

ECON1088-001: Mathematical Tools for Economists 2

Department of Economics
University of Colorado Boulder
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Spring 2026

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Office Hours: W/Th 10:00-11:00 am
Office: ECON 309A

Class Website: [Canvas](#)
Class Hours: MWF 9:05-9:55 am
Classroom: ECON 117

Course Description

This course is the second of a two-course sequence and continues ECON 1078. It builds on the algebraic foundation developed in ECON 1078 and introduces mathematical tools used in economics and their applications. Topics include derivatives, optimization, and integrals. These tools are used in subsequent economics courses.

Prerequisites

Course Prerequisites: To enroll in this course, students must meet at least one of the following requirements with a **minimum grade of C-**:

- ECON 1078, or MATH 1011, MATH 1071, MATH 1150, MATH 1160, or APPM 1235.
- A qualifying score on the ALEKS math exam (taken in 2016 or earlier), or placement into pre-calculus based on admission data and/or CU Boulder coursework.

Duplicate Degree Credit: Duplicate degree credit is **not** granted for this course and any of the following: APPM 1345, APPM 1350, MATH 1081, MATH 1300, MATH 1310, or MATH 1330.

Required Textbook

Knut Sydsæter, Peter Hammond, Arne Strøm, and Andrés Carvajal, **Essential Mathematics for Economic Analysis**, 6th Edition, Pearson.

Other editions are permitted; however, students are responsible for matching the relevant chapters and sections.

Grading

Final course grades will be calculated based on the following components:

Class Participation (iClicker)	10%
Pre-test	1%
Homework Assignments	24%
Midterm 1	20%
Midterm 2	20%
Final Exam	25%
Total	100%

Grade Scale

Grade	Percentage	Grade	Percentage
A	93–100	C	73–76.99
A-	90–92.99	C-	70–72.99
B+	87–89.99	D+	67–69.99
B	83–86.99	D	63–66.99
B-	80–82.99	D-	60–62.99
C+	77–79.99	F	0–59.99

I will follow the Economics Department's end-of-semester grading policy. **Requests to change a final grade to meet a particular cutoff or to "round up" will not be considered.**

In accordance with FERPA (1974) regulations, **I will not discuss individual grade details via email.** All inquiries regarding specific grades must be addressed in person during office hours or by appointment.

Class Participation (iClicker Questions)

During each lecture, students will respond to 3–4 iClicker questions (a total of approximately 120+ clicker questions during the semester). These exercises are based on current lecture material and are designed to encourage active preparation and engagement.

Scoring Policy (End of Semester):

- **Full Credit:** 100 or more **correct** responses.
- **Partial Credit:** Fewer than 100 **correct** responses. The participation grade will be calculated proportionally **out of 100** (e.g., 80 correct responses = 80% of the full participation score).
- **Extra Credit:** Correct responses beyond 100 will count as extra credit toward the final course grade.

Since this policy incorporates built-in flexibility (allowing missed questions or absences while still achieving full credit), there are **no make-ups** or alternative assignments for iClicker questions for any reason.

If you experience a device malfunction, you must notify the instructor in person **immediately after class** (before leaving the classroom) on the same day. Requests regarding technical issues made via email or after you have left the classroom will not be accepted.

Pre-Test

This assessment covers essential ECON 1078 prerequisites. Credit is awarded for **attempting all questions and submitting by the deadline**, regardless of the score. **No make-ups, extensions, or late submissions will be accepted.**

Homework Assignments

There will be five graded homework assignments.

- **Collaboration:** Discussion in small groups is permitted, but you must write and submit your own independent solutions.
- **Format & Submission:** Assignments must be **handwritten**; typed work will not be graded. Upload a **single, legible PDF** to Canvas. It is your responsibility to ensure the file is valid; submissions that are illegible, incorrectly oriented, or not in PDF format will receive a **zero**.
- **Deadlines:** Due dates will be announced in class and posted on Canvas.
- **Late Policy:** The lowest homework score is dropped to account for technical issues or emergencies. Therefore, **late homework is not accepted for any reason**.

Examinations

There will be two in-class midterms and a cumulative final exam. All exams will be administered in the classroom.

Exam Conduct: **No materials are permitted** during exams except a pen or pencil. Books, notes, calculators, phones, smartwatches, earbuds, and all other electronic devices are strictly prohibited.

Exam	Date	Time
Midterm 1	Fri., February 13	During class
Midterm 2	Fri., April 10	During class
Final Exam	Wed., April 29	7:30 p.m.–10:00 p.m.

- **Midterms (20% each; non-cumulative): No early exams and no make-ups.**
 - **Unexcused Absences:** Result in a score of **zero**.
 - **Excused Absences:** If you miss a midterm due to a medical or family emergency, religious obligation, or university-sanctioned event, you must notify the instructor **before the exam** (or within 36 hours for extreme emergencies). If excused, the weight of the missed midterm will be reallocated to the final exam.

- **Final Exam (25%; cumulative):** The final exam must be taken at the scheduled time. **Failure to take the final exam will result in an automatic F for the course.**
 - **Final Exam Conflicts:** Students with **three or more** final exams on the same day may arrange an alternative time only for the **last exam** scheduled that day. Requests must be made by the **10th week of the semester** and must include evidence of the conflict.
- **Academic Integrity:** Cheating on any exam is unacceptable. Any instance of cheating will result in a course grade of F and will be reported under the **Honor Code**.

General Policy

Lecture

- **Classroom Expectations:** Attend on time, come prepared, and participate respectfully.
- **Disruptive Behavior:** Disruptions may result in one or more of the following: (i) a warning, (ii) removal from class for the day, (iii) a deduction from the **Class Participation (iClicker)** grade, and/or (iv) referral to **Student Conduct & Conflict Resolution**.
- **Lecture Slides:** Slides will be posted on Canvas. They are not a substitute for attendance and may omit examples or derivations. You are responsible for all material covered in class.
- **Extended Medical Issues:** If a medical condition prevents you from attending class for an extended period or affects coursework/exams, notify the instructor **as early as possible** and contact **Disability Services**.
- **Electronics:** Electronics are allowed only for course-related use (e.g., iClicker, note-taking). Non-course use is prohibited. The instructor may require devices to be put away at any time.

Communication

Outside of lecture and office hours, email is the primary method of communication.

- **Official Email:** Use your @colorado.edu account. Emails from non-university accounts may not receive a response.
- **Response Time:** Emails are typically answered within 24 hours on weekdays and within 48 hours on weekends. Delays may occur during holidays or heavy grading periods.
- **Emails That Will Not Receive a Response:**
 - Requests for individual extra credit or grade adjustments.
 - Requests for individual extensions.
 - Questions clearly answered in the syllabus or on Canvas.

Course Resources and Strategies for Success

This course is **cumulative**; new concepts build directly upon previous ones. You are expected to invest time early and work consistently. If you find yourself falling behind, please contact me and attend office hours as soon as possible. It is significantly more effective to address difficulties early in the semester than in the weeks leading up to the final exam.

Office Hours

Office hours are your primary resource for questions and course assistance. If you cannot attend the scheduled hours, you may email me to request an alternative meeting time, subject to availability.

Economics Tutoring Lab

The Department of Economics provides a **free** tutoring lab for students. This is an excellent resource for supplemental help. Details and hours are available on the department website:

<https://www.colorado.edu/economics/tutor-lab>

Private Tutors

For students seeking intensive one-on-one assistance, the department maintains a list of private tutors available for a fee:

<https://www.colorado.edu/economics/private-tutor-list>

Tentative Course Outline

The following outline is **tentative** and may change. **Topics may be covered out of textbook order.**

- Chapter 6. Differentiation
- Chapter 8. Concave and Convex Functions
- Chapter 7. Derivatives in Use
- Chapter 9. Optimization
- Chapter 14. Functions of Many Variables
- Chapter 18. Equality Constraints
- Chapter 10. Integration

Campus Policies

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 Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), 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. Understanding the course's syllabus is a vital part of adhering to the Honor Code.

All incidents of academic misconduct will be reported to Student Conduct & Conflict Resolution: StudentConduct@colorado.edu. Students found responsible for violating the Honor Code will be assigned resolution outcomes from Student Conduct & Conflict Resolution and will be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

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, see Temporary Medical Conditions on the Disability Services website. If you have a temporary illness, injury or required medical isolation for which you require adjustment, follow the appropriate instructions in the syllabus.

Accommodation for Religious Obligations

Campus policy requires faculty to provide reasonable accommodations for students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance. Please communicate the need for a religious accommodation in a timely manner. In this class, follow the appropriate instructions in the syllabus. See the [campus policy regarding religious observances](#) for full details.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information does not always align with how they identify. If you wish to have your preferred name (rather than your legal name) and/or your preferred pronouns appear on your instructors' class rosters and in Canvas, visit the [Registrar's website](#) for instructions on how to change your personal information in university systems.

Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure 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, marital status, political affiliation, or political philosophy.

For more information, see the [Student Classroom and Course-Related Behavior Policy](#), the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner abuse (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who have been subjected to misconduct can contact OIEC at 303-492-2127 or email OIEC@colorado.edu. Information about university policies, [reporting options](#), and [OIEC support resources](#) including confidential services can be found on the [OIEC website](#).

Please know that faculty and graduate instructors are required to inform OIEC when they are made aware of incidents related to these concerns regardless of when or where something occurred. This is to ensure the person impacted receives outreach from OIEC about resolution options and support resources. To learn more about reporting and support a variety of concerns, visit the [Don't Ignore It](#)

Mental Health and Wellness

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact [Counseling and Psychiatric Services \(CAPS\)](#), located in C4C, or call (303) 492-2277, 24/7.