

Economics 4808  
Introduction to Mathematical Economics  
Fall 2013

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**Office Hours:** M 1:00 – 5:00; W 11:15 – 11:45; and Friday afternoons by appointment.

**Course Description**

Econ 4808 is a course that will improve your math skills and will introduce you to how mathematical tools are applied in economic analysis. The ability to apply mathematics is crucial for economic analysis. Thus, this course is essential for anyone who wants to pursue graduate work in economics or a career in economic analysis.

The course covers the mathematics and economic applications of equilibrium, slopes and derivatives, differentials, optimization (maximizing profit and utility, and minimizing cost), constrained optimization (e.g., maximizing utility subject to the budget constraint) and integration. Applications include problems in consumer and producer theory, general equilibrium, and welfare economics. The course will also somewhat follow the unpublished text written by Professor Edward Morey. The material is available at: <http://www.colorado.edu/Economics/morey/4808/4808read.html>

**Prerequisites**

Principles of Economics (Econ 2010 and Econ 2020, or Econ 1000) are prerequisites, and so are Econ 1078 (Mathematical Tools for Economists 1) and Econ 1088 (Mathematical Tools for Economists 2), or the equivalent. One or more semesters of Calculus would suffice for Econ 1078 and 1088. Econ 3070 is a prerequisite, but this course and 3070 are complements so you may be able to take them at the same time. It is **very** important that you fulfill the prerequisites **before** you take this course, and **still** understand the materials in the prerequisites. To be successful in mathematical economics, you need to first be comfortable with algebra and derivatives. If you have any uncertainty as whether you are under or over qualified to take the course, please talk to me ASAP.

**Class format**

The course includes both lectures and problem-solving. In-class problems will be solved both individually and in groups. The readings for this course will be posted on the course web site although some of the material for which you are responsible will be presented in lectures only, and is not explicitly covered in the readings. Review problems will be posted on the course web site.

**Readings**

*Essential Mathematics for Economic Analysis* (by Knut Sydsaeter and Peter Hammond) is the official math text for undergraduate economics majors here at C.U. You are expected to own a copy and understand much of the material in this book. The book is the required text for Econ 1078 and Econ 1088 and students in those courses are told to keep and use the book until they finish their undergraduate major in economics.

### **Homework**

Homework assignments will be posted on the class website. It is a vital part of learning the math concepts we will cover and their applications. Some class time will be set aside to do and go over homework assignments.

### **In-class Problems**

It is important to understand how to apply concepts as we cover them, so you will be required to work on some problems in class (both individually and in groups).

### **In-class Projects**

These cooperative learning exercises are extremely helpful in preparing you to solve more in-depth analytical problems.

### **Exams and Grading**

|                                   |     |
|-----------------------------------|-----|
| Homework                          | 12% |
| In-class Problems                 | 8%  |
| In-class Projects                 | 6%  |
| Exam I (Friday 9/27)              | 17% |
| Exam II (Monday 10/30)            | 17% |
| Exam III (Friday 12/6)            | 17% |
| Final Exam (Wed. 12/18 at 4:30pm) | 23% |

There will be three exams and a cumulative final. No exams will be dropped. To be fair to everybody, I will not answer ANY questions during exams (even about typos) – this puts everyone on equal footing during the exams. Exams (except for the final) are not cumulative, but the material does build on itself so it is important to understand all of the concepts as we go. No makeup exams will be given. If you miss an exam, you will receive a zero. There is one exception to this rule. In the event that you do not take one of the exams, the weight of the final exam may be increased if you are ill and can provide proof (e.g. a letter from the student health center), or you have a **prearranged** excused absence from me.

### **Policy on Cheating:**

If you are found to have violated the honor code (see below), by both myself and the honor code council, you will automatically fail the course!

### **Attendance Policy**

There is no strict attendance policy, but we will do problems in class each day that will count towards your overall grade. If you miss in-class projects it will affect your grade!

### **Final Exam Conflicts**

If you have three or more final exams scheduled on the same day, you are entitled to arrange an alternative exam time for the **last** exam or exams scheduled on that day. To qualify for rescheduling final exam times, you must provide evidence that you have three or more exams on the same day, and arrangements must be made with your instructor no later than the end of the sixth week of the semester (Friday, October 4<sup>th</sup>, 2013).

**I am adamant about giving each student an equal opportunity to perform well in the course, so there will be no extra credit opportunities that are not offered to the entire class. You should focus your efforts on learning the material and doing well on the exams.**

**Incompletes, Extra Credit, etc.**

I adhere strictly to the University guidelines on Incompletes (“An I is given only when students, *beyond their control*, have been unable to complete course requirements. A substantial amount of work must have been *satisfactorily completed* before approval for such a grade is completed.”). Bad grades, unsatisfactory performance, too many credit hours, work conflicts, etc. are not reasons for an incomplete.

*Grading Scale:*

| <b>Your Score</b> | <b>Grade</b> |
|-------------------|--------------|
| 92% to 100%       | A            |
| 90% to 91%        | A-           |
| 88% to 89%        | B+           |
| 82% to 87%        | B            |
| 80% to 81%        | B-           |
| 78% to 79%        | C+           |
| 72% to 77%        | C            |
| 70% to 71%        | C-           |
| 68% to 69%        | D+           |
| 62% to 67%        | D            |
| 60% to 61%        | D-           |

**Additional Notes:**

*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](mailto: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). Additional information on the Honor Code can be found at <http://www.colorado.edu/policies/honor.html> and at <http://www.colorado.edu/academics/honorcode>

*Disabilities*

If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu).

If you have a temporary medical condition or injury, see Temporary Medical Conditions: Injuries, Surgeries, and Illnesses guidelines under Quick Links at Disability Services website and discuss your needs with your professor.

### *Religious holidays*

A comprehensive calendar of the religious holidays most commonly observed by CU-Boulder students can be found at <http://www.interfaithcalendar.org/> Review this list and the class syllabus. After reviewing the syllabus, please see the instructor if you believe that you need an accommodation for religious reasons. The instructor should be notified within the first two weeks of classes. Campus policy regarding religious observances states that faculty must make *reasonable* accommodation for them and in so doing, be careful not to inhibit or penalize those students who are exercising their rights to religious observance. For more information see [http://www.colorado.edu/policies/fac\\_relig.html](http://www.colorado.edu/policies/fac_relig.html)

### *Code of 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 differences of race, color, culture, religion, creed, politics, veteran's status, sexual orientation, gender, gender identity and gender expression, age, disability, 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 policies at <http://www.colorado.edu/policies/classbehavior.html> and at [http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student\\_code](http://www.colorado.edu/studentaffairs/judicialaffairs/code.html#student_code)

### *Policy on Discrimination and Harassment*

The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. The University of Colorado does not discriminate on the basis of race, color, national origin, sex, age, disability, creed, religion, sexual orientation, or veteran status in admission and access to, and treatment and employment in, its educational programs and activities. (Regent Law, Article 10, amended 11/8/2001). CU-Boulder will not tolerate acts of discrimination or harassment based upon Protected Classes or related retaliation against or by any employee or student. For purposes of this CU-Boulder policy, "Protected Classes" refers to race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, or veteran status. Individuals who believe they have been discriminated against should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office 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>