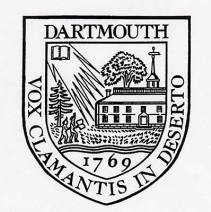

Dartmouth College
Department of Economics
Spring 2008

Econ 81: Advanced Topics in Microeconomics

Meets: 2A time slot, Tuesday and Thursday 2:00–3:50 p.m., Silsby 013. X-hour Wednesday 4:15–5:05 p.m.

Professor: Christopher Snyder. Office hours: Wednesday 10:00–11:45 a.m. and 1:45–3:00 p.m.; Silsby 312A; telephone 646–0642; email Christopher.M.Snyder@dartmouth.edu; webpage http://www.dartmouth.edu/ csnyder.

Texts:

Hoy, Michael, *et al.* (2001) *Mathematics for Economists.* Cambridge, Massachusetts: MIT Press. Required text, available for purchase at the bookstore. (Abbreviated HLMRS.)

Athey, Susan, Paul Milgrom, and John Roberts. (1998) *Robust Comparative Statics*. Mimeo, Stanford University. Available for download via the link on Blackboard. (Abbreviated AMR.)

Nicholson, Walter, and Christopher Snyder. (2008) *Microeconomic Theory: Basic Principles and Extensions*. Mason, Ohio: Thomson South-Western. Chapters 8, 15, and 18 in PDF files available for download via the link on Blackboard. (Abbreviated NS.)

Other articles will be distributed as needed via Blackboard.

Overview and Philosophy: The course will cover various topics in microeconomics at a more advanced level than typically covered in undergraduate courses. The first unit, which will span more than half the course, will cover mathematical economics including comparative statics, the Kuhn-Tucker method for inequality-constrained optimization, differential equations, and optimal control. For each of these topics, we will cover both theory and microeconomic applications.

The remainder of the course will cover asymmetric information, including such topics as adverse selection, moral hazard, mechanism design, auction theory, signaling games, and cheap talk. The contract-theory unit will follow Chapter 18 of Nicholson and Snyder, supplemented with a few sections of other chapters and journal articles.

Prerequisites: Math 8 (multivariable calculus) and Econ 20, 21, and 22 with a grade of A- or better in each.

Course Requirements: In view of the limited class time and amount of material to be covered, and the nature of the class as a seminar, students will be expected to undertake a substantial amount of work independently and to be able to present their work and ideas when called on.

- *Participation and attendance:* There will be 19 classes; attendance and participation are required. Students will receive up to 5 points totaled up across the following categories: 1 point for adequate attendance (missing no more than three classes), 1 point for perfect attendance, 2 points for adequate participation (volunteering answers at times, having thoughtful comments when called on), and 1 point for stellar participation (being well prepared for all but a few classes, volunteering insightful comments or offering them when called on). Participation is also an important element for students seeking letters of recommendation in this class.

- *Problem sets:* A number of long problem sets will be assigned, collected and graded. The grade will consist of a "check plus" for nearly flawless execution and/or solution of problems of unusual difficulty, "check" for satisfactory completion of the assignment, a "check minus" for an assignment handed in on time but with significant errors or omissions, and a "zero" for assignments not handed in. Late problem sets will receive a "zero."

- *Projects:* Students will complete two projects. The first is to identify an interesting topic from a previous economics class in which comparative-statics analysis was applied. Students will prepare a five-page paper describing the project and the nature of the comparative statics analysis done previously, and then using the tools studied in class to extend and generalize the analysis as far as possible. Grade will be based on the interest in teh topic, the rigor of the analysis, and the quality of the write up (grammar, organization, etc.).

  The second project will be a wild card, a student choice among two possible topics. The first possible topic is similar to the first project, asking him or her to apply one of the other mathematical tools (constrained optimization, differential equations, optimal control) from class to an exercise from a previous economics class in order to formalize, extend, and generalize the earlier analysis. The second topic is pedagogical and can be worked

on in groups. Students will choose one of 19 different topics from microeconomic theory corresponding to the 19 chapters in the NS text. Students can choose to plan a lesson around the chapter including lecture notes, projects, problems, and so forth.

- *Exams:* A midterm will be given in class on April 24. The final is scheduled for Monday, June 2, at 11:30 a.m. There will be no make-ups for missed exams.
- *Extra credit:* Students can attend any approved economics seminar on campus and have up to four points added to a problem set or project grade (overall, out of 100) or a credit of equal weight added to an exam grade. The amount of extra credit depends on the quality of a one-page response to the seminar. The response can summarize the seminar content, discuss the student's reaction to the material, and in the best case focus on instances where the material from the course appeared in the seminar or paper.

Grading:

Participation	5%
Problem Sets	5%
Project 1	15%
Project 2	15%
Midterm	25%
Final	35%

Academic Integrity: Students are expected to abide by the honor code. The following are details on academic integrity as it relates to this class. Exams will be open-note and open-book but students may not communicate with each other during the exam. Students may work on problem sets with members of their study groups (groups of no more than three). The only restriction on study groups is that students write up the final solutions themselves. Students can discuss their projects with their study groups in broad terms, and may have another student proofread their work, but must complete the assignment independently. Note the exception that if students choose the second option for the second project, they would submit one project for the group. Extensions on the projects' and paper's deadlines will carry a penalty (automatic grade reduction). If you have a question about an issue of academic integrity, ask ahead of time before you act to avoid any problems.

Study Groups: Early in the term, students will form formal study groups of no more than three. The groups will work together on problem sets and (if they choose the topic for project 2) a possible joint project. Students are encouraged to study with their group throughout the term.

Blackboard: The Blackboard web-based application will be used to post course materials and to facilitate communication via email.

Disabilities: Students with learning, physical, or psychiatric disabilities enrolled in this course that may need disability-related classroom accommodations are encouraged to make an office appointment to see me before the end of the second week of the term. All discussions will remain confidential, although the Student Disability Services office may be consulted to discuss appropriate implementation of any accommodation requested.

Econ 81 Schedule

	Tues.	Wed. X-hour	Thurs.
Week 1	Mar. 25 **Introduction, Comparative Statics** HLMRS 14	Mar. 26	Mar. 27 **Comparative Statics**
Week 2	Apr. 1 **Comparative Statics** PS 1 assigned	Apr. 2 **Comparative Statics** AMR 1-2	Apr. 3
Week 3	Apr. 8 **Comparative Statics** PS 1 due	Apr. 9	Apr. 10 **Constrained Optimization** HLMRS 15 PS 2 assigned
Week 4	Apr. 15 **Constrained Optimization** PS 2 due	Apr. 16	Apr. 17 **Differential Equations** HLMRS 21-24
Week 5	Apr. 22 **Midterm**	Apr. 23	Apr. 24 **Differential Equations** PS 3 assigned
Week 6	Apr. 29 **Differential Equations**	Apr. 30	May 1 **Differential Equations** PS 3 due
Week 7	May 6 **Optimal Control** HLMRS 25	May 7	May 8 **Optimal Control** PS 4 assigned
Week 8	May 13 **Optimal Control** PS 4 due	May 14	May 15 **Moral Hazard** NS 18: pp. 627-642
Week 9	May 20 **Moral Hazard** Brown (2007)	May 21	May 22 **Adverse Selection** NS 18: pp. 642-663, 667-669 PS 5 assigned
Week 10	May 27 **Adverse Selection** Finkelstein & McGarry (2006) PS 5 due		

Final Exam:
Mon. June 2, 11:30 a.m.

Key:
Class
No Class
Possible Class