

# Math Tools for Economists II

ECON 1088-003, Spring 2020

Monday, Wednesday, and Friday 2:00-2:50 PM, ECON 117

## 1 COURSE INFORMATION

**Instructor:** Evelyn Skoy

**Course Website:** [Canvas](#)

**Email:** [evelyn.skoy@colorado.edu](mailto:evelyn.skoy@colorado.edu)

**Office:** Economics 414 (tower on the south side of the building)

**Office Hours:**           Wednesdays               3:00 PM – 4:00 PM  
                                  Thursdays                 9:00 PM – 10:00 PM  
                                  and by appointment.

### **Required Textbook/Materials:**

Essential Mathematics for Economic Analysis, CU Boulder Special Edition ISBN: 1323259236 Authors: Knut Sydsaeter and Peter Hammond (3rd or 4th editions are also acceptable!)

We will also be using clickers in this class, so please make sure you have a clicker by 1/22.

### **Prerequisites:**

ECON 1078 or equivalent

### **Course Description and Objectives:**

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.

## 2 COURSE POLICIES

### GENERAL

- Class periods will be devoted to lecture and practice, which means that participation is important and will be a decent component of your grade. Participation will be recorded with pre-class questions on Canvas or in-class clicker questions/minute papers. I will record attendance for the first two weeks of class, and if you do not attend the first three class meetings and do not contact me, I will administratively drop you according to departmental procedure.
- 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, sit in the back three rows to avoid distracting your classmates. Stay off of the internet - you're

paying me to teach you math, not to check your messages. No mobile devices are allowed during class periods, as they tend to be a distraction for you and your classmates. If you need to your phone because of an emergency, please excuse yourself from my classroom.

- Please allow 24 hours for me to respond to your emails or 48 hours if it is on the weekend. Grades will not be discussed over email. Emails regarding grades will receive a reply of "Office hours."
- No makeup assignments will be given.

## GRADES

- Distribution:

Grade Item	Percentage
Pre-test	2
Midterm	25
Midterm	25
Final	30
Homework	10
Participation	8

- Reporting: Grades will be uploaded into Canvas as assignments are graded.
- Curving: Midterms may be curved individually, and a curve may be applied to the overall course grade to conform to departmental standards.
- Letter Grade Cutoffs: Let your grade be "x"

Grade	Percentage	Grade	Percentage
A	$93 \leq x$	C	$73 \leq x < 77$
A-	$90 \leq x < 93$	C-	$70 \leq x < 73$
B+	$87 \leq x < 90$	D+	$67 \leq x < 70$
B	$83 \leq x < 87$	D	$63 \leq x < 67$
B-	$80 \leq x < 83$	D-	$60 \leq x < 63$
C+	$77 \leq x < 80$	F	$x < 60$

- 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.

## PRACTIC 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 each Friday. Detailed solutions will be either covered in class or posted on Canvas on the following Wednesday. These problems will not be graded, but they will benefit your exam preparation.
- Some class periods will be partially "flipped" and will require you to complete a reading or watch a video then answer unlimited-attempt questions before attending class. Readings outside of the text and videos as well as pre-class questions will be posted on Canvas. Please alert me to any accessibility issues with these materials.

- Three homework assignments will be due before each midterm. 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 randomly choose three problems from each assignment to grade. Homework should be done neatly and you should show your work.

## EXAMS

- Midterms: Three midterms will be given during lecture time on the fixed dates in the schedule given in this syllabus. The lowest exam score will be dropped, and therefore **no makeup or separate time exams will be given** (except for students with documented accommodations). You must notify me with documentation of your accommodation at least one week before the first exam in order for it to apply.
- Final Exam: The final exam is cumulative. The exam will be held at the university assigned place and time. 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 for short answer questions. Multiple choice questions will not receive partial credit.

## CHEATING

If you are caught cheating in any fashion (on exams or homework) you will be given an F for the semester and your case will be reported to the Honor Code Council for review.

## 3 TENTATIVE SCHEDULE

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; however, I may assign a video or alternate readings instead of the text section. Any material to be studied before class will be announced in class and on Canvas.

Week	Lecture
Jan 13 – Jan 17	<ul style="list-style-type: none"> <li>• Topics: Administration, Introducing Derivatives</li> <li>• Sections: 6.1, 6.2 ; <b>Pre-test due Jan. 17</b></li> </ul>
Jan 20 – Jan 24	<ul style="list-style-type: none"> <li>• Topics: Uses of Derivatives</li> <li>• Sections: 6.5, 6.3, 6.4, 6.6</li> </ul>
Jan 27 – Jan 31	<ul style="list-style-type: none"> <li>• Topics: Rules of Derivatives</li> <li>• Sections: 6.7, 6.8</li> </ul>
Feb 3 – Feb 7	<ul style="list-style-type: none"> <li>• Topics: More Rules of Derivatives</li> <li>• Sections: 6.9, 6.10, 6.11</li> </ul>
Feb 10 – Feb 14	<ul style="list-style-type: none"> <li>• Topics: Review, Using Derivatives; <b>Midterm 1: Feb. 14</b></li> <li>• Sections: Ch 6 review, 7.1; <b>Homework 1 due: Feb. 12</b></li> </ul>
Feb 17 – Feb 21	<ul style="list-style-type: none"> <li>• Topics: Using Derivatives</li> <li>• Sections: 7.2, 7.7, 7.8</li> </ul>
Feb 24 – Mar 28	<ul style="list-style-type: none"> <li>• Topics: Introduction to Optimization</li> <li>• Sections: 8.1, 8.2, 8.3</li> </ul>
Mar 2 – Mar 6	<ul style="list-style-type: none"> <li>• Topics: Tools for Optimization in Economics</li> </ul>

	<ul style="list-style-type: none"> <li>• Sections: 8.6, 8.7</li> </ul>
Mar 9 – Mar 13	<ul style="list-style-type: none"> <li>• Topics: Review, Multivariable Functions; <b>Midterm 2: Mar. 13</b></li> <li>• Sections: Ch. 7/8 review 11.1, 11.5; <b>Homework 2 due: Mar 10</b></li> </ul>
Mar 16 – Mar 20	<ul style="list-style-type: none"> <li>• Topics: Partial Derivatives</li> <li>• Sections: 11.2, 11.6, 11.7</li> </ul>
Mar 23 – Mar 27	Spring Break
Mar 30 – Apr 3	<ul style="list-style-type: none"> <li>• Topics: Using Multivariable Derivatives, Practice</li> <li>• Sections: 11.8, 14.1</li> </ul>
Apr 6 – Apr 10	<ul style="list-style-type: none"> <li>• Topics: Review, Introduction to Integrals; <b>Midterm 3: Apr. 10</b></li> <li>• Sections: Ch. 11 review, 9.1; <b>Homework 3 due: Apr. 8</b></li> </ul>
Apr 13 – Apr 17	<ul style="list-style-type: none"> <li>• Topics: Anti-derivatives and Their Interpretations</li> <li>• Sections: 9.1, 9.2, 9.4</li> </ul>
Apr 20 – Apr 24	<ul style="list-style-type: none"> <li>• Topics: Definite Integrals</li> <li>• Sections: 9.3, 9.6</li> </ul>
Apr 27 – May 1	<ul style="list-style-type: none"> <li>• <i>No Class May 1; Final Exam</i></li> <li>• Sections: Ch. 9, semester review</li> </ul>

## 4 UNIVERSITY POLICIES

### ACCOMMODATION FOR DISABILITIES

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website.

### CLASSROOM BEHAVIOR

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 race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on classroom behavior and the Student Code of Conduct.

### PREFERRED STUDENT NAMES AND PRONOUNS

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

## HONOR CODE

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code ([honor@colorado.edu](mailto:honor@colorado.edu)); 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website.

## SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct, intimate partner abuse (including dating or domestic violence), stalking, or protected-class discrimination or harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website.

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

## RELIGIOUS HOLIDAYS

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. In this class, 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](http://www.colorado.edu/policies/fac_relig.html).

## 5 OTHER RESOURCES

- The Office of Victim Assistance can be reached at 303-492-8855. <http://www.colorado.edu/ova/>
- The webpage [www.colorado.edu/undocumented](http://www.colorado.edu/undocumented) contains information regarding campus counseling resources available for students and employees with DACA Status.
- The Economics Department provides a free drop-in tutorial office which offers assistance on all core courses in the major, and occasionally on other undergraduate courses in the Department. Its website is [https://www.colorado.edu/economics/sites/default/files/attached-files/tutorial-lab\\_0.pdf](https://www.colorado.edu/economics/sites/default/files/attached-files/tutorial-lab_0.pdf).
- The Economics Department maintains a list of tutors who are available for private hire. Its website is [https://www.colorado.edu/economics/sites/default/files/attached-files/tutor\\_list.pdf](https://www.colorado.edu/economics/sites/default/files/attached-files/tutor_list.pdf).