

GAME THEORY: SYLLABUS

Instructor: Xiang Sun

Wuhan University, Economics and Management School
Academic Year 2018–2019, Semester 1

Chinese title: 博弈论

Prerequisite: Calculus, Probability, Advanced Microeconomics, Basic Game Theory

Course description: This module introduces students in economics and other social sciences to game theory, a theory of interactive decision making. The module focuses on presenting basic concepts, core ideas, main results, and recent developments.

Modular credit: 3 modular credits

Modular number:

Time: Week 1–16, Tuesday 14:05–16:30

Venue: 教三-201

Module website: <http://www.xiangsun.org/teaching>.

Instructor: 孙祥

- E-mail: xiangsun.econ@gmail.com. I will only reply the “qualified” emails.
- Homepage: <http://www.xiangsun.org> (VPN may be needed).
- Office: Room A501-2, Liangsheng Building
- Telephone: +86 027 6875 5072
- Mailbox: 11-13

Office hours: By email appointment

Teaching assistants:

Main references:

[OR] Martin J. Osborne and Ariel Rubinstein, *A Course in Game Theory*, MIT Press, 1994.

Electronic version is available at [Osborne's homepage](#) or [Rubinstein's homepage](#). The latest version is on 24 Sep. 2012.

[Sun] Xiang Sun, *Lecture Notes on Game Theory: Theory and Examples*, 2018.

Electronic version is available at [Sun's homepage](#).

Language:

	Lecture notes	Lectures	Homework sets	Mid-term test	Final examination
Chinese		✓			
English	✓	✓	✓	✓	✓

Supplementary readings:

- * Robert J. Aumann, *Lectures on Game Theory*, Westview Press, 1989.
- * Drew Fudenberg and Jean Tirole, *Game Theory*, MIT Press, 1991.
- * Robert Gibbons, *Game Theory for Applied Economists*, Princeton University Press, 1992.
- Matthew O. Jackson, *Social and Economic Networks*, Princeton University Press, 2010.
- Geoffrey A. Jehle and Philip J. Reny, *Advanced Microeconomic Theory* (3rd Edition), Prentice Hall, 2011.
- Jean-Jacques Laffont and David Martimort, *The Theory of Incentives: The Principal-Agent Model*, Princeton University Press, 2002.
- * Vijay Krishna, *Auction Theory* (2nd edition), Academic Press, 2010.
- Harold Kuhn, *Lectures on Theory of Games*, Princeton University Press, 2003.
- * Michael Maschler, Eilon Solan, and Shmuel Zamir, *Game Theory*, Cambridge University Press, 2013.
- Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green, *Microeconomic Theory*, Oxford University Press, 1995.
- Roger Myerson, *Game Theory: Analysis of Conflict*, Harvard University Press, 1997.
- Martin J. Osborne and Ariel Rubinstein, *Bargaining and Markets*, Academic Press, 1990.
- Alvin E. Roth and Marilda Sotomayor, *Two-Sided Matching: A Study in Game-Theoretic Modeling and Analysis*, Cambridge University Press, 1992.
- John von Neumann and Oskar Morgenstern, *Theory of Games and Economic Behavior* (3rd edition), Princeton University Press, 1953.

Grading:

- Individual report on papers: 40%; Selection criteria for a paper to be read
 - 2000 or more recent.
 - Related to the topics covered.
 - Published on Ecta, AER, JPE, QJE, REStud, JET, TE, GEB, Rand, AEJ-Micro.
 - The chosen paper should be submitted to me for my approval before the last lecture.
- Closed-book final examination: 60%
 - Date and time: Examination week

- Venue: TBA
- Scope: Lectures 1–16
- Bonus:
 - 10 marks for attendance
 - 1 mistake in my notes = 1 mark, up to 3 marks
 - 3 typos in my notes = 1 mark, up to 2 marks
 - Each mistake and typo will be counted once. First come first get.

Examination policy:

- Each student should bring the student card with clear photo ID.
- Each student can bring one A4-size two-sided hand-written helpsheet.
- No permission is ever given to a student to write the mid-term test or final examination in advance of its date.
- Cheating = 0 mark
- The student who misses the mid-term test can have the weight of the missed mid-term test shifted to the final examination, if both of the following conditions are met:
 - The student notifies the instructor via e-mail and in advance of the date and time that the mid-term test will be missed.
 - The student submits an official medical certificate to the instructor within 3 working days of final examination.
- Students who do not write the mid-term test, and fail to meet both criteria receive a 0 mark.
- There is no make-up for the mid-term test or the final examination.

Course outline:

- Part 1: Lecture 1, history of game theory
- Part 2: Lectures 2–4, static game
- Part 3: Lectures 5–7, epistemic foundation
- Part 4: Lectures 8–11, dynamic game
- Part 5: Lecture 12, cooperative game
- Part 6: Lectures 13–16, topics

Tentative time table:

Week	Lecture	Date	[OR]	[Sun]	Topics	Remarks
1	1	Sep. 4	1	1	Introduction	
2	2	Sep. 11	2.1–2.4	2	Strategic games	
3	3	Sep. 18	2.5–2.6	4	Bayesian games	
4	4	Sep. 25	3.1–3.3	6–7	Mixed-strategy Nash equilibrium, correlated equilibrium	
5		Oct. 2				Holiday
6	5	Oct. 9	4	8	Rationalizability	
7	6	Oct. 16	5.1–5.3	9	Knowledge model	
8	7	Oct. 23	5.4–5.4	10	Interactive epistemology	
9	8	Oct. 30	6	11	Extensive games	
10	9	Nov. 6	7	12	Bargaining games	
11	10	Nov. 13	8	13	Repeated games	
12	11	Nov. 20	11–12	14	Extensive games with imperfect information	
13	12	Nov. 27	13–15	22	Coalitional games	
14	13	Dec. 4		14.4	Cheap talk	
15	14	Dec. 11		14.5	Bayesian persuasion	
16	15	Dec. 18		15.5	Sequential screening	
17	16	Dec. 25			Global game/Tutorial	
19		Jan. 13			<i>Deadline for report submission</i>	

Some useful web sites:

- <http://www.gametheorysociety.org>
- <http://www.gametheory.net>
- 关于博弈论学习和教材选择的一点建议 by 唐前锋