

MATH TOOLS FOR ECONOMISTS 1 (ECON 1078-002)

Spring 2021

Instructor:	Payne Hennigan	Email:	christian.hennigan@colorado.edu
Lecture Time:	MWF 11:30am – 12:20pm	Room:	Student Recreation Center B210
Office Hours:	Th 1:30pm – 3:30pm		

1 Course Information

Class Format: This class is intended to be an in-person lecture, meaning that there will be no online component. However, per University policy, the first month of class, until February 15th, will be taught online. We will be meeting synchronously over zoom during that time period. After this, we are scheduled to begin meeting in person, but this will all depend on University policy. We will adjust the course as needed. Office hours will be conducted entirely online for the duration of the semester. See the course page for zoom links for both the class and for office hours.

Required Materials: *Essential Mathematics for Economic Analysis. 5th Ed.* by Kurt Sydsæter, Peter Hammond, and Arne Strom is the required text for the course. It serves as an excellent reference, and will be used in ECON 1088 as well. Use of the 4th edition is ok. You can buy used versions of both for very reasonable prices online. It is your responsibility to make sure that the material aligns (the only real difference between the 4th and 5th editions is the order of material and hence chapter numbers).

Prerequisites: There are no prerequisites for this course, though a solid understanding of high school math will serve you well. This class is the first of a two course sequence (ECON 1078 and ECON 1088). requirements.

Course Description: Economics as practiced today is a form of applied mathematics and uses many different mathematical skills to develop models to understand the world around us. This course teaches fundamental mathematical skills and logical thinking that will serve as a basis for economic thought. Topics include logic, algebra, number theory, set theory, graphs, functions, and more. We will explore these topics using "real world" examples.

This class will prepare you for more advanced calculus techniques found in ECON 1088. It is important to remember that what makes math difficult for some isn't the math itself, it's the language we use to describe it. If I asked you to perform some mathematical operation, such as driving a car (something that uses some incredibly advanced mathematical techniques), you could do it. The difficulty lies in describing what your brain is actually doing.

2 Course Policies

General policies

- *No makeup homework assignments or exams will be given.*
- It is the student's responsibility to inform me of any accommodations needed two weeks before an exam.
- I will conduct all course communications in class and through your CU email. Please do not email me from your personal/non-university email as it may get sent to my spam folder. Please use email and not canvas mail.
- If you have a question after I have sent out an email to the class, please send me a separate email so that your question does not get buried in a long email chain (and DO NOT use "reply all"). I may not respond to any emails that can be answered by reading the syllabus.
- Please allow 24 hours for me to respond to emails (on weekdays), although I will usually reply much faster. However, I can not discuss grades over email per FERPA guidelines.

Grades

- **Distribution:** Below is the weight given to each of the assignments you are expected to complete:

Midterm 1 (February 26th)	20%	Participation	15%
Midterm 2 (April 9th)	20%	Homework	15%
Final Exam (May 4th, 1:30-4pm)	30%		

- **Curving:** Midterms *may* be curved individually, and a curve *may* be applied to the overall course grade to conform to departmental standards. The highest overall average the department allows is a B-.
- **Letter Grade Cutoffs:** Below is the letter grade you will receive for the final score given in the class:

≥ 93	A	87-89.9	B+	77-79.9	C+	67-69.9	D+	≤ 59.9	F
90-92.9	A-	83-86.9	B	73-76.9	C	63-66.9	D		
		80-82.9	B-	70-72.9	C-	60-62.9	D-		

Assignments

- **Homework:** There will be 12 problem sets. They will generally (though not always) be due on Fridays before class. Unsubstantiated or illegible answers will receive partial credit at most. If homework is turned in late, it will receive an additional 20% grade reduction each day it's late. Once I post the answers (usually on Sunday), homework will no longer be accepted. Note your two

lowest problem set scores will be dropped. You are allowed to work on the homework assignments in groups (4 students per group max). Please turn in only one assignment per group, clearly marked with the names of all group members if you decide to work in a group. The homework is an integral part of the course and will be extremely helpful for checking and improving your understanding of the material. All homework will be submitted through canvas while we are online, and will be submitted in person when University policy allows us to meet in person.

Participation

- Participation is important. Your participation grade will consist mainly in attendance, which will be taken at the beginning of each class. There will also be periodic group work where groups will need to show the class their work or talk through how they solved something. Even though attendance is mandatory, keep in mind that due to Covid-19, *if you are feeling sick do not come to class*. Email me beforehand to let me know you will not be able to make it to class. This will not be counted against your participation grade unless it becomes consistently done. When we are working online, I will require you to have your camera turned on.

Exams

- **Midterms:** There are 2 midterm exams, and while they are not explicitly cumulative, material does naturally build upon itself. Unsubstantiated or illegible answers will receive partial credit at most. Exams will be closed book, closed notes. Only basic scientific calculators will be permitted, no computers, cell phone, or graphing calculators. There will be no makeup exams. If you miss a midterm for any reason your final will become 50% of your grade. You will take your exam in person during lecture time if University policy allows. In the event that the University decides to make classes meet online for a longer period, you will take your exams online using the proctoring service Proctorio during lecture time, at the dates written above. Note that these days are tentative.
- **Final Exam:** The final exam will be cumulative, and it is tentatively scheduled as indicated. The final exam will be held in the classroom if University policy allows, or will be proctored online using Proctorio otherwise.

Cheating

If you are caught cheating in any fashion on any assignment, you will be given an F for the assignment, and your case will be reported to the Honor Code Council for review.

On Doing Well in this Course

Many of us struggle with math at some point in our lives. The goal of this class is to help you develop your ability to do math. If you're struggling with something- that's ok! Many of the mathematical concepts and tools we take for granted nowadays involved frustrating processes of failing until success. Don't give up! The widespread myth that some people are "just good at math" and others "are not math people" is exactly that - a myth. With enough effort and practice, you can become proficient at any kind of math. I cannot overstate the importance of practice. Solve problems until you think you have the process

memorized, and then add a variation and solve some more. Try to prove statements until you succeed, or write yourself into a contradiction or absurdity. At least a problem every day is a good idea. There are problems in the book with solutions in the back - use them to check your work. Come to me if you want more problems, or to discuss your practice. I want to help you succeed - don't hesitate to reach out. The most transferable skill you can take from this class is how to persevere in the face of frustration. Don't get discouraged!

3 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>.

4 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, do not come to the “in-person”. You are not required to state the nature of your illness.