

ECON 1088-001

Math Tools for Economists II

Spring 2019

Course Meeting: MWF 11-11:50am, ECON 117

Instructor: Brian Flaxman

Email: Brian.Flaxman@colorado.edu

Office Location: Econ 14

Office Hours: Tuesday and Thursday: 11:00-12:00 and by Apt.

Class Website: Canvas, <https://cuboulder.instructure.com/>

Personal Website: <https://sites.google.com/site/brianflaxmanecon>

Course Description: This class is the second of a two course sequence. It is a continuation of ECON 1078 which builds upon the basic foundation developed in that course. We will study derivatives, optimization, and integrals. These are Chapters 6,7,8,9, and 11 in the textbook. These tools will help you better understand the mathematical framework on which economics models are based and help prepare you for more advanced economics.

Prerequisite: ECON 1078 or equivalent.

Prerequisites for upper division classes: Completion of ECON 1078 (or equivalent) and ECON 1088 is one way to complete the mathematical prerequisite for many upper-level economics courses. The following also suffices:

- MATH 1300
- MATH 1310
- MATH 1081
- MATH 1080 and MATH 1090 and MATH 1100
- APPM 1350

Text: *Essential Mathematics for Economic Analysis*, CU Boulder Special Edition
ISBN: 1323259236

Authors: Knut Sydsaeter and Peter Hammond

I will likely assign practice problems from the 4th edition, but any edition is acceptable.

Course Policies:

- **General**
 - Class periods will be devoted to lecture and practice. Class participation will constitute 6% of your grade. Participation will be checked intermittently. Department procedure states that students who do not attend the first three class meetings without notification will be administratively dropped from the class.

- You will not need a computer during class, unless you feel confident in your ability to type notes that include extensive mathematical notation. If you use a computer for notes, try to sit near the back to avoid distracting your classmates. Phone use during class is distracting.
- When emailing me, start the subject line with "Econ 1088". Give me 24 hours to respond to your emails. If you do not receive a response within two business days (M-F), resend the email, starting the subject line with "Econ 1088, Resend".
- *No makeup assignments will be given.*
- If something occurs that will impede your ability to perform in the course, be proactive in contacting me. I will be much more receptive to working things through with you if contact me early and often. For example, if you get sick on the due date of a homework assignment, contact me that day and keep me updated. Don't wait until several days later until you get a doctor's note.

• **Grades**

- **Distribution:**

Pretest:	2%
Participation	6%
Homework :	12%(3% per assignment)
Midterm (Highest Score):	25%
Midterm (2nd Highest Score):	25%
Midterm (Lowest Score):	0%
Final:	30%

- **Reporting:** Grades will be uploaded into Canvas as assignments are graded.
- **Curving:** Midterms will be curved up to a 74 if the class average falls below that. Exams will not be curved down. The overall class average will be curved up to an 80 if the average falls below this. I do not expect this to happen.
- **Letter Grade Cutoffs:**

≥ 93	A	87-89.999	B+	77-79.999	C+	67-69.999	D+	≤ 59.999	F
90-92.999	A-	83-86.999	B	73-76.999	C	63-66.999	D		
		80-82.999	B-	70-72.999	C-	60-62.999	D-		

- **Adjustment:** You will be responsible for monitoring your own grades. If you are worried about your grade, come to me early to make a plan for your success. I will automatically increase final course grades that are 0.5% below any grade cutoff after any final grading curve has been applied. After these steps are taken, no further increases to grades will occur. **Individual requests for bumps or extra credit assignments will be denied.**

• **Attendance:**

- I will randomly keep track of attendance throughout the semester (by seeing who turns in practice problems in class, taking attendance, etc).

- I will drop 1/3 of the attendance checks when calculating your grade.

- **Practice Problems and Assigned Homework**

- A pre-test assignment due in the first week of class will check your ability to use prerequisite material. This assignment is graded *only for completion*.
- Recommended practice problems from your textbook will be posted on Canvas. Detailed solutions will be either covered in class or posted on Canvas. These problems will not be graded, but they will benefit your exam preparation.
- Four problem sets will be assigned through the semester as part of your grade. One will be due before each of the three midterms. One final homework assignment will be due on the last day of class. The problems will mirror the types of questions that will be on the exams. Working in groups is encouraged, however each student must turn in an individual assignment with the names of groups members written at the top of the page.
- I will designate two of the questions to be graded for correctness beforehand. 50% of each homework grade will be for completion, 50% will come from the two randomly selected questions.

- **Exams**

- **Midterms:** Three midterms will be given during lecture time on the *fixed* dates in the schedule given in this syllabus. Your top two scores will count for 25% of your overall grade. Your lowest score will be dropped. There will be no makeup midterm exams.
- **Final Exam:** The final exam is cumulative. The exam is held in our regular classroom on Sun. May 5, 1:30 to 4pm. This date is non-negotiable. The only exception to this standard is if you have 3 final exams scheduled on the same day; in this circumstance, you must notify me before the 11th week of the semester.
- *Partial credit will be awarded on all exams.*

University Policies:

- **DISABILITY POLICY** I am committed to providing everyone the support and services needed to participate in this course. If you qualify for accommodations because of a disability, please submit to your instructor a letter from Disability Services in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu.
- **HONOR CODE** 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. Incidents of academic misconduct will 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 myself and non-academic sanctions (including but not limited to university probation, suspension, or expulsion).

- **RELIGIOUS OBSERVATION 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 make arrangements with me no later than the first week of the semester.
- **CODE OF BEHAVIOR POLICY** Students and faculty each have responsibility for maintaining an appropriate learning environment. Students who fail to adhere to such behavioral standards may be subject to discipline. Faculty has the professional responsibility to treat all students with understanding, dignity and respect, to guide classroom discussion and to set reasonable limits on the manner in which we express opinions. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences or race, culture, religion, politics, sexual orientation, gender variance and nationalities.
- **DISCRIMINATION AND HARASSMENT POLICY** CU Boulder's policy on Discrimination and Harassment can be found on the university website. The policy on Sexual Harassment and on Amorous Relationships applies to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of discrimination or harassment based upon race, color, national origin, sex, age, disability, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs at 303-492-5550. Information about the ODH and the campus discrimination and harassment resources can be obtained at <http://www.colorado.edu/odh>.

Tentative Course Outline:

The weekly coverage might change as it depends on the progress of the class. The sections listed below denote the topics to be covered and their associated textbook sections. I may assign other outside material in lieu of textbook sections. Any material to be studied before class will be announced in class **and** on Canvas.

Week	Content
Jan. 14-18	<ul style="list-style-type: none">• Topics: Administration, Introducing Derivatives• Sections: 6.1, 6.2, 6.5; Pre-test due: Jan. 18
Jan. 21-25	<ul style="list-style-type: none">• Topics: Uses of Derivatives; <i>No Class: Jan 21 (Martin Luther King Jr. Day)</i>• Sections: 6.3, 6.4, 6.6
Jan 28-Feb. 1	<ul style="list-style-type: none">• Topics: Rules of Derivatives• Sections: 6.7, 6.8
Feb. 4-8	<ul style="list-style-type: none">• Topics: More Rules of Derivatives• Sections: 6.9, 6.10, 6.11
Feb. 11-15	<ul style="list-style-type: none">• Topics: Review, Using Derivatives; Midterm 1: Feb. 15• Sections: Ch 6 review, 7.1; Homework 1 due: Feb. 13
Feb. 18-22	<ul style="list-style-type: none">• Topics: Using Derivatives• Sections: 7.2, 7.7, 7.8
Feb. 25-Mar. 1	<ul style="list-style-type: none">• Topics: Introduction to Optimization• Sections: 8.1, 8.2, 8.3
Mar. 4-8	<ul style="list-style-type: none">• Topics: Tools for Optimization in Economics• Sections: 8.6, 8.7
Mar. 11-15	<ul style="list-style-type: none">• Topics: Review, Multivariable Functions; Midterm 2: Mar 15• Sections: Ch. 7/8 review, 11.1, 11.5; Homework 2 due: Mar. 13
Mar. 18-22	<ul style="list-style-type: none">• Topics: Partial Derivatives• Sections: 11.2, 11.6, 11.7
Mar. 25-29	<ul style="list-style-type: none">• <i>No Class: Spring Break</i>
Apr. 1-Apr. 5	<ul style="list-style-type: none">• Topics: Using Multivariable Derivatives, Practice• Sections: 11.8, 14.1
Apr. 8-12	<ul style="list-style-type: none">• Topics: Review, Introduction to Integrals; Midterm 3: Apr. 12• Sections: Ch. 11 review, 9.1; Homework 3 due: Apr. 10
Apr. 15-19	<ul style="list-style-type: none">• Topics: Anti-derivatives and Their Interpretations• Sections: 9.1, 9.2, 9.4
Apr. 22-26	<ul style="list-style-type: none">• Topics: Definite Integrals• Sections: 9.3, 9.6
Apr. 29-May 1	<ul style="list-style-type: none">• <i>No Class: May 1</i>; Final Exam: Sun, May. 5 4:30-7pm• Sections: Ch. 9, semester review Homework 4 due: May 1