ECON 1078-003

Math Tools for Economists 1

MWF 2:00 pm - 2:50 pm in ECON 119

Teacher: Akhil Rao

Email: akhil.rao@colorado.edu
Class website: D2L
Oce location: ECON 414
Oce Hours: MWF 12:30 pm - 1:30 pm, Tuesday 10:00 am - 11:00 am, and by
          appointment

This syllabus will guide our class, but it is not set in stone. I will update it throughout the
semester to ensure that it reects our goals and progress.

Course Description: This course is the rst of two courses designed to give you the mathe-
matical background necessary for future courses in business and economics. Topics to be covered
in this course include basic college-level algebra, simple linear and nonlinear equations, functions
and their graphs, systems of equations, set theory, summation, logic and proofs.

Text: *Essential Mathematics for Economic Analysis*, 4th Edition
Authors: Knut Sydsaeter, Peter Hammond, and Arne Strom

Course Objectives:
After taking this class, you should have an understanding of:

1. Basic college algebra: including real numbers, integer powers, basic algebraic identities and
   expressions, factoring, fractions, rational exponents, inequalities, intervals and absolute val-
   ues.
2. Equations: including how to solve simple linear equations (with parameters), systems of two
   linear equations, quadratic equations and other non-linear equations.
3. Set Theory and an introduction to logic (including necessary and sucient conditions).
4. Summation notation and working with summations (vital for Econ 3818).

and the following topics relating to functions:

1. The basics: Includes the denition of a function, notation, domain and range, and graphs of
   functions.
2. Linear functions: Includes slopes, the general equation for a straight line, slope-intercept
   form, graphing, linear inequalities, and linear models.
3. Quadratic functions and how they can apply to economic models (e.g. a simple monopoly
   model).
4. Polynomials: Includes factoring polynomials, division, and rational functions (these skills are
   often employed in Econ 3070).

5. Exponential and logarithmic functions used extensively in intermediate economics courses (e.g. when presenting positive, monotonic transformations).
6. Important function properties and techniques: Includes products and quotients, shifting functions, and composite functions.

- { You may work with up to 3 other students to solve problem sets. You must list the students you worked with at the top of your submission.
- { Information about assignments will be given in class, on the syllabus, and on D2L. You are responsible for keeping track of assignment due dates and submission guidelines.
- { **No late assignments will be accepted under any circumstances**.

Attendance

- { Attendance is expected and will be taken via clicker beginning in week 2. Your lowest 3 clicker scores will be dropped.
- { Each clicker question will be worth 3 points: 2 for attendance, and 1 for correctness.
- { Students are responsible for all missed work, regardless of the reason for absence.
- { Using multiple clickers to answer a question for someone who is absent is not allowed. Such instances will be treated as cheating by all involved, and followed up on accordingly.

Computers, calculators, and clickers

- { I encourage you to use tools like graphing calculators/websites and computer algebra systems to better understand the material and work through the problem sets. However, \because my calculator said so" is not a su cient answer to a question with computations.
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Letter Grade Distribution:

>= 94.00	A	73.00 - 76.99	C
90.00 - 93.99	A-		

Honor Code: All 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. All incidents of academic misconduct shall 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 the faculty member and non-academic sanctions (including but not limited to university probation, suspension, or expulsion). Other information on the Honor Code can be found at honorcode.colorado.edu or

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http://www.colorado.edu/policies/honor.html
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Discrimination & Harassment Policy: The University of Colorado at Boulder Discrimination and Harassment Policy and Procedures, the University of Colorado Sexual Harassment Policy and Procedures, and the University of Colorado Con ict of Interest in Cases of Amorous Relationships Policy apply to all students, sta , and faculty. Any student, sta , or faculty member who believes s/he has been the subject of sexual harassment or discrimination or harassment based upon race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression or veteran status should contact the O ce of Discrimination and Harassment (ODH) at 303-492-2127, or the O ce of Student Conduct (OSC) at 303-492-5550. Information about the ODH, the above referenced policies, and the campus resources available to assist individuals regarding discrimination or harassment can be obtained at http://www.colorado.edu/odh.