ECON 1088-003 : Math Tools for Economists II Spring 2014

Instructor:	Xavier Gitiaux
Office:	ECON 206
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Office Hours:	TTH 12:30 p.m1:30 p.m. or by appointment
Lecture:	2:00 – 3:15 p.m., GUGG 205

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 reference¹ 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 MWF/R 3-3:50 p.m. session. If additional help is needed after you have tried these methods, feel free to see me during office hours.

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.

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 all³, 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.

PROBLEM SETS:

A problem set will be posted at the beginning of each week on D2L. Although not collected nor graded, these are valuable exercises to practice the concepts presented during lecture. You will not learn the material by only sitting in class and listening to me. **You need to practice**. We will go over some questions in class, but you will solve most of the problem sets by yourselves. Solutions will be posted on D2L at the end of the week.

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 out of sight before any member of the class will be given an exam.

All exams are in GUGG 205. The final will take place on Saturday, the 3rd of May 2014, at 01:30 pm.

GRADING:

The overall grade for this course will be based directly on exam grades, which will all be weighted equally (20%). 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.

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.

Grading scale:

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

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 MWF 3 p.m. section of Math Tools II may use the office hours of either instructor (mine or Mariesa Ho's) in ECON 206, which are as follows:

Mariesa Ho: MWF class:1:30-2:30 p.m. Monday and WednesdayXavier Gitiaux: TR class:12:30-2:00 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 9:00 am and 5:00 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.

14-Jan	Syllabus, Pre-test, and Limits	(in Sydsaeter)
16-Jan	Limits	6.5, 7.9
21-Jan	Continuity – Differentiation: definition	
23-Jan	Differentiation : basic rule	7.8, 7.9
28-Jan	Review	
30-Jan	Exam 1	
4-Feb	Chain Rule and L'Hopital's Rule	6.8, 7.12
6-Feb	Log and Exponential functions and their derivatives	6.11, 6.10
11-Feb	Higher order differentiation - Monotonicity	
13-Feb	Relative and Absolute Extrema on an Interval	8.1, 8.2
18-Feb	(Rolle's Theorem and Mean Value Theorem) Review	
20-Feb	Exam 2	
25-Feb	Establishing the concavity/convexity of a function	8.6, 8.7
	Optimization in Economic Applications	
27-Feb	Functions w/ 2 variables and their partial derivatives	11.1, 11.2
	Young's Theorem	
4-Mar	Functions w/ n variables: Level curves	
6-Mar	Functions w/n variables: Partial Derivatives and Hessians	11.6
11-Mar	Review	
13-Mar	Exam 3	
18-Mar	Implicit Differentiation	7.1, 7.2
20-Mar	Antiderivatives and Indefinite Integrals	9.1
1-Apr	Riemann Integration over Definite Intervals	9.2
	Fundamental and Second Fundamental Theorem of Calculus	
3-Apr	Newton-Leibniz Integration over Definite Intervals	9.2
8-Apr	Intergration Logarithmic and Exponential Functions - Review	
10-Apr	Exam 4	
15-Apr	Integration by substitution	9.6
17-Apr	Integration by parts	9.5
22-Apr	Improper integrals	9.7
24-Apr	Applications of Integral Calculus in Economics	
29-Apr	Review - Exam 3	
01-Apr	Review - Exam 4	
3-May	Exam 5	

Tentative Schedule of the term