



## ECON 1088-001 Mathematical Tools for Economists 2

*Instructor:* XIANG (Email: xich0606@colorado.edu)  
*Class Meeting:* DUAN G2B47 MWF 10-10:50AM  
*Office Hours:* MW 11AM-12PM or by appointment (preferred)  
*Website:* <https://canvas.colorado.edu/>

**Description:** This is an introductory calculus course. The mission is to equip you with a quantitative skillset for your success in upper-level ECON classes. A certain familiarity with algebra (a pre-calculus placement, ECON 1078 or equivalent MATH 1000-level coursework with minimum grade  $C^-$ ) is an essential prerequisite. The course spans univariate differentiation, optimization, integration, and basic multivariable derivative. The official methods of communication are via your CU email and Canvas. Please check them regularly in order to receive up-to-date announcements, course materials, posted grades, exam procedures, opportunities, etc.

**Textbook:** Knut Sydsæter, Peter Hammond, Arne Strøm, and Andrés Carvajal (2016). *Essential Mathematics for Economic Analysis* (5e). Pearson MyLab Math Global digital access. You have the right to opt out, in which case, you pay nothing, but you will lose the access to the homework system.

### Tentative Content:

No.	Content
1	Tangents and derivatives; Monotonic functions; Limits
2	Rules for differentiation; Higher-order derivatives
3	Exponential/Logarithmic functions; Implicit differentiation
4	Derivatives of inverse functions; Taylor approximations
5	Continuity/differentiability; Intermediate value theorem
6	Elasticity; Infinite sequences; L'Hôpital's rule
	<b>Midterm I</b>
7	Extreme points; The extreme value theorem; Economic examples
8	Single-variable optimization; inflection points
9	Multivariate functions; Partial derivatives; Partial elasticity
	<b>Midterm II</b>
10	Indefinite integrals; Properties of definite integrals
11	Economic applications of integrals; Integration by parts/substitution
12	Improper Integrals; Test of convergence
	<b>Final Exam</b>

See <https://www.colorado.edu/academics/academic-calendar> for administrative calendars.

## Grading:

- **Class Participation (10%):** There will be clicker tests over the course. Please bring your registered clicker to each class. Full credit is given for a correct answer, partial credit for an incorrect answer, and zero for an absence. Absenteeism in the first two weeks might trigger an administrative drop. The lowest five and the first two clicker records will be dropped. Reasonable absences will be excused, including health necessities, religious observances, family-related emergencies, compliance with judicial obligations, intercollegiate varsity sports, and intramural events (e.g., art performance, ROTC, etc.).<sup>1</sup> Students requesting absence excuses should notify the instructor in advance (except for unforeseen incidents) and provide authentic documentation.
- **Homework (25%):** Assignments are on the MyLab Math system. This online homework platform features multiple attempts, interactive feedback, and virtual tutoring. Homework and clicker questions resemble those on exams. You could work in groups, but should submit individually. The lowest  $\frac{1}{3}$  records will be dropped. A hard deadline will be enforced on 12/15/2019 11:59PM. You are encouraged to keep up with the pace of our lecture.
- **Midterm (30%):** There will be two midterms. The class will vote for your preferred midterm dates. You could refer to your notes and use a calculator; but may not use any other electronic device or communicate with a classmate in the exam. If you miss a midterm due to an extenuating circumstance, your overall grades will be re-weighted proportionately among other parts. Students anticipating conflicts with a midterm or qualifying for an accessibility accommodation should notify the instructor in advance and provide authentic documentation.
- **Final (35%):** The final exam is scheduled on 12/15/2019 7:30-10pm by the registrar. The exam rules for the midterms apply for the final. Per university's [final examination policy](#), you are entitled to arrange an alternative time for the last exam scheduled on that day if you have three or more finals on the same day or two finals that overlap in scheduled hours.
- **Extra Credit (0~4%):** students who closely keep up the pace of their homework with the lecture progress, get perfect attendance, or actively participate in class will earn some bounty scores.

The instructor has the primary responsibility that the grading and its related class policies are transparent, inclusive, professional, and consistent. At the end of the semester, the instructor will use a bell curve to assign letter grades. The departmental guideline stipulates an average letter grade of  $B^-/C^+$ . Thus, the class ranking of weighted average score essentially determines the letter grade. Students are encouraged to reach out to the instructor for grade improvement advice in the middle of the course, but may not request for an individual grade bump-up after the final exam. The instructor reserves the rights of interpretation and amendment for the policies herein. Students can dispute the grading for any component

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<sup>1</sup>Absences due to recreational travel, entertainment, part time job/internship, and involvement in an extramural entity generally cannot be excused. The maximum number of clickers one can drop due to extenuating circumstances is five.

when suspecting a misreporting or an undervaluation. Students should comply with the university [code of conduct](#), including the [academic integrity policy](#). The component found accountable for [honor code breach](#) will receive no credit. Exam cheating or repeated minor offense ordinarily results in a failure of the course and disciplinary actions by the [OSCCR](#). If the letter grade is unsatisfactory, students could either petition for a [Retroactive Withdrawal](#) or retake the course through the [Grade Replacement Policy](#). As a last resort, students have the right to appeal through the [Grievance Procedure](#).

### **Miscellanea:**

[Tutoring Resource](#). The ECON Department provides a free [drop-in tutorial lab](#) for undergraduate courses at ECON 12. The [Mathematics Academic Resource Center](#) located at MATH 175 is staffed with tutors who are expert to help with calculus. The residence life offers free small group [ASAP tutoring](#) services for students living on campus and commuting freshmen. The ECON, MATH, and APPM departments also compile their graduate student tutor lists in which you may hire a private tutor.

[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 determine 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](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition or injury, see [Temporary Medical Conditions](#) under the Students tab on the Disability Services website.

[Classroom Behavior](#). Students and faculty each have responsibility for maintaining an appropriate learning environment. 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. Class rosters are provided to the instructor with the student's legal name. We will gladly honor your request to address you by an alternate name or gender pronoun. Please advise us of this preference early in the semester so that we may make appropriate changes to my records. For more information, see the policies on [Classroom Behavior](#) and the [Student Code of Conduct](#).

[Honor Code](#). All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: 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](mailto:honor@colorado.edu); 303-492-5550). Students who are 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 academic integrity policy can be

found at the [Honor Code Office website](#).

[Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation](#). The University of Colorado Boulder is committed to fostering a positive and welcoming learning, working, and living environment. The university will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and 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](mailto: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 the 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 Holiday](#). 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. In this class, students anticipating conflicts of schedule due to religious observances should notify the instructor in advance. Missed clicker quizzes will be excused. Missed exams will be reweighted or rescheduled to an alternative time. See the [Campus Policy Regarding Religious Observances](#) for full details.

[Office of Victim Assistance](#). The OVA ([assist@colorado.edu](mailto:assist@colorado.edu); 303-492-8855) provides free and confidential information, consultation, support, advocacy and short term counseling services to University of Colorado Boulder students, faculty and staff who have experienced a traumatic, disturbing or life disruptive event.

[FERPA](#). The Family Educational Rights and Privacy Act of 1974 (FERPA) is a federal law that protects the privacy of student education records. FERPA gives students the right to inspect their own education records and also prohibits school officials from disclosing personally identifiable information about students to third parties without written permission. If you would like to give a third party (e.g., a parent or sponsor) access to your education records you must complete a [FERPA Consent to Release Form](#).

[University-Related Activity \(BFA-M-2-040518\)](#). Students formally affiliated with curricular and extracurricular university-related activities are required to communicate in writing with the instructor about potential conflicts within the first week of class or as soon as the student learns of a conflicting event. This deadline is established in order to provide students with time to change their course schedule if necessary. Instructors are not obligated to accommodate any potential conflicts, but may, at their own discretion, allow reasonable accommodations for these absences. In this class, the same procedure and policy for religious observances apply for conflicts of class due to university-related activities.