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# ECON 1078-001 Mathematical Tools for Economists 1

University of Colorado Boulder  
Department of Economics  
Spring 2026

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**Instructor:** Jisu Yu  
**Email:** [jisu.yu@colorado.edu](mailto:jisu.yu@colorado.edu)  
**Office:** ECON 414

**Time:** MWF 10:10 - 11:00 AM  
**Location:** ECON 117  
**Office Hours:** MW 11:00 AM -12:00 PM

## 1 Course Description

This course is the first in a two-course sequence (ECON 1078 and ECON 1088) designed to equip students with the essential mathematical tools and background needed for future economics coursework. These skills are crucial for understanding upper-level economics and business courses, providing a solid foundation for further studies in these fields. Starting with college-level algebra, the course will cover a variety of topics, including simple linear and nonlinear equations, functions (such as linear functions and polynomials) and their graphs, set theory, logic, summation notation, and more.

## 2 Course Material

**Textbook:** Knut Sydsaeter, Peter Hammond, Arne Strom, and Andrés Carvajal, *Essential Mathematics for Economic Analysis*, 6th Edition. (Required)

- You may use an alternative edition - just make sure to match up the relevant chapters

**iClicker Student App:** (Required)

- iClicker information will be used to determine your attendance and extra credit (up to 1%) towards your overall class grade. You must set up the iClicker Student App by the first day of class, January 9th. Information on how to register for an account is available [here](#). Details on how to add this course to your iClicker Student App and how to use the application during class are available [here](#).

## 3 Course Website

The course syllabus, handouts, supplementary materials, and homework assignments will be posted on Canvas. Please check the course webpage regularly for updates with new materials and assignments.

## 4 Grading Policies

### 4.1 Grading Scheme

Attendance .....	10%
Homework .....	20%
Midterm 1 .....	20%
Midterm 2 .....	20%
Final Exam .....	30%

### 4.2 Letter Grade Distribution

Percentage	Grade	Percentage	Grade
$\geq 93.00$	A	73.00 - 76.99	C
90.00 - 92.99	A-	70.00 - 72.99	C-
87.00 - 89.99	B+	67.00 - 69.99	D+
83.00 - 86.99	B	63.00 - 66.99	D
80.00 - 82.99	B-	60.00 - 62.99	D-
77.00 - 79.99	C+	$\leq 59.99$	F

A final letter grade and individual exam scores may be curved to align with departmental standards. Beyond these adjustments, I will not accommodate requests to increase your grade to meet specific criteria. If you have concerns about your grade(s), please do not hesitate to contact me.

## 5 Course Policies

### 5.1 Exams

All exams will be in-person, closed-note, and closed-book. They consist of multiple-choice questions and short-answer questions. A calculator will not be allowed during exams. You will need something to write with (a pen or pencil) for your exams. The dates for the examinations are as follows:

Midterm 1:	Feb 13rd (Fri), in class
Midterm 2:	Apr 1st (Wed), in class
Final:	May 1st (Fri), 10:30 am

- 2 Midterm Exams - non-cumulative

- **There will be no early or make-up exams.** If you have to miss any of the midterms for emergency reasons (i.e. a family or medical emergency), the weight of your midterm will be shifted to the final exam only if you provide documentation to justify that absence. In all other cases, a missed exam will result in a grade of zero.

- Final Exam - cumulative

- **The final exam cannot be missed under any circumstances.** You must take the final exam. Otherwise, you will automatically receive a *F*. Should an emergency arise, please notify me as soon as possible so that we can make accommodations.

### 5.2 Attendance & Clicker Questions

During each class, there will be 2-3 clicker questions. Clicker questions will be basic exercises directly related to the content dealt with in the lectures. If there is a technical issue with your clicker, it is your

responsibility to inform me in person right after that class. Please also submit your answers. This will allow me to correctly calculate your extra credit at the end of the semester. No adjustments will be made after that.

### Attendance

- If you answer at least one clicker question in each class, you will receive 1 point per class for attendance.
- You may miss 3 lectures throughout the semester without penalty. This includes missed lectures for sickness, family emergencies, etc. Any missed lectures above three times will affect your grade regardless of the reason. You do not need to notify me of your absence.
- If you are experiencing personal circumstances that require you to miss more than one week at a time, please contact me.

### Extra Credits

- Students will earn 0.8 points for each answer and an additional 0.2 point if the answer is correct.
- At the end of the semester, extra credit will be calculated based on your achievement.
  - For example, if a student's performance score is 90 out of 120, then the student's overall class extra credit is 0.75%.

## 5.3 Homework

There will be 4 homework assignments throughout the semester. The due dates will be announced during class.

- Please scan and upload your homework to Canvas for submission. **Late submissions will not be accepted under any circumstances.**
- All assignments in this course must be handwritten, and **your handwriting must be legible** to receive full credit. If I have difficulty reading your handwriting, you will receive partial credit at best.
- You are allowed to work in groups, but please **submit your assignments individually**, clearly noting all group members on your submission. If the answers are similar but no members are specified, all group members will receive a grade of zero.

## 5.4 Communication

Outside of lectures and office hours, you can reach me through email.

- Please use your official CU email because other email accounts are sometimes filtered into my spam folder.
- Please allow up to 24 hours for an email response during the week and 48 hours over the weekend.
- Grades will not be discussed over email due to the Family Education Rights and Privacy Act. Please come to the office hours if you would like to discuss your grade.
- Please note that I may not respond to emails concerning:
  - requests for personal extra credit or grade bumps
  - requests for personal extension on homework assignments
  - questions can be answered referring to this syllabus

## 6 Tentative Course Schedule

The weekly coverage might change as it depends on the progress of the class.

Week	Date	Contents
1	Jan 9	Course Introduction & Algebra 1.1
2	Jan 12, 14, 16	Algebra 1.2 - 1.4
3	Jan 19, 21, 23	<b>Martin Luther King Jr. Day (No Class)</b> , Algebra 1.5 - 1.6
4	Jan 26, 28, 30	Algebra 1.7, Equations 2.1-2.2
5	Feb 2, 4, 6	Equation 2.3 - 2.5
6	Feb 9, 11, <b>13</b>	Equation 2.6, Midterm 1 Review, <b>Midterm 1</b>
7	Feb 16, 18, 20	Functions 4.1-4.3
8	Feb 23, 25, 27	Functions 4.4 - 4.6
9	Mar 2, 4, 6	Functions 4.7 - 4.8
10	Mar 9, 11, 13	Functions 4.9 - 4.10
11	Mar 16, 18, 20	<b>Spring Break (No Class)</b>
12	Mar 23, 25, 27	Miscellaneous 3.1 - 3.3
13	Mar 30, <b>Apr 1, 3</b>	Midterm 2 Review, <b>Midterm 2</b> , Properties 5.1
14	Apr 6, 8, 10	Properties 5.2 - 5.4
15	Apr 13, 15, 17	Properties 5.5, Miscellaneous 3.4 - 3.5
16	Apr 20, 22, 24	Miscellaneous 3.6 - 3.7, Final Review
<b>Final</b>	<b>May 1</b>	

## 7 University Policies

- **Classroom Behavior:** Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. 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](#).
- **Requirements for COVID-19** As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements, and public health orders in place to reduce the risk of spreading infectious disease. Required safety measures at CU Boulder relevant to the classroom setting include:
  - maintain 6-foot distancing when possible,
  - wear a face covering in public indoor spaces and outdoors while on campus consistent with state and county health orders,
  - clean local work area,
  - practice hand hygiene,
  - follow public health orders, and
  - if sick and you live off campus, do not come onto campus (unless instructed by a CU Healthcare professional), or if you live on-campus, please alert [CU Boulder Medical Services](#).

Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student [Conduct and Conflict Resolution](#). For more information, see the policies on [COVID-19 Health](#)

and Safety and classroom behavior and the Student Code of Conduct. If you require accommodation because a disability prevents you from fulfilling these safety measures, please see the “Accommodation for Disabilities” statement on this syllabus.

Before returning to campus, all students must complete the COVID-19 Student Health and Expectations Course. Before coming on to campus each day, all students are required to complete a Daily Health Form.

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must stay home and complete the Health Questionnaire and Illness Reporting Form remotely. In this class, if you are sick or quarantined, continue with the online lecture material. For extra practice and questions, attend virtual office hours.

- **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](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.
- **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.
- **Intellectual Property** All course materials are the property of the instructor and may not be shared with any individual outside of the course at any time for any reason without permission in writing from the instructor. Course materials, including but not limited to lecture presentation slides, assignments, grading rubrics, exams, discussion posts, and recitation activities, may not be posted to any website (e.g., Course Hero or similar sites, social media, etc.). The same applies to any audio or video recordings of lecture or recitation. A violation of this policy will be treated as a violation of the academic integrity policy.
- **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](mailto: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 Holidays:** 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.

- **Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation:** The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (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, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.