

# ECON 4310/5310: MATHEMATICAL METHODS FOR ECONOMICS

Fall 2008, TR, 3:00-4:15 p.m., BUS 211

---

---

Instructor: Shantanu Bagchi  
Office: TBA  
Office hours: TBA  
Email: sbagchi@econ.usu.edu  
Phone: TBA  
Textbook: Hess, Peter. Using Mathematics in Economic Analysis,  
Prentice Hall, 1<sup>st</sup> ed., 2002.

**This syllabus is our contract, so please read it carefully.**

- **Course Objectives:**

Most of the economics courses that you have taken in the past have relied primarily on graphical analysis, with only a minimal amount of mathematical analysis. Many of the economic concepts that you are familiar with can best be analyzed using some fairly straightforward mathematical tools. These tools often prove to be very powerful analytical devices because (a) a mathematical model can frame an economic problem and reinforce its implications more succinctly, and (b) economic intuition can sometimes fail, whereas mathematical models can illuminate such counter-intuitive situations. Although we will often build rather abstract mathematical models, we will always try to connect these models to economic theory, to current economic events, and to economic decisions that we make in day-to-day living. This course should help develop a solid base in matrix algebra, differential calculus, constrained optimization (and if possible, integral calculus) methods that are used in economics.

- **Special Accomodation:**

In accordance with requirements of the Americans with Disabilities Act, reasonable accommodation and materials in alternative format will be provided for persons with disabilities. If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center, preferably during the first week of the course. Any request for special considerations relating to attendance, pedagogy, taking of examinations etc., must be discussed with and approved by the instructor.

- **Examinations and Assignments:**

There will be three midterms and one final examination. Also, small assignments and/or quizzes will be given periodically. Students will be informed in advance about in-class quizzes, if any.

- **Examination Schedule:**

Mid-term 1: Thursday, September 25, 2008  
Mid-term 2: Thursday, October 23, 2008  
Mid-term 3: Thursday, November 13, 2008  
Final: Thursday, December 11, 2008, 1:30 p.m.-3:20 p.m., BUS 211.

- **Grading Policy:**

Item	Weight
Exams (4)	80% (20% each)
Homework (about 6)	18%
Quizzes/Participation	2%

- **Grade Scale:**

Percentage score	Grade
100-93	A
92-90	A-
89-87	B+
86-83	B
82-80	B-
79-77	C+
76-73	C
72-70	C-
69-67	D+
66-63	D
62-60	D-
Below 60	F

- **Tentative Course Outline:**

Section 1:	Introduction to economic models	Ch. 1
	Review of basic mathematics	Ch. 2
	Perfectly competitive markets	Ch. 3
	<b>Mid-term 1</b>	
Section 2:	Linear systems of equations	Ch. 5
	Theory of firm: short run decisions	Ch. 6
	Firms in competitive markets	Ch. 7
	<b>Mid-term 2</b>	
Section 3:	Imperfect competition: Monopoly	Ch. 8
	Imperfect competition: Oligopoly	Ch. 9
	Theory of firm: constrained optimization	Ch. 10
	<b>Mid-term 3</b>	
Section 4:	Consumer behavior	Ch. 12
	Basic macroeconomic models	Ch. 13/14
	<b>Final exam</b>	

**Note:** Any request of taking exams on dates other than the ones mentioned above must be made AT LEAST ONE WEEK in advance, and the exam must be taken prior to the scheduled date.

- **Plagiarism:**

Utah State University has well defined policies about plagiarism, which hopefully will not be an issue for this class. Plagiarism includes knowingly “representing, by paraphrase or direct quotation, the published or unpublished work of another person as one’s own in any academic exercise or activity without full and clear acknowledgment. It also includes the unacknowledged used of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.” The penalties for plagiarism are severe. They include warning or reprimand, grade adjustment, probation, suspension, expulsion, withholding of transcripts, denial or revocation of degrees, and referral to psychological counseling.