

GAME THEORY: SYLLABUS

Instructor: Xiang Sun

Wuhan University, Economics and Management School
Academic Year 2019–2020, Semester 1

Chinese title: 博弈论

Prerequisite: Calculus, Probability

Course description: This module introduces the basic concepts and thoughts in game theory. The module focuses on presenting basic concepts, core ideas, and main results.

Modular credit: 2 modular credits

Modular number: 3350210011540

Time: Week 1–12, Monday 18:30–20:55

Venue: 5-205

Module website: <https://www.xiangsun.org/teaching>, for announcements and lecture notes downloading.

Instructor: 孙祥

- E-mail: xiangsun.econ@gmail.com.
 - Before asking questions, please briefly read [提问的智慧](#).
 - Before sending e-mails, please read Topic 7 in [WISE 学生礼仪指南](#).
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- Telephone: +86 027 6875 5072
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Office hours: By email appointment

Teaching assistants: 刘茜 (E-mail: liuxi5328@163.com), 郭钰婷 (E-mail: yitingguo@outlook.com)

Main references:

- [Gi] Robert Gibbons, *Game Theory for Applied Economists*, Princeton University Press, 1992.
A good copy version is available at some printing stores on campus.
Do not use its Chinese translation—it contains lots of errors and typos.
- [G] Xiang Sun, *Lecture Notes on Game Theory: Theory and Examples*, 2018.
Electronic version is available at [Sun's homepage](#). The latest version is on March 5, 2018.
- [M] Xiang Sun, *Matching and Market Design: Theory and Practice*, 2018.
Electronic version is available at [Sun's homepage](#). The latest version is on February 28, 2018.

Language:

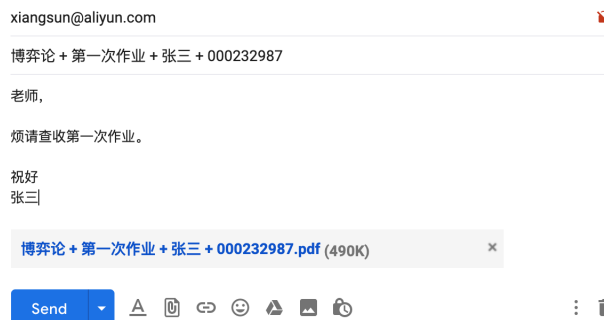
	Lecture notes	Lectures	Homework sets	Mid-term test	Final examination
Chinese		✓			
English	✓	✓	✓		✓

Supplementary readings:

- Avinash K. Dixit and Barry J. Nalebuff, *The Art of Strategy: A Game Theorist's Guide to Success in Business and Life*, W. W. Norton & Company, 2008.
中文翻译: 迪克西特, 奈尔伯夫, *妙趣横生博弈论 (珍藏版)*, 机械工业出版社, 2015.
- Avinash K. Dixit and Barry J. Nalebuff, *Thinking Strategically: The Competitive Edge in Business, Politics, and Everyday Life*, W. W. Norton & Company, 1993.
中文翻译: 迪克西特, 奈尔伯夫, *策略思维*, 中国人民大学出版社, 2016.
- 张维迎, *博弈论与信息经济学*, 格致出版社, 2012.
- 张维迎, *博弈与社会讲义*, 北京大学出版社, 2014.
- [关于博弈论学习和教材选择的一点建议](#) by 唐前锋.

Grading:

- Homework: 40%
 - Prepare the homework as a single PDF file, with the title “课程名 + 第几次作业 + 姓名 + 学号”.
 - E-mail the PDF homework to xiangsun@aliyun.com before the corresponding deadline.
 - The title of e-mail should be “课程名 + 第几次作业 + 姓名 + 学号”.
 - Sample



- Closed-book final examination: 60%
 - Date and time: Week 13
 - Venue: TBA
 - Scope: Lectures 1–11

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.
- Cheating = 0 mark.
- No permission is ever given to a student to write the mid-term test or final examination in advance of its date.
- There is no make-up for the mid-term test (if any) or the final examination (if any).
- The student who misses the mid-term test (if any) 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 (if any), and fail to meet both criteria receive a 0 mark.

- For the student who misses the final examination (if any), the University policy applies.

Course outline:

- Part 1: Lectures 1–9, non-cooperative game
- Part 2: Lecture 10, cooperative game
- Part 3: Lecture 11, matching

Tentative time table:

Week	Lecture	Date	Topics	Remarks
1	1	Sep. 2	[Gi] 1.1–1.2 Normal-form game, Nash equilibrium	
2	2	Sep. 9	[Gi] 1.2–1.3 Nash equilibrium	
3	3	Sep. 16	[Gi] 1.3–1.4 Mixed-strategy Nash equilibrium	
4	4	Sep. 23	[Gi] 2.1–2.2 Dynamic games and subgame perfect equilibrium	Hw1 due
5	5	Sep. 30	[Gi] 2.3–2.4 Repeated games	
6	6	Oct. 12	[Gi] 3.1 Bayesian Nash equilibrium	Hw2 due
7	7	Oct. 14	[Gi] 3.2 Auction	
8	8	Oct. 21	[Gi] 4.1–4.2 Perfect Bayesian equilibrium	
9	9	Oct. 28	[Gi] 4.2–4.3 Signing games	Hw3 due
10	10	Nov. 4	[G] 2.2 Cooperative game, core, Shapley value	Hw4 due
11	11	Nov. 11	[M] 2, 4–7 Matching, DA, TTC	
12	12	Nov. 18	Tutorial	Hw5 due
13		Nov. 25	Final	