# Math Tools for Economists I ECON 1078, Fall 2015

August 23, 2015

Instructor	Li Yao
Class Meetings	T TH 11:00am–12:15pm
Email	li.yao@colorado.edu
Office	ECON 309B
Office Hours	Thursday 1:00–3:00 PM, another hour for appointment
Course Website	The course website is accessed through Desire2Learn

## **Course Description and Objectives**

Economics is an extremely mathematical discipline. This course and the following course (ECON 1088) are designed to get all students interested in Economics to get well acquainted with the mathematical tools necessary for success in Economics courses. See tentative schedule for topics covered in this course.

## Expectations

You can expect me to do my best to help you succeed in this course. I will try my best to answer all questions, provide practice material, provide applications of the material and encourage active thought in the classroom.

I expect you to take the class seriously and to ask questions when something is unclear and actively participate to help us all understand the material better. I also expect you to be respectful and professional at all times by arriving on time, silencing your phone, reserving personal conversation for before and after class, and being courteous with everyone.

## Succeeding in a Math class

Math is learned and mastered through practice. Anyone who practices math is capable of doing math well. I will assign homework weekly. It is your responsibility to do all of the homework problems to make sure you are getting sufficient practice with the material. I also recommend reading the book, preferably before class, to supplement the lectures. To encourage practice and completion of homework assignments, there will be several tests in this course.

## Textbook

Essential Mathematics for Economic Analysis, 4th edition, by Knut Sydsaeter, and Peter Hammond is required. Economics 1088 uses the same textbook. This is a very good reference book, which you may use in the future to refresh your knowledge of algebra and calculus.

## Calculator Note

As this is a course designed to teach mathematical techniques, you will need a calculator that can do basic mathematical functions. These include exponentials, logarithms, radicals, and factorials. Any basic scientific calculator will perform these functions. Although you may find using a graphing calculator useful in doing some of the homework problems, NO GRAPHING CALCULATORS, CELL PHONES, OR COMPUTERS WILL BE ALLOWED DURING EXAMS. NON-GRAPHING CALCULATORS ONLY!!!

## Laptop Note

Nothing works better than good, old fashioned paper and pencil for taking notes in a math class. In general, NO OPEN LAPTOPS ALLOWED or Cell Phones during lecture. If you have a specific, valid reason for a laptop in class, please speak with me about your situation individually. If I catch you on your cell phone, you will be asked to leave lecture.

## Grading

Your grade will come from the following breakdown:

30% Homework(15%) and quizes(15%)

30% Midterm 1

30% Midterm 2

40% Final Exam (Cumulative)

The lowest 30% can be dropped. Therefore there are no makeup exams.

## Homework and quizes

The homework is assigned weekly and is due on Tuesday the following week. You are encouraged to work together or to consult me, but everyone has to turn in their own original work. NO CHEATING NO COPYING ALLOWED!

I will give away one quiz every week, either on Tuesday or Thursday. The quiz questions will largey resemble the homework. So if you know how to solve the homework questions, you will do well in the quiz.

## Grading Scale:

 $\begin{array}{c} 93\% \ {\rm to} \ 100\% \ {\rm A} \\ 90\% \ {\rm to} \ 92\% \ {\rm A} \\ 88\% \ {\rm to} \ 89\% \ {\rm B} + \\ 82\% \ {\rm to} \ 87\% \ {\rm B} \\ 80\% \ {\rm to} \ 81\% \ {\rm B} \\ 78\% \ {\rm to} \ 79\% \ {\rm C} + \\ 72\% \ {\rm to} \ 77\% \ {\rm C} \\ 70\% \ {\rm to} \ 71\% \ {\rm C} \\ 68\% \ {\rm to} \ 69\% \ {\rm D} + \\ 62\% \ {\rm to} \ 67\% \ {\rm D} \\ 60\% \ {\rm to} \ 61\% \ {\rm D} \\ 59.5\% \ {\rm or} \ {\rm lower} \ {\rm F} \end{array}$ 

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Week of	Course Material	Topics
Aug 25th	1.1, 1.2, 1.3	Numbers, Powers, Rules of Algebra
Sept 1st	1.4, 1.5	Fractions
Sept 8th	1.6, 1.7, 2.1	Inequalities, Intervals & Absolute Values, Simple Equations
Sept 15th	2.2, 2.3, 2.4	Equations Continued
Sept 22nd	2.5, 3.1	Nonlinear Equations, Summation Notation
Sept 29th	3.2,  3.3	Rules of Sums, Double Sums
Oct 6th	3.4,  3.5,  3.6	Logic, Proofs, Set Theory
Oct 13th	4.1, Exam	Functions, Review, MIDTERM I (Oct 15th)*
Oct 20th	4.2,  4.3,  4.4	Functions, Graphs, Linear Functions
Oct 27th	4.5,  4.6,  4.7	Linear Models, Quadratics, Polynomials
Nov 3rd	4.8, 4.9, 4.10	Power Functions, Exponential and Log Functions
Nov. 10th	5.1, Exam	Shifting Graphs, Review, MIDTERM II (Nov 12th)*
Nov. 17th	5.2, 5.3, 5.4	New Functions, Inverses, Graphs of Equations
Nov. 24th		Fall Break
Dec 1st	5.5,  5.6	Distances, Circles, General Functions
Dec 8th	10.1, 10.2, 10.3	Interest, Present Value, Review
Final Week		FINAL (Dec 14h at 1:30pm)

## **Tentative Sechdule**

# Additional Notes:

## Students with Disabilities

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 be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Center for Community N200, and http://www.Colorado.EDU/disabilityservices.

If you have a temporary medical condition or injury, see guidelines at

http://www.colorado.edu/disabilityservices/go.cgi?select=temporary.html. Disability Services' letters for students with disabilities indicate legally mandated reasonable accommodations. The syllabus statements and answers to Frequently Asked Questions can be found at http://www.colorado.edu/disabilityservices.

## **Religious Observance Policy**

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. If you have a conflict, please contact me at the beginning of the term so that we can make proper arrangements. See full details at http://www.colorado.edu/policies/fac relig.html.

## **Classroom Behavior Policy**

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity, and gender expression, age, disability, and nationalities. See policies at <a href="http://www.colorado.edu/policies/classbehavior.html">http://www.colorado.edu/policies/classbehavior.html</a> and at <a href="http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student">http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student</a> code.

## **Discrimination and Harassment Policy**

The University of Colorado at Boulder Discrimination and Harassment Policy and Procedures, the University of Colorado Sexual Harassment Policy and Procedures, and the University of Colorado Conflict of Interest in Cases of Amorous Relationships Policy apply to all students, staff, and faculty. Any student, staff, or faculty member who believes s/he has been the subject of sexual harassment or discrimination or harassment based upon race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127, or the Office of Student Conduct (OSC) at 303-492-5550. Information about the ODH, the above referenced policies, and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at http://www.colorado.edu/odh.

## 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; 303-735-2273). 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/.