

ECON1078-001 Math Tools for Economists Fall 2007

Instructor: Henry Chen

I am an Economics PhD student from Taiwan. I have been teaching this course since Fall 2006. My current research is studying firms' strategies under different environments. Recently, I have applied computational models to analyze the welfare effect of trade liberalization.

Class Meeting Times: MWF 2-2:50 pm @ HUMN135

Office Location: Econ 307 (3rd Floor of the Economics Building)

Office Phone: 303-492-7617 (Please don't leave message to the answering machine)

Email: chenyh@colorado.edu

Class Website: <https://ucsu.colorado.edu/~chenyh>

Relevant materials to the course will be posted here.

Office Hours: Monday 3:00-4:00 pm Tuesday 1:30-3:00 pm 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 principle of economics, you begin your analysis 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 need mathematical tools. In microeconomics, you have to set up individual's optimization problem. In macroeconomics, you have to figure out the relationships among GDP, consumption, investment, etc. Equation and function play the fundamental roles in all the above analyses. The materials covered in this course are: rules of algebra, solving linear and nonlinear equations, essentials of set theory, and functions. 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*.

Grading:

- (10%) Top 4 quizzes out of 5
- (10%) In-class assignments
- (25%) Midterm1
- (25%) Midterm2
- (30%) Final

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

Quizzes:

There will be 5 quizzes in this class. The lowest one will be dropped.

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. This part will count at least 10% toward your final term grade. This means that although your final term grades will NOT be curved directly, if the class average is not good, for your benefit, I might curve this part. Of course, I reserve the right to make the final decision.

Midterms and Final:

There will be two midterms and a final in this course. Each midterm has 50 minutes and the final has 150 minutes. While the final is cumulative, some similar questions from the first midterm might also appear again in your second midterm since the materials do build up. All exams are held in HUMN135.

Problem Sets:

There will be problem sets for this class. Since the problem sets will be posted on my website: <http://ucsu.colorado.edu/~chenyh> , you have to check it regularly. 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.

General Policies:

- (1) There will be NO make-up in-class assignment, quiz, or exam for this class without formal documentation, like doctor's note. For your midterms, if you miss any of them, your final will be weighted automatically. Of course, you CANNOT miss the final.

- (2) If you need to take the final other than the scheduled time, I must be informed at least two weeks ahead with formal documentation.
- (3) If you have any question about the materials, like questions in problem sets, you are more than welcome to go to my office hours after making appointment with me.
- (4) You are responsible for any missing class. If you miss any class, please borrow the notes from others and read the materials in advance BEFORE going to my office hours. I am not going to re-lecturing during my office hours since it will waste other students' time.
- (5) Since I will announce important information through class email, you are responsible for checking your Colorado email account.
- (6) According to the university policy, no grades are allowed to be released via email. In other words, I am prohibited from emailing any grade to you.
- (7) Any concern or question about your grades should be raised before the end of the specified date, which will be announced through class email.

Important Note:

Please note that although this course begins at an introductory level math at the first week, one will soon find that without sufficient amount of work and study, it could be very tough. In short, working hard, reading textbook, doing problem sets, and understand every single detail are the necessary conditions to pass this class. Since math is an important tool for economic analyses, one will find that a solid foundation in math is also necessary in taking the upper level economics courses.

Tentative Course Schedule:

	Week of	Course Material	Topics	Quiz/Exam
1	8/27	1.1, 1.2, 1.3, 1.4	Algebra Basics	
2	9/3	1.5, 1.6	Fractions and Inequalities	Quiz1 (Fri 09/07)
3	9/10	1.7, 2.1, 2.2,	Simple Equations	
4	9/17	2.3, 2.4, 2.5	Radicals, Equations in One Variable	Quiz2 (Fri 09/21)
5	9/24	Midterm 1 , 3.1	Midterm Review, Summation	Mid1 (Wed 09/26)
6	10/1	3.4, 3.5, 3.6	Logic, Math Proof, and Set Theory	
7	10/8	3.7, 4.1	Math Induction, Functions of One Variable	Quiz3 (Fri 10/12)
8	10/15	4.2, 11.1, 4.3, 4.4	Linear Function, Functions of 2 variable	
9	10/22	4.5, 4.6, 4.7	Quadratic Function and Polynomial	
10	10/29	4.7, 4.8, 4.9	Power and Exponential Functions	Quiz4 (Fri 11/02)
11	11/5	4.10, Midterm2	Logarithmic Functions	Mid2 (Wed 11/7)
12	11/12	5.1, 5.2	Midterm Review, Shifting Graph	
13	11/19		Fall Break & Thanksgiving	
14	11/26	5.3, 5.4, 5.5	Inverse Functions, Graphs, Distance	
15	12/3	5.5, 5.6, 6.1	General Function, Slope of Curves	Quiz5 (Fri 12/07)
16	12/10	6.2	Review of Final	
17	12/17	Final	Final (Tue 12/18) 1:30pm-4:pm	

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 policies 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>