



University of Colorado Boulder  
MATH TOOLS FOR ECONOMISTS 1  
ECON 1078 SYLLABUS, Spring 2024

---

## INSTRUCTOR: DR. KAREN GEBHARDT

Email [karen.gebhardt@colorado.edu](mailto:karen.gebhardt@colorado.edu)

### Mobile

This is my cell phone number. Call or text anytime between 9am – 8pm MTN. I sometimes have my phone turned off during the middle of the day, but leave a message when it is a good time to get a hold of you and I will call you back.

### Office Hours

Office Hours: Wednesdays 9-11 am using Zoom and by appointment

On-Campus Office Location: 203 Economics ([link to map](#))

## INSTRUCTOR BIO

Dr. Karen Gebhardt is the Director for Undergraduate Online Learning with the Office of Academic and Learning Innovation and the Director of the Online Economics Program with the Department of Economics and Division of Continuing Education at CU Boulder. Her research focuses on using learning analytics to improve student learning outcomes in economics education with an emphasis on improving grades and completion rates in online courses. She is an early adopter of technology in the classroom and advocates strongly for it because she sees the difference it makes in student engagement and learning. In her free time, Dr. Gebhardt enjoys rock climbing and traveling in the Colorado Rockies and beyond.

G

*From General Catalog: Teaches mathematical skills and logical thinking for use in economics. Topics include algebra, graphs, functions, and probability. Includes many "Real world" examples and some illustrative computer assignments.*

This course is the first of a two-course sequence (ECON 1078 and ECON 1088), designed to introduce a variety of mathematical concepts which will be used extensively in future economics coursework. Math will help you understand and describe the way firms and consumers optimize decisions subject to constraints. It will also provide the building blocks you will use in your statistics and econometrics courses, which will enable you to apply economics concepts to real-world data. This course is fundamentally a combined algebra review and a pre-calculus course. Topics include logic, algebra, number theory, set theory, graphs, functions, and more.

## COURSE PREREQUISITES

None

## COURSE OBJECTIVES

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

Complete exercises corresponding to basic college algebra including exercises related to real numbers, integer powers, basic algebraic identities and expressions, factoring, fractions, rational exponents, inequalities, intervals and absolute values.

Solve equations including how to solve simple linear equations (with parameters), systems of two linear equations, quadratic equations, and other non-linear equations.

Recall the rules of set theory and an introduction to logic including necessary and sufficient conditions.

Summation notation and working with summations.

Complete exercises related to functions, including exercises on the following topics:

- o definition of a function, notation, domain and range, and graphs of functions
- o linear functions: includes slopes, the general equation for a straight line, slope-intercept form, graphing, linear inequalities, and linear models
- o quadratic functions and how they can apply to economic models
- o polynomials: includes factoring polynomials, division, and rational
- o exponential and logarithmic functions
- o important function properties and techniques

ECON 1078: Math Tools for Economists 1

CU Book Access, CU Boulder's equitable access course materials program, provides degree-

ECON 1078:



Up to 30 points extra may be available during the semester for completing certain activities, such as listening and commenting on a podcast, completing special activities, etc. These extra credit opportunities will be determined by the instructor and announced in on Canvas.

## POLICY ON DUE DATES

Each module you will complete a series of critical thinking questions that reflect material from the various delivery formats and required readings. It is your responsibility to turn in each assignment on the required date. *Late assignments are not accepted for exams or professor check-ins. Topic homeworks and topic quizzes can be turned in up to two days late. The grade penalty is 10%.* The exceptions that may be considered is due to sickness, university excused function, or circumstances beyond the students' control. The instructor reserves the sole right to determine what grounds constitutes a reasonable excuse for missing or submitting a late work assignment and the right to require the student to submit proper verification of such excuse.

## EXPECTATIONS OF INSTRUCTOR

I take my role as your instructors very seriously, and, in fact, I care about how well you do in this course and that you have a satisfying, rewarding experience. To that end, it is our commitment to you to respond individually to the work you submit in this class and to return your work in a timely manner. If, however, due to unforeseeable circumstances, the grading of your work takes longer than the times I have listed here, I will keep you informed of my progress and make every effort to return your work with feedback as soon as I can.

Communication – I am nice and I want you to succeed. Do not hesitate to contact me about anything. Yes, anything.

E-mail

Instructor Karen Gebhardt [karen.gebhardt@colorado.edu](mailto:karen.gebhardt@colorado.edu)

All e-

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.
4. 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.
5. 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.
6. 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.

## ACCOMMODATION FOR DISABILITIES, TEMPORARY MEDICAL CONDITIONS, AND MEDICAL ISOLATION

[Disability Services](#) determines accommodations based on documented disabilities in the academic environment. If you qualify for accommodations because of a disability, submit your accommodation letter from Disability Services to your faculty member in a timely manner so your needs can be addressed. 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 or required medical isolation for which you require accommodation, please contact me through email, text, or phone call as soon as possible. Also see [Temporary Medical Conditions](#) on the Disability Services website.

## 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, political affiliation, or political philosophy.

For more information, see the [classroom behavior policy](#), the [Student Code of Conduct](#), and the [Office of Institutional](#)



misconduct can contact OIEC at 303-492-2127 or email [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about university policies, [reporting options](#), and support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents related to these policies regardless of when or where something occurred. This is to ensure that individuals impacted receive an outreach from OIEC about their options for addressing a concern and the support resources available. To learn more about reporting and support resources for a variety of issues, visit [Don't Ignore It](#).

## 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 one week 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](#).

## 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.

## 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 public health orders to reduce the risk of spreading infectious diseases.

The CU Boulder campus is currently mask optional. However, if masks are again required in classrooms, students who



Wednesday

