

## Econ 1078 - Math Tools for Economists I

**Instructor:**

Dan Hickman

**Class Meeting Times:**

MWF 2:00 PM - 2:50 PM, HUMN 1B80

**Final Exam**

Tuesday, December 18<sup>th</sup> 1:30-4:00 p.m., HUMN 1B80

**Office Location:**

Econ 313 (3<sup>rd</sup> Floor of the Economics Building)

**Email:**

[Daniel.hickman@colorado.edu](mailto:Daniel.hickman@colorado.edu)

**Class Websites:**

<http://webfiles.colorado.edu/hickmand>

Material Relevant to the course will be posted here.

<http://www.colorado.edu/economics/courses/ECON1078/1078home.html>

This is the web page developed by all Econ 1078 instructors. You can find homework and exam problems from previous semesters there.

**Office Hours:**

Mondays and Wednesdays 8:30-10:00 a.m., and by appointment.

Office hours are held for your benefit. You are highly encouraged to come to my office hours with prepared questions.

**Course Description and Objectives:**

The goal of this class is to provide students with the mathematical tools needed for future courses in business and economics. We will cover polynomials, functions, present and future values, solving systems of equations, logic, probability, and differentiation.

**Textbook:**

*Essential Mathematics for Economic Analysis*, 2<sup>nd</sup> edition, by Knut Sydsater, and Peter Hammond is required. 1088 (Math Tools II) 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 ( $\log$ ,  $\ln$ ,  $e^x$ ,  $n\sqrt{\phantom{x}}$  and  $x!$ ). Any basic scientific calculator will perform these functions. While a graphing calculator may be useful in doing some of the homework problems, **you cannot use a graphing calculator on the exam.**

**Grading:**

Grades will be determined on the basis of your performance on 11 quizzes, 2 midterms, and a cumulative final exam. Quizzes will be administered each Wednesday in class time. Your lowest quiz grade will be dropped and the other 10 will be averaged together to obtain your quiz grade. The quiz grade is worth 20% of your over all grade.

The midterms will be administered on **September 26<sup>th</sup>** and **October 31<sup>st</sup>** in class. Each test is worth 25% of the course grade. The midterms are not cumulative and will cover only the material since the previous test.

The final exam is scheduled for **December 18<sup>th</sup> (Tuesday)** from **1:30 to 4:00 pm**. The final exam is worth 30% of your grade and will consist of two parts. A “midterm” sized section will cover all of the material after midterm #3 and be worth 15% of your grade in the course. The rest of the final will cover material from the entire course.

|         |    |           |    |
|---------|----|-----------|----|
| 93-100% | A  | 73-76%    | C  |
| 90-92%  | A- | 70-72%    | C- |
| 87-89%  | B+ | 67-69%    | D+ |
| 83-86%  | B  | 63-66%    | D  |
| 80-82%  | B- | 60-62%    | D- |
| 77-79%  | C+ | below 60% | F  |

11 quizzes (Drop the lowest) – 20% total

2 Midterms – 25% each

Final -30%

### Make-Up Exams:

If you miss the midterm for some reason, there will be no make up exam. But at the end of the semester you will be offered to take an optional exam that can count for your missed midterm. Also, if you are not satisfied with one of your midterm grades you can take an optional exam, and I will replace your previous grade with the one from the optional midterm (of course if it is higher than the original).

### Tentative Course Schedule:

| Week of   | Course Material      | Topics  | Wednesday Quiz/Exam              |
|---|----------------------|---|----------------------------------|
| 8/27  | 1.1, 1.2, 1.3        | Algebra Basics                                  | Pretest                          |
| 9/3   | 1.4, 1.5, 1.6,       | Fractions and Inequalities                      | Quiz 1                           |
| 9/10  | 1.7, 2.1, 2.2,       | Simple Equations                                | Quiz 2                           |
| 9/17  | 2.3, 2.4, 2.5        | Radicals, Equations in One Variable             | Quiz 3                           |
| 9/24  | Midterm 1, 3.1, 3.4  | Logic and Mathematical Proofs                   | Midterm 1 (9/26)                 |
| 10/1  | 3.5, 3.6, 3.7        | Essentials of Set Theory                        | Quiz 4                           |
| 10/8  | 4.1, 4.2, 4.3        | Functions of One Variable                       | Quiz 5                           |
| 10/15   | 11.1, 4.4, 4.5       | Linear Function                                 | Quiz 6                           |
| 10/22   | 4.6, 4.7, 4.8        | Quadratic, Polynomial and Power Function        | Quiz 7                           |
| 10/29   | 4.9, 4.10, Midterm 2 | Exponential & Logarithmic Functions             | Midterm 2 (10/31)                |
| 11/5  | 5.1, 5.2, 5.3        | Shifting Graph and Functions Transform          | Quiz 8                           |
| 11/12   | 5.3, 5.4, 5.5        | Inverse Functions                               | Quiz 9                           |
| 11/19   | -                    | No Class (Fall Break)                           | -                                |
| 11/26   | 5.6, 6.1, 6.2        | General Function, Slopes of Curves              | Make-up midterm (11/28), Quiz 10 |
| 12/3  | 6.3, 6.4, 6.5        | The Derivative, Increasing/Decreasing Functions | Quiz 11                          |
| 12/10   | Review               | -   | -                                |
| Final Exam on May 9 <sup>th</sup> from 7:30-10 am |                      |   |                                  |

**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](mailto: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](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](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>