

Game Theory and Information Economics (101651-0172)

Shanghai University of Finance and Economics
First Term, 2012

Instructor

欧柏雄

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Office Hours: Tuesdays 1:30-3:30pm

Course Webpage: Blackboard website: <http://bb.shufe.edu.cn>

Lecture:

Mondays, 1:20-3:00pm, Room 305, Lecture Building I

Fridays 10:05-11:45pm, Room 305, Lecture Building I

Duration: 13 weeks

Teaching Assistant

孙洁

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Textbook

**Robert Gibbons, Game Theory for Applied Economists /A Primer in Game Theory (1999 Edition)*

Bernard Salanie, The Economics of Contracts: A Primer (2005 Edition)

Jean Tirole, The Theory of Corporate Finance (2006 Edition)

Gibbons (1999) is the main textbook of this course. Our coverage of game theory is going to follow quite closely to it, although extra materials will be presented wherever I see fit.

Our coverage of information economics is going to be based on selected chapters of Salanie (2005), and Tirole (2006).

Electronic version of the relevant chapters of the textbooks will be made available on the Blackboard website.

Prerequisites

This is an introductory course to game theory and information economics. I expect you to know basic calculus, in particular mathematics for optimization, as well as basic probability theory.

Language

The medium of instruction in all lectures is English. All teaching materials, including textbooks, lecture slides, homework assignments, and exams, are in English. You must use English in your homework assignments, and exams.

Course Objective

The first part of the class is about game theory. The objective of this part is to introduce basic tools that game theorists have developed to model and analyze real-life situations involving interactions among individual decision-makers.

The second part of the class is about information economics. The objective is to understand what effect information asymmetry has on the outcome of interactions, and how decision-makers respond to information asymmetry. Two particular important concepts, adverse selection, and moral hazard will be introduced. Applications in corporate finance will be emphasized.

Grades

Grades are determined by performance on homework assignments (20%), a midterm (30%), and a cumulative final exam (50%).

Midterm: If you miss the midterm exam, and have a legitimate excuse, the weight for the midterm will be reallocated to the final exam. There is no “make-up” midterm exam. The midterm exam is closed-book.

The exact date of the midterm exam will be announced later.

Final Exam: The final exam is cumulative, meaning that it is going to include ALL materials covered in the class. It is also a closed-book exam.

The exact date of the final exam will be announced later.

Assignments: There is a homework assignment every week. Assignments will be posted on the Blackboard website, typically on Tuesdays. The assignment is due in the first class of the following week. You can work on the assignments in group. Each group need to submit only one copy of the assignment, with names of all group members written on it. The maximum size of a group is 4 students. Late assignments will be not accepted.

Grading: What I want you to learn in this course is how to apply the methodology learned to a wide variety of problems/situations. Therefore, your exam grades will depend at least as much on the strength of your reasoning as on the final answers you give. You should write out a careful explanation for all of your answers. Also, although exams will be graded for correctness, problem sets will be graded primarily based on the TA’s best assessment of the effort invested.

Grade Disputes: Grade disputes impose a significant cost in terms of time and energy. The best way to avoid them is to answer questions clearly and concisely. Vague or ambiguous answers will typically lead to a low grade. That said, if you have a question or complaint about the grading of your exam, the first person to speak with is the TA who graded it. For simple matters, such as inquiring about how a question was graded or pointing out an arithmetic error in the calculation of your score, simply inform the TA of your question or problem. If your concerns are more substantial and are not satisfied after a discussion with the TA, you may submit your exam to me to be re-graded. My policy is that you may ask to have your entire exam re-graded (not just one particular question), which could ultimately result in either a higher or lower total score. Only the grades of exams written using a pen may be disputed. Problem sets may not be disputed and will not be re-graded.

Academic Conduct

Academic dishonesty, according to the student code of conduct, includes cheating on the assignments or exams; plagiarizing; altering; forging, or misusing a University academic record; taking, acquiring, or using test materials without faculty's permission. Academic dishonesty will not be tolerated. A minimum penalty for academic dishonesty is a grade of zero. Other penalties may include an F in the course and a complaint filed to university authorities, which would act consequently according to corresponding university policies.

Course Outline

This is a tentative course outline. It is likely to be modified as the course progresses, depending on time constraints or changing preferences.

For a more detailed plan, check the Teaching Progress Table on Blackboard.

Static Games of Complete Information (2.5 weeks)

- Representation: Payoff matrix
- Strictly Dominant Strategies and Iterated Elimination of Strictly Dominated Strategy
- Nash Equilibrium
- Mixed Strategy

Reading: Gibbons Chapter 1

Dynamic Games of Complete Information (1.5 weeks)

- Representation: Game tree
- Subgame-perfect Nash Equilibrium
- Repeated Games

Reading: Gibbons Chapter 2

Static Games of Incomplete Information (2 weeks)

- Representation
- Bayesian Nash Equilibrium
- Auction

Reading: Gibbons Chapter 3

Dynamic Games of Incomplete Information (2 weeks)

- Representation
- Perfect Bayesian Nash Equilibrium
- Bargaining

Reading: Gibbons Chapter 4

Information Economics (5 weeks)

- Adverse Selection: Lemons Problem
- Signaling
- Screening
- Moral Hazard

Reading: Salanie Chapter 2-5; Tirole Chapter 3, and 6