



Instructor: Yuanyuan Wang

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Office Hours (via Zoom):

Mondays and Thursdays, 1:30 PM–3:00 PM

Additional appointments are available upon request.

Zoom link: <https://cuboulder.zoom.us/my/yuanyuanwang>

INSTRUCTOR BIO

Yuanyuan Wang is a Ph.D. student in Economics at the University of Colorado Boulder. Her research focuses on how environmental policies influence firm compliance and innovation. She is also interested in the use of artificial intelligence (AI) in policy analysis. In her research, she applies large language models (LLMs) to large-scale data analysis in several areas, including extracting and analyzing industrial robot policies, identifying sister facilities, and analyzing patent similarity. Yuanyuan believes economics provides powerful tools for understanding how individuals, firms, and governments respond to incentives in a changing world. In her free time, she enjoys rock climbing, traveling, and watching variety shows. She also enjoys spending time with her dog, Climer, and often takes her to local dog parks.

Term Start: May 26th, 2026

Term End: July 17th, 2026

COURSE WEBSITE

Our course website is Canvas

- Login using your University of Colorado Boulder Identikey and password
- Under course list, click “ECON 1088-581 Math Tools for Economists Online”
- Note: All email correspondence will be through your CU Boulder email address
 - *Do not use the Canvas email or messages, it is not checked*

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. 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.

COURSE PREREQUISITES

Requires prerequisite courses of:

ECON 1078 or MATH 1011 or MATH 1071 or MATH 1150 or MATH 1160 (minimum grade C-) or an ALEKS math exam taken in 2016 or earlier, or placement into pre-calculus based on your admission data and/or CU Boulder coursework.

COURSE OBJECTIVES

By the end of the course, you should be able to:

- Understand, calculate, and interpret derivatives
- Apply your knowledge of calculus to optimization problems
- Calculate integrals
- Connect concepts covered in this course to important economic concepts you've seen and/or will cover in future economic courses

REQUIRED COURSE MATERIALS

Textbook (required): College Mathematics for Business, Economics, Life Sciences, and Social Sciences, 14th edition with MYLAB MATH. Published by Pearson, Copyright 2019. By Barnett, Ziegler, Byleen, and Stocker. You have automatic access to the online platform (including the e-book) through CU's Day 1 Digital Access. You will automatically be billed \$72.28 (before taxes) on your tuition fee bill. This is a low price discounted by the publisher, and not available outside this course. You can opt out of this to avoid the charge but will not have access to the online platform required to complete the course work if you do.

SUPPLEMENTAL READINGS

Supplemental readings and other materials will be provided in Canvas system, via the CU Library electronic reserve, direct upload, or links to websites.

ONLINE COURSE STRUCTURE

This course is organized in daily topics that are taught through a combination of assigned textbook readings, instructional videos, practice questions and graded online homework. Students are tested on the content of the previous week through an online quiz each Monday or Tuesday and are required to complete a proctored final exam at the end of the course. Students are expected and encouraged to utilize the instructor's office hours to get any extra help they need throughout the semester.

GRADING

All assignments are based on questions that you have the opportunity to practice ahead of time. Any assignment can be submitted up to 48h late for a penalty of 10%. If you are experiencing extenuating circumstances that warrant a longer grace period, please email your instructor immediately.

Course Logistics Assignments • Syllabus Quiz, Plan My Summer Quiz, MyLab Quiz, Proctoring Quiz • Beginning of Semester and End of Semester Zoom Check-in • 2 attempts each. • Designed to ensure your success in the course.	5%
20 (best of 26) Daily Homework Assignments • Due at 11.59PM on the day a topic is covered. • Open book, open note. • 1 attempt each. • Designed to help your learning of each topic.	40%
6 (best of 7) Weekly Quizzes • Due at 11.59PM on Mondays or Tuesdays. • Require Proctorio. • 60-minute time limit, 1 attempt each.	25%

Designed to test your understanding of the topics covered throughout the previous week.	
4 Review Videos - Due at 11.59PM on the day of a review. - Graded based on completion only. - Each video requires you to work on and answer a number of in-video questions. - Designed to help you review topics already covered.	5%
Final Exam - Open from Thursday 7/16 to Sunday 7/19 at 11.59PM. - Requires Proctorio or in-person proctoring.	25%

Who can be my proctor?

If you are in Boulder or nearby, you can take your exam:

1. With me at the Department of Economics. There is no cost for using this proctor. This option is only on selected days during the exam period.
2. At the University Testing Center on-campus in Boulder, CO. There may be a cost for using the testing center. This option is only available M-F during regular business hours.
3. With Proctorio or a comparable online proctoring service as determined by your instructor. Online proctoring is a service that uses a webcam and microphone to ensure academic integrity. To use this service, you must have access to a computer with a webcam and a microphone. There is no cost for using this proctor.

If you outside of Boulder, you can take your exam:

1. At an accredited college or university testing center in your town or nearby. There may be a cost for using this testing center.
2. With Proctorio or a comparable online proctoring service as determined by your instructor. Online proctoring is a service that uses a webcam and microphone to ensure academic integrity. To use this service, you must have access to a computer with a webcam and a microphone. There is no cost for using this proctor.

Please see Canvas for detailed information about proctoring, including the contact information for the UTC, Proctorio, and a nationwide list of accredited college or university testing centers. If you are in a rural area or on a military base, you may need to be approved to use a person as a proctor and information is provided on Canvas for this approval process.

COMMUNICATION

I am dedicated to your success in this course! I am understanding and always happy to help you in any way that I can. Please always feel free to reach out to me:

E-mail: yuan yuan.wang@colorado.edu

- I will respond to email within 12-24 hours, but usually within 2-4 hours (if the email comes through between 9am and 6pm). I always respond to emails. If you have not had a response within 24 hours, I did not receive the email. Be sure to use your CU email address because sometimes Gmail and yahoo email accounts are filtered into my spam folder.

Mobile: (720) 394-2906

- This is my cell phone number. I only respond to texts.
- Please introduce yourself and include the course number (ECON 1088) the first time you text me
- Text anytime between 8am – 7pm MTN. I sometimes have my phone silenced during certain parts of the day, but I am usually very quick to respond.

Additional ways to contact Yuanyuan Wang:

- Online Office Hours: Mondays and Thursdays: 1:30 PM – 3:00 PM via Zoom
<https://cuboulder.zoom.us/my/yuanyuanwang>

General Course Announcements

- Announcements: Please check the “announcements” section on Canvas.

COURSE POLICIES

NETIQUETTE

All students should be aware that their behavior impacts other people, even online. I hope that we will all strive to develop a positive and supportive environment and will be courteous to fellow students and your instructor. Due to the nature of the online environment, there are some things to remember.

1. Always think before you write. In other words, without the use of nonverbals with your message, your message can be misinterpreted. So please think twice before you hit submit.
2. Keep it relevant. There are places to chat and post for fun everyday stuff. Do not stray from the discussion in the assigned questions.
3. Never use all caps. This is the equivalent of yelling in the online world. It is not fun to read. Only use capital letters when appropriate.

Make sure that you are using appropriate grammar and structure. In other words, I don't want to see anyone writing “R U” instead of “are you”. There are people in the class that may not understand this type of abbreviation, not to mention it does nothing to help expand your writing and vocabulary skills. Emoticons are fine as long as they are appropriate. A smile ☺ is welcome, anything offensive is not.

4. Treat people the same as you would face-to-face. In other words, it is easy to hide behind the computer. In some cases, it empowers people to treat others in ways they would not in person. Remember there is a person behind the name on your screen. Treat all with dignity and respect and you can expect that in return.
5. Respect the time of others. This class is going to require you to work in groups. Learn to respect the time of others in your group and your experience will be much better. Always remember that you are not the only person with a busy schedule, be flexible. Do not procrastinate! You may be one that works best with the pressures of the deadline looming on you, but others may not be that way. The same is true for the reverse. The key to a successful group is organization, communication and a willingness to do what it takes to get it done.

Website: <http://www.albion.com/netiquette/corerules.html>

Compiled by Melissa Landin, Instructor, Dept. of Communication, Inver Hills Community College,
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TECHNOLOGY REQUIREMENTS AND SUPPORT

What are the basic computer specifications for Canvas?

- Visit the official [Canvas Computer Specifications Page](#) for the latest list of recommended system requirements.

Which browsers does Canvas support?

- Visit the [Supported Browsers Page](#) for the detailed list of internet browsers in Windows, MacOS, iOS and Android.

Skill Requirements

- Students also need to possess basic computer skills, such as:
 - How to use a web browser and word processor
 - How to send and receive email
 - How to locate a file and attach it to an email or upload a file into a course
 - How to copy and paste
 - Must know basic typing skills and keyboard commands
 - Must know basic computer terminology

TECHNICAL SUPPORT

- Canvas technical support. If you are experiencing issues with Canvas please contact:
 - CU Boulder's Help desk at 303-735-4357 (5-HELP) or help@colorado.edu. 5-Help will answer your call: Monday through Friday from 7:30 a.m. to 7:00 p.m., Saturday and Sunday from noon to 6:00 p.m., Closed during [University Holidays](#)
 - On your computer, click the “help” (?) icon on the left side of Canvas, once logged in
 - Within the Canvas App, you can search the Canvas support guides, Report a Problem or chat with Canvas Support 24 hours a day, 7 days a week.
- MyLab tech support:
 - https://help.pearsoncmg.com/ccng/ccng_instr/ccng_xmel_instr_help_support_bridge.html or <https://support.pearson.com/getsupport/s/>

COURSE POLICIES – 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 Conduct & Conflict Resolution policies](#).

REQUIREMENTS FOR INFECTIOUS DISEASES

Members of the CU Boulder community and visitors to campus must follow university, department, and building health and safety requirements and all applicable campus policies and public health guidelines to reduce the risk of spreading infectious diseases. If public health conditions require, the university may also invoke related requirements for student conduct and disability accommodation that will apply to this class.

If you feel ill and think you might have COVID-19 or if you have tested positive for COVID-19, please stay home and follow the guidance of the Centers for Disease Control and Prevention (CDC) for isolation and testing. If you have been in close contact with someone who has COVID-19 but do not have any symptoms and have not tested positive for COVID-19, you do not need to stay home but should follow the guidance of the CDC for masking and testing.

HONOR CODE

"On my honor, as a University of Colorado Boulder student I have
neither given nor received unauthorized assistance."

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: 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); 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 on the [Honor Code website](#).

SEXUAL MISCONDUCT, DISCRIMINATION, HARRASSMENT 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, 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, 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. Because of the flexibility of timing of completion of assignments in this class, you must contact the instructor in at least two weeks in advance if you anticipate a religious holiday may impact your completion of coursework.

For more information on the religious holidays most commonly observed by CU Boulder students consult the [online interfaith calendar](#).

STUDENT 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.

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.

COURSE WITHDRAWAL POLICY

Any student who wishes to withdraw from the course must submit a request directly to [Continuing Education](#). For complete information, please visit their website at <https://ce.colorado.edu/resources/topics/dates-and-deadlines-general-info/>

ADDITIONAL SUPPORT SERVICES

A variety of instructional support services, such as writing center, guidance on personal or educational issues, tutoring questions and library resources are available to the students. For more information about their services, visit their websites linked under modules in Canvas.

COURSE SCHEDULE

Date	Topic	Textbook	Due at 11.59PM
Week 1			
M 5/25	---		
T 5/26	Class Introduction		Syllabus Quiz Plan My Summer Quiz Schedule Zoom Check-in
W 5/27	Math Tools 1 Review		Review Video 1 Proctoring Quiz MyLab Quiz
Th 5/28	1-Introduction to Limits	9.1	HW1
F 5/29	2-Infinite Limits and Limits at Infinity	9.2	HW2
Week 2			
M 6/1	3-Continuity	9.3	HW3
T 6/2			Quiz 1
W 6/3	4-The Derivative	9.4	HW4
Th 6/4	5-Basic Differentiation Properties	9.5	HW5
F 6/5	6-Differentials	9.6	HW6
Week 3			
M 6/8	7-Marginal Analysis in Business and Economics	9.7	HW7
T 6/9			Quiz 2
W 6/10	8-The Constant e and Continuous Compound Interest	10.1	HW8
Th 6/11	9-Derivatives of Exponential and Logarithmic Functions	10.2	HW9
F 6/12	10-Derivatives of Products and Quotients	10.3	HW10
Week 4			
M 6/15			Quiz 3
T 6/16	11-The Chain Rule	10.4	HW11
W 6/17	12-Elasticity of Demand	10.7	HW12
Th 6/18	13-First Derivative and Graphs	11.1	HW13
F 6/19	Holiday - No Work Assigned		
Week 5			
M 6/22	14-Second Derivative and Graphs	11.2	HW14
T 6/23			Quiz 4
W 6/24	15-Absolute Maxima and Minima	11.5	HW15
Th 6/25	16-Optimization	11.6	HW16
F 6/26	Review Day		Review Videos 2 and 3 Schedule Zoom Check-in
Week 6			
M 6/29			Quiz 5
T 6/30	17-Functions of Several Variables	14.1	HW17
W 7/1	18-Partial Derivatives	14.2	HW18
Th 7/2	19-Maxima and Minima	14.3	HW19
F 7/3	20-Maxima and Minima Using Lagrange Multipliers	14.4	HW20
Week 7			
M 7/6			Quiz 6
T 7/7	21-Antiderivative and Indefinite Integrals	12.1	HW21

W 7/8	22-Integration by Substitution	12.2	HW22
Th 7/9	23-The Definite Integral	12.4	HW23
F 7/10	24-Fundamental Theorem of Calculus	12.5	HW24
Week 8			
M 7/13			Quiz 7
T 7/14	Review Day		Review Video 4
W 7/15	Review Day		HW25 (Practice Final) HW26 (Practice Final)
Th 7/16-Sun 7/19	Cumulative Final Exam		Complete between TH-S 11.59PM