want to move from this "qualitative" analysis to "quantitative" analysis and investigate the data from the real world, you will need mathematical tools. You will learn marginal analysis in the very beginning of microeconomics. The differentiation concept introduced in this course is very helpful for applying the marginal analysis to data with continuous variables. In macroeconomics, you will learn that there are some relationships among GDP, consumption, investment, etc. Equation and function play the fundamental roles in studying these relationships. The materials covered in this course are: rules of algebra, solving linear and nonlinear equations, essentials of set theory, functions, and differentiation. They will be the preparation for your further studies. For a complete list of topics see the course schedule that follows.

Textbook:

Essential Mathematics for Economic Analysis, 2nd edition, by Knut Sydsaeter, and Peter Hammond. You will also use this book for ECON1088. Since you can always refresh your knowledge of algebra and calculus by referring to this book, keeping it as a reference book for your undergraduate courses is *REQUIRED*.

Calculator Note:

During the exam, you are allowed to use a calculator that can do basic mathematical functions. These include exponentials, logarithms, radicals, and factorials (log, ln, e^x, $\sqrt[n]{}$ and x!). Any basic scientific calculator will perform these functions. You CANNOT use a graphing calculator on the exam.

Grading:

(≥10%) In-class assignments

(20%) Midterm1

(20%) Midterm2

(20%) Midterm3

(30%) Final (Cumulative)

100-90%	A
89-80%	B
79-70%	C
69-60%	D
59&below	F

In-class Assignments:

I will randomly give you in-class assignments during the class. Each one has the same weight. The lowest one will be dropped. As you can see, this part will count at least 10% toward your final term grade. This means if the class average term grade is not good, for your benefit, I might give a weight higher than 10% for this part. Of course, I reserve the right to make the final decision.

Problem Sets:

There will be 5 problem sets for this class. The problem sets will be posted on my website: http://ucsu.colorado.edu/~chenyh . Please refer to the next page for detailed schedule. You do **NOT** have to hand in your problem sets. However, I strongly encourage you to finish them since they are good materials for exams.

Make-Up Exams:

There will be NO make-up exam, worksheet, or problem set for this class. For your midterms, if you miss any of them, your final will be weighted automatically. Of course, you CANNOT miss the final exam.

Tentative Course Schedule:

Date	Course Material	Topics
7/10 (T)	1.1, 1.2 **PS1 Posted**	Real Numbers, Integer Powers
7/11	1.3, 1.4,	Rules of Algebra, Fractions
7/12	1.5, 1.6	Fractional Powers, Inequalities
7/13	1.7	Intervals and Absolute Values
7/16 (M)	2.1, 2.2 **PS2 Posted**	Simple Equations
7/17	2.2, 2.3	Simple Equations with Parameters
7/18	2.3, 2.4	Quadratic Equations
7/19	2.4, 2.5	Nonlinear Equations
7/20	**Midterm1**	
7/23 (M)	3.1, 3.4 **PS3 Posted**	Summation Notation, Simple Logic
7/24	3.5, 3.6	Mathematical Proofs, Set Theory
7/25	3.6, 3.7	Mathematical Induction
7/26	3.7	Mathematical Induction
7/27	**Midterm2**	
7/30 (M)	4.1, 4.2, 4.3 **PS4 Posted**	Functions of One Variable, Graphs of Functions
7/31	11.1, 4.4, 4.5	Functions of Two Variables, Linear Functions, Linear Models
8/01	4.6, 4.7, 4.8	Quadratic Functions, Polynomials, Power Functions
8/02	4.9, 4.10	Exponential Functions, Logarithmic Functions
8/03	**Midterm3**	
8/06 (M)	5.1, 5.2, 5.3 **PS5 Posted**	Shifting Graphs, New Functions from Old, Inverse Functions
8/07	5.4, 5.5	Graphs of Equations, Distance in the Plane, Circles
8/08	5.6, 6.1	General Functions, Slopes of Curves
8/09	6.2, 6.3	The Derivative, Tangents, Increasing and Decreasing Functions
8/10	**Final**	

Honor Code:

All students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. All incidents of academic misconduct shall be reported to the Honor Code Council (honor@colorado.edu; 303-725-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from the faculty member and non academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at http://www.colorado.edu/policies/honor.html and at http://www.colorado.edu/academics/honorcode/

Expectations of Classroom Behavior:

Students and faculty each have responsibility for maintaining an appropriate learning environment. Students who fail to adhere to behavioral standards may be subject to discipline. Faculty have the professional responsibility to treat students with understanding, dignity and respect, to guide classroom discussion and to set reasonable limits on the manner in which students express opinions.
See polices at
http://www.colorado.edu/policies/classbehavior.html and at
http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

Absences:

Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. Please notify me as soon as possible so that the proper arrangements can be made. Students can see full details at http://www.colorado.edu/policies/fac_relig.html

Disabilities Statement:

If you qualify for accommodations because of a disability, please submit to me a letter from Disability Services in a timely manner so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, and http://www.Colorado.EDU/disabilityservices.
Time extensions for exams must be approved by me prior to the exam. If you have not talked to me personally prior to the exam you will not be granted an extension.
Disability Services' letters for students with disabilities indicate legally mandated reasonable accommodations. Other letters/requests you may receive from agencies such as the Wardenburg Student Health Center, or other health providers, such as physicians or counselors, are recommendations you may choose to follow to assist students but are not necessarily legal mandates. The syllabus statements and answers to Frequently Asked Questions can be found at http://www.colorado.edu/disabilityservices