ECON 1088-001 : Math Tools for Economists II
Spring 2014

Instructor: Mariesa Ho
Office: ECON 206
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Office Hours: MW 1:30 p.m.-2:30 p.m. or by appointment
Lecture: 3:00 – 3:50 p.m., HUMN 1B80

COURSE DESCRIPTION:

This course is meant to familiarize students with the mathematical concepts of limits, continuity, differentiation, integration, and optimization as they apply to the work of economists. While the course places a heavy emphasis on acquiring proficiency in introductory calculus skills, it will also introduce students to the unique ways in which they will be expected to apply these skills in further undergraduate courses in Economics.

PREREQUISITES:

ECON 1078 or MATH 1071

TEXTBOOK:

The textbook from ECON 1078 (Sydsaeter et al 4th ed.) is a useful reference[1] for this course, and in our class schedule I have indicated the specific chapters and sections that correspond with the topics we cover; however, ***I do not require any textbook for this class***.

Abridged lecture notes will be emailed to the class at the end of each week and posted to the class's D2L site, as will a set of practice problems reviewing the week's material in preparation for exams.

In addition to material from Sydsaeter et al., these notes and problem sets borrow freely from the following sources:

> *Calculus* by Larson, Hostetler, and Edwards
> *Essential Mathematics for Economics and Business* by Teresa Bradley
> *Fundamental Methods of Mathematical Economics* by Chiang and Wainwright
> *Mathematical Economics* by Baldani, Bradfield, and Turner
> *Real Analysis: A First Course* by Russell A. Gordon
> *Thomas' Calculus* by Finney, Weir, and Giordano

CLASS ATTENDANCE:

You are expected to attend class in a manner that optimizes the value you get from your time, effort, and money. Do not come to class if you are sick. Do not email me with reasons for missed classes. If you need to catch up on missed material, your options are: 1) use the notes emailed to you each week, 2) ask a classmate for help, 3) attend this course during its T/R 2-3:15 p.m. session. If additional help is needed after you have tried these methods, feel free to see me during office hours.

Attendance will occasionally be taken by means of an in-class exercise during the first or last five minutes of class. These activities will not be a direct component of your final grade. However, if due to

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[1] While the Sydsaeter text is an excellent reference that could prove useful in your further studies of economics, not having your own copy should in no way affect your ability to do well in this course.

extenuating circumstances you end up on a grade borderline that concerns you, you may ask me to consider your attendance record in my final decision about your grade.

PARTICIPATION:
You are expected to participate in class in a manner that does not detract from other students' ability to learn.[2] If you engage in activities that distract other students -- or me -- such as using a cell phone or laptop at all[3], excessive talking with a neighbor, or by some other, more creative manner of disruptive behavior, you will be asked to 'give back' to the class by walking us through a sample problem during the next scheduled lecture.

EXAMS:
Five exams are scheduled on the days listed in the term schedule attached on the last page, during regular class time. **No early, late, or make-up exams will be given.** These exams -- except the last one-- are not cumulative and will focus on the material covered up to that point and after the previous exam. Any material covered in lectures and practice problem sets will be fair game for the exams.
If well-prepared for, no exam should take more than 25 minutes to complete; however, 40 minutes will be allotted for each exam. You are responsible for bringing enough pencils to get through the exams: borrowing one from a neighbor during the exam is not acceptable. Calculators are not permitted for any exam and all cell phones must be switched off and put away before any member of the class will be given an exam.

GRADING:
The overall grade for this course will be based directly on exam grades, which will all be weighted equally. **There are no options for extra-credit.**
I cannot under any circumstance email grades to students due to university and federal policies; if you have a question about your grade, you must come in to office hours to discuss them. I will not email you back if you email me asking about your grade.

Grading scale:

Your score	Grade	Your score	Grade
93%-100%	A	73%-76%	C
90%-92%	A-	68%-72%	C-
87%-89%	B+	63%-67%	D
83%-86%	B	60%-62%	D-
80%-82%	B-	<60%	F
77%-79%	C+		

PLEASE NOTE THAT FAILURE TO ATTEND OUR SCHEDULED FINAL, MAY 5th 7:30 – 10:00 a.m., WILL RESULT IN A 5% DEDUCTION ON YOUR TERM GRADE.

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[2] This includes refraining from harassing anyone in the classroom for any reason, sexual or otherwise. Complaints will be handled per standard university policy.
[3] The only exception to this rule is if disability services mandate that you must be allowed to use a laptop for note taking purposes. In this case, an official letter from disability services is required.

OFFICE HOURS:
Office hours are for your benefit. They provide an excellent opportunity to get individual or small group help to clarify topics. Students in both this section and the T/R 2 p.m. section of Math Tools II may use the office hours of either instructor (mine or Xavier Gitiaux's) in ECON 206, which are as follows:

MWF class:	1:30-2:30 p.m. Monday and Wednesday
TR class:	12:30-1:30 p.m. Tuesday and Thursday

If you have a conflict and cannot make office hours, please feel free to email me and we will set up another time to meet.

EMAIL:
I will answer emails between 9:30 am and 5:30 pm from Monday to Friday. I will do my best to return emails within 24 hours. I will not respond to emails asking questions answered in the syllabus (grading, office hours/location) or requesting information about grades.

DISABILITY POLICY:
If you qualify for accommodations because of a disability, please submit a letter from Disability Services to me 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.

RELIGIOUS OBSERVANCE POLICY:
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. If you have a conflict, please contact me at the beginning of the semester so we can make proper arrangements.

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).

Since students are individually responsible for their knowledge and adherence to the University's honor code, it is not my duty to inform you when you have committed a violation. However, I am responsible to enforce the rules of the university and will therefore, at the end of the semester, submit a failing grade for anyone I have observed in violation of the code. Students concerned about the ethics of their classroom behavior will be expected to submit a written summary of the behavior in question and any additional pertinent information I should be made aware of within 24 hours of the occurrence for me to consider alternative penalties.

Schedule of the term

Date	Topic	(in Sydsaeter)
13-Jan	Syllabus, Pre-test, and Intro to Economic Modeling	
15-Jan	Limits	6.5, 7.9
17-Jan	Limits	
22-Jan	Continuity	7.8, 7.9
24-Jan	Differentiation as an Application of Limits	
27-Jan	Composite Functions and Basic Rules of Differentiation	
29-Jan	Review	
31-Jan	Exam 1	
3-Feb	Chain Rule and L'Hopital's Rule	6.8, 7.12
5-Feb	Log functions and their derivatives	6.11
7-Feb	Exponential functions and their derivatives	6.10
10-Feb	Higher order differentiation	
12-Feb	Establishing whether a function is increasing or decreasing and on which intervals	
14-Feb	Relative and Absolute Extrema on an Interval	8.1, 8.2
17-Feb	Rolle's Theorem and Mean Value Theorem	
19-Feb	Review	
21-Feb	Exam 2	
24-Feb	Establishing the concavity/convexity of a function	8.6, 8.7
26-Feb	Optimization in Economic Applications	
28-Feb	Functions w/ 2 variables and their partial derivatives	11.1, 11.2
3-Mar	Young's Theorem	
5-Mar	Functions w/ n variables: Level curves	
7-Mar	Functions w/n variables: Partial Derivatives and Hessians - Part 1	11.6
10-Mar	Functions w/n variables: Partial Derivatives and Hessians - Part 2	11.6
12-Mar	Review	
14-Mar	Exam 3	
17-Mar	Implicit Differentiation w/2 variables	7.1, 7.2
19-Mar	Implict differentiation w/n variables	12.3
21-Mar	Antiderivatives and Indefinite Integrals	9.1
31-Mar	Riemann Integration over Definite Intervals	9.2
2-Apr	Fundamental and Second Fundamental Theorem of Calculus	
4-Apr	Newton-Leibniz Integration over Definite Intervals	9.2
7-Apr	Intergration Logarithmic and Exponential Functions	
9-Apr	Review	
11-Apr	Exam 4	
14-Apr	Integration by substitution	9.6
16-Apr	Integration by parts	9.5
18-Apr	Improper integrals	9.7
21-Apr	Applications of Integral Calculus in Economics	
23-Apr	Review - Exam 1	
25-Apr	Review - Exam 2	
28-Apr	Review - Exam 3	
30-Apr	Review - Exam 4	
2-May	Exam 5	

OUR FINAL IS MAY 5th 7:30 -10:00 a.m. in our regular classroom. Failure to attend will penalize your course grade.