

ECON 1088-100 – MATH TOOLS FOR ECONOMISTS II

Fall 2021

Instructor:	Sutianjie Zhou (Joe)	Time:	MWF 6:30pm – 7:20pm
Email:	sutianjie.zhou@colorado.edu	Classroom:	HLMS 141
Office Hours:	M, T, W, Th 9:30am – 10:30am		
OH Zoom:	https://cuboulder.zoom.us/j/97633400458		
Lecture Zoom:	https://cuboulder.zoom.us/j/99735805404		

1 Course Information

Course Website: <https://canvas.colorado.edu/>

Required Textbook: Knut Sydsaeter, Peter Hammond, Arne Strom and Andres Carvajal, *Essential Mathematics for Economic Analysis*, Pearson, 5th ed., 2016 (3rd or 4th edition are also acceptable).

Prerequisites: ECON 1078 or equivalent.

Course Description: This class is the second of a two course sequence, building upon the basic foundation developed in ECON 1078. We will study derivatives, optimization, and integrals (chapters 6, 7, 8, 9 and 11 in the textbook). These tools will help you understand the mathematical structure of modern economics and the models used to explain human behavior. A strong grasp of these concepts is **necessary** (but not sufficient) to succeed in later economics courses.

2 Course Policies

General policies

- 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 collected questions. I will record attendance for the first week 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.
- **Students are not permitted to use any electronic devices for non-academic purpose during class time. This includes laptops, tablets and cellphones.** While these devices can be useful in learning mathematics, in the classroom they are no substitute for paper and pencil and are generally detrimental to your own education and to the education of those around you. Students violating this policy will be asked to put away their device(s) or to leave the classroom if the problem persists. Any student may petition for an exemption by emailing me prior to Aug 25. Students granted an exemption will be expected to use their device(s) as inconspicuously as possible to reduce any negative externalities.

- Please allow 24 hours for me to respond to emails. I will not discuss grades over email per FERPA guidelines.
- *No makeup assignments will be given.*

Grades

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

Pre-test	5%
Participation	5%
Homework	15%
Midterm 1	15%
Midterm 2	15%
Midterm 3	15%
Final	30%

- **Reporting:** Grades will be uploaded to Canvas as assignments are graded.
- **Midterm:** There will be 3 midterm exams throughout the semester. All midterms will be on Wednesday and during the class time. I will send out information on the structure and expectations of the exam prior.
- **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-		

- **Grade Adjustments:** Other than the 0.5% bump discussed above, *I will not grant any request to increase your grade to meet a certain cutoff.* You will receive the grade that *you* earned throughout the course. If you are concerned about your grade(s) you should immediately come talk to me. I will do everything I can to help you be successful in this course.

Homework

- A pre-test assignment due **Sep 1 by 7pm** will check your ability to use the 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.

- You will submit one graded homework assignment at 5pm the day before each exam (for a total of 4). Late assignments will receive a score of 0. The problems will mirror the types of questions appearing on the exams. Working in groups is encouraged, however each student must turn in an individual assignment with the names of group members written at the top of the page. Groups may have at most 3 members.

Exams

- **Midterms:** Three midterms will be given during lecture time on the fixed dates in the schedule given in this syllabus. **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 on Monday, Dec 13, 7:30 – 10:00pm. This date is non-negotiable.
- Partial credit will be awarded on all exams.

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 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 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; 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. 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.

4 Tentative Schedule

The daily 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. *EC* denotes the relevant *Essence of Calculus* video.

Week	Content
Week 1: Aug 23-27	<ul style="list-style-type: none"> • Topics: Administration, Introducing Derivatives • Sections: 6.1, 6.2, 6.5;
Week 2: Aug 30-Sep3	<ul style="list-style-type: none"> • Topics: Uses of Derivatives; Pre-test due Sep 1 by 7pm • Sections: 6.3, 6.4, 6.6;
Week 3: Sep 6 - 10	<ul style="list-style-type: none"> • Topics: Rules of Derivatives • Sections: 6.7, 6.8;
Week 4: Sep 13-17	<ul style="list-style-type: none"> • Topics: More Rules of Derivatives; • Sections: 6.9, 6.10, 6.11;
Week 5: Sep 20 - 24	<ul style="list-style-type: none"> • Topics: Review; Midterm 1 Sep 22 • Sections: Ch. 6 review, 7.1; Homework 1 due Sep 20 by 7pm
Week 6: Sep 27 - Oct 1	<ul style="list-style-type: none"> • Topics: Using Derivatives • Sections: 7.2, 7.7, 7.8;
Week 7: Oct 4 - 8	<ul style="list-style-type: none"> • Topics: Introduction to Optimization • Sections: 8.1, 8.2, 8.3
Week 8: Oct 11-15	<ul style="list-style-type: none"> • Topics: Tools for Optimization in Economics • Sections: 8.6, 8.7
Week 9 Oct 18-22	<ul style="list-style-type: none"> • Topics: Review; Multivariable Functions; Homework 2 due Oct 18 by 7pm • Sections: Ch. 7&8 review, 11.1, 11.5; Midterm 2 Oct 20
Week 10 Oct 25-29	<ul style="list-style-type: none"> • Topics: Partial Derivatives • Sections: 11.2, 11.6
Week 11: Nov 1-5	<ul style="list-style-type: none"> • Topics: Using Partial Derivatives, Review • Sections: 11.7, 11.8, 14.1, Ch. 11 Review
Week 12: Nov 8-12	<ul style="list-style-type: none"> • Topics: Anti-derivatives and Their Interpretations, Intro to Definite Integrals • Sections: 9.1, 9.2, 9.4
Week 13: Nov 15-19	<ul style="list-style-type: none"> • Topics: Review; Homework 3 due Nov 15 by 7pm • Sections: Ch. 11 Review; Midterm 3 Nov 17
Week 14 Nov 22-26	<ul style="list-style-type: none"> • Topics: Fall and Thanksgiving Break, No class • No Class M, W, F;
Week 15: Nov 29 - Dec 3	<ul style="list-style-type: none"> • Topics: Definite Integrals • Sections: 9.3, 9.6,;
Week 16: Dec 6 -10	<ul style="list-style-type: none"> • Topics: Review, <i>No class on Dec 10</i> • Sections: Ch. 9 Review, Semester Review; Homework 4 due Dec 6 by 7pm
TBD	<ul style="list-style-type: none"> • Final Exam: Monday, Dec 13, 7:30 - 10:00 PM