# ECON 4070-001 TOPICS IN MICROECONOMICS

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Office hours: MWF 12.03-1.03pm or by appointment
Class time and location: MWF 9-9.50am, EDUC 231
Class website: *CULearn*; see https://culearn.colorado.edu/
Personal website: http://www.colorado.edu/Economics/people/faculty/savage.html

## Course Description
Topics in Microeconomics develops and applies analytical techniques used by economists to examine decision making with inter-dependence, uncertainty and asymmetric information. The course comprises four parts. Part I reviews microeconomic and mathematical concepts. Part II examines risk and information in the context of utility maximization. Part III investigates problems with imperfect information such as adverse selection and moral hazard. Part IV examines topics in law and economics.

## Objectives
Develop the economic tools learned in *ECON 3070 Intermediate Microeconomic Theory* to understand how agents make optimal decisions when facing uncertainty and asymmetric information.

Use economic tools to gain greater understanding of the economics of finance and insurance markets, where risk and imperfect information play a key role.

Become comfortable using algebra, calculus and diagrams to develop models that explain microeconomic questions.

## Prerequisites
Available to students who have completed *ECON 3070 Intermediate Microeconomic Theory*.  Completion of *ECON 4808 Introduction to Mathematical Economics*, or the equivalent, is desirable. Please note that the course meets a requirement for The Actuarial Studies Certificate Program. The course will be taught with mathematical emphasis. Students should be familiar with microeconomic principles, algebra, calculus, optimization techniques and probability covered in prerequisite classes, and be comfortable expressing these concepts in short-answer questions in homework assignments and examinations.

## Textbooks
There is no required textbook for this class. Appropriate readings will be indicated during lectures and updated on CULearn. Outlines of lecture notes will also be provided on CULearn. Your textbook from *ECON 3070 Intermediate Microeconomic Theory* will prove extremely useful for many topics. Alternatively, you may want to consider picking up a second-hand copy of:

*Microeconomics*, by David Besanko and Ronald Braeutigam, John Wiley & Sons; and/or

and/or

*Intermediate Microeconomics: A Modern Approach*, by Hal Varian, W.W. Norton and Company (any latter edition).

**Class requirements**
The class meets Monday, Wednesday and Friday from 9am to 9.50am. Although there is no grade for attendance, attendance and class participation will be duly noted. A sign-in sheet will be circulated during each class, and it is your responsibility to make sure that you have signed in by the end of class.

Please be aware that the critical thinking required for successful completion of this course may not come naturally for many students. Class exposure to model building, applied problems and solutions is the best way to become proficient in the application of microeconomic theory and the way economists think and solve problems.

Feel free to form study groups to review and discuss lecture/reading material, homework assignments etc., but you must submit individual work for grading (hint: if you work with a study group or individual class mates on assignments, please list the names of these persons on the front page of your submitted assignment).

Students should:
- (a)     attend three 50 minute classes per week;
- (b)     review and augment notes after lectures;
- (c)     complete (a minimum of 4 out of 5) homework assignments;
- (d)     complete two mid-term examinations; and
- (e)     complete one final examination

Students are expected to be punctual, polite and prepared to engage in discussion with the instructor and class mates. See http://colorado.edu/policies/classbehavior.html
for University of Colorado polices on student classroom and course-related behavior

**Grading**
There will be five homework assignments (with the lowest score dropped from the overall grade), two mid-term examinations and one final examination. The weightings for these assessments are:

| | | |
|---|---|---|
| Homework assignments | (4×7.5%) | 30% |
| Mid-term exams | (2×20%) | 40% |
| Final exam | (1×30%) | 30% |

Homework questions will consist of short-answer and problem solving questions that require students to use diagrammatic, mathematical and written skills to prove their answers. The presentation of your homework solutions will count in your assignment

grade. Please take the time to clearly and neatly write out mathematical and graphical answers. Basic requirements for presentation include: name on first page; staple pages; place page numbers on each page; clearly title and label any graphs, tables, etc.; and ensure mathematical notation is clearly legible and readable. Obviously, a word document helps to ensure neat presentation, but it is not necessary.

The mid-term and final examination will consist of short-answer and problem solving questions similar to homework questions and class applications.

There will be no make-up homework assignments or mid-term examination unless there is a proven emergency or other unusual circumstances that have been discussed with the instructor prior to submission/completion dates. If you aware of any problems that may hinder your performance in the class please discuss with the instructor sooner than later. Any student that misses the mid-term examination due to proven emergency or other circumstances may have their final exam re-weighted with instructor approval.

The final examination is scheduled for Tuesday, May 3, 1.30-4pm. See the CU calendar at http://registrar.colorado.edu/calendar/exam_sched_spring11.html.

| Important dates for assessment | |
| --- | --- |
| Feb 11 | Homework 1 |
| Feb 21 | Mid-term exam I |
| Feb 25 | Homework 2 |
| Mar 18 | Homework 3 |
| Apr 1 | Mid-term exam II |
| April 8 | Homework 4 |
| April 22 | Homework 5 |
| May 3 | Final examination |

**Campus policies**
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 differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. See polices at http://www.colorado.edu/policies/classbehavior.html and at http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code

The University of Colorado at Boulder policy on Discrimination and Harassment, the University of Colorado policy on Sexual Harassment and the University of Colorado policy on Amorous Relationships apply to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of discrimination or harassment based upon race, color, national origin, sex, age, disability, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment

(ODH) at 303-492-2127 or the Office of Judicial Affairs 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.

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 http://www.colorado.edu/policies/honor.html and at http://www.colorado.edu/academics/honorcode/.

Disability Services' letters for students with disabilities indicate legally mandated reasonable accommodations. The syllabus statements and answers to Frequently Asked Questions can be found at http://www.colorado.edu/disabilityservices.

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. In this class, please indicate by email, near the beginning of the semester, if there is a conflict. See full details at http://www.colorado.edu/policies/fac_relig.html.

**Class schedule, lectures, homework etc.**
Proposed topics are provided in the table below. Please note that the outline of topics is subject to change during the term depending on how fast we work through the proposed topics. All changes will be announced in class and online via CULearn, https://culearn.colorado.edu/. Please check CULearn and syllabus regularly for changes. Class lecture handouts, assignment questions, solutions and additional reading materials will be made available when appropriate via CULearn.

**Table 1. Proposed course outline**

| Week | Date | Topic |
|---|---|---|
| 1. | Jan 10<br>Jan 12, 14 | **Part I. Review**<br>- Introduction<br>- Microeconomics review |
| 2. | Jan 17<br>Jan 19, 21 | - *No class: Martin Luther King Day*<br>- Mathematical review |
| 3. | Jan 24<br>Jan 26, 28 | - Mathematical review<br>- Game theory |
| 4. | Jan 31<br>Feb 2, 4 | - Game theory<br>- Behavioral economics |
| 5. | Feb 7, 9, 11 | **Part II. Risk & Information**<br>- Utility maximization with certainty |
| 6. | Feb 14, 16, 18 | - Uncertainty, risk |
| 7. | Feb 21<br>Feb 23, 25 | - *Mid-term exam I*<br>- Uncertainty, risk |
| 8. | Feb 28, Mar 2, 4 | - Insurance & diversification |
| 9. | Mar 7, 9, 11 | - Risky assets |
| 10. | Mar 14, 16, 18 | **Part III. Imperfect Information**<br>- Adverse selection |
| 11. | Mar 21, 23, 25 | - *No classes, Spring break* |
| 12. | Mar 28, 30<br>Apr 1 | - Adverse selection<br>- *Mid-term exam II* |
| 13. | Apr 4, 6, 8 | - Contracts, moral hazard |
| 14. | Apr 11, 13, 15 | - Incentive-compatible contract design |
| 15. | Apr 18, 20, 22 | **Part IV. Law & Economics**<br>- Crime & punishment |
| 16. | Apr 25, 27, 29 | - Liability law, antitrust law |
| 17. | May 3 | - *Final examination* |