**管院學士班課程大綱**

**BA/BBA Program Syllabus**

**2023.09.20修訂**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 系所Department | 經濟學系 Economics | | | | | 必選修compulsory/elective | | 選修Elective | |
| 課程名稱  Course title | Game Theory I | | | | | 學分數Credit(s) | | 3 | |
| 課號  Course Code | 5103365 | | | | | 全英文授課English Taught (EMI) | | 是(Yes) | |
| 學年/學期academic year/Semester | 114-1 Fall Semester 2025 | | | | | 上課地點Classroom | | School of Management 105R | |
| 講授教師  Instructor | Ho Pan Shum (沈豪斌) | | | | | 上課時間  Time | | TuTh 8:45 – 10:00 | |
| 教師辦公室&諮詢時間 Instructor office & office hour | | In Person: Tuesday 15:00-16:00 @ School of Management Room 316;  Online: Check “Important Information”. | | 教師聯絡資訊  Instructor Contact | | | Phone: 05-2720411 ext.34168  Email: ch@hopanshum.com | | |
| 助教  Teaching Assistant | | N/A | | 助教 聯絡資訊  TA contact | | | Email: N/A | | |
| 先修課程  Pre-requisite courses | Calculus I, Prinples of Economics (I & II). | | | | | | | | |
| 學習目標  Learning Objective | As a first course in game theory, students, after completing this course, are expected to becapable to:  1. Identify competitive and cooperative interdependences in decision making; and  2. Apply game-theoretic concepts and models to strategic interaction problems; and  3. Make recommendations on agents behavior when facing such problems; and  4. Think critically and reflect on internal or external thoughts from various sources, including journal articles, books, and newspapers; and  5. Learn independently through the exploration of academic resources and comprehension of unprocessed materials; and  6. Deploy modern technologies needed for future academic and career success. | | | | | | | | |
| 課程概述  Course Descriptions | Game theory provides a mathematical framework to analyze strategic interactions. This allows us to predict individual behavior when someone's choices and payoffs depend on the actions of other agents. This creates the potential for conflict and cooperation which must be addressed by sophisticated decision-making processes. This course will make you familiar with the main theoretical aspects of game theory, developing the necessary terminology and rules in a precise and rigorous manner. Accordingly, you should feel comfortable with some degree of mathematical formalism. This adds clarity to the way you think while also helping prepare those interested in more advanced studies.  The applications of game theory extend beyond economics and can be found in such  disparate fields as political science, biology and law. Examples of this include the  interactions between imperfectly competitive firms, the dynamics of auctions, bargaining situations, electoral competition, arms races and so on. Many of these problems can be framed in terms of simultaneous and sequential move games, with and without complete information. It is my hope that by the end of the semester you will have not just grasped the substance of these models, but you will also have improved your ability to think strategically in everyday life. | | | | | | | | |
| **對應AOL職能素養(AOL Competency)** | | | | | | | | | |
| **職能素養3(Competency 3): 問題解決能力Problem Solving Skills** | | | | **職能素養1(Competency 1): 成本效益分析Cost-Benefit Analysis** | | | | | |
| 課程類別  Course Attributes | □人文關懷課程(Humanities Caring) □競賽專題課程(Competition) ☑問題導向課程(Problem-solving) □專題導向課程(Project-based) □實作課程(Practice-based) □總整課程(Capstone) | | | | | | | | |
| 教材編選  Teaching materials | □自製簡報(self-made PPTs) ☑課程講義(Teaching Notes)  □自編教科書(self-made textbooks) □教學程式(programming)  □自製教學影片(self-made video) □其他(Others) | | | | | | | | |
| 教學資源  Teaching Resources | ☑課程網站(Website) □實習網站(Intern Web)  □教材電子檔供下載(Downloadable Files) | | | | | | | | |
| 教科書/參考書  Textbooks/References | Watson, Joel. Strategy: An Introduction to Game Theory. 3rd ed., W.W. Norton & Company, 2013. [Main] | | | | | | | | |
| 評量方式(請填百分比)  Assessment | 課堂參與 Participation | | 10% | | 個案討論 Case study | | | | % |
| 作業Homework | | 20% | | 專題 Project | | | | % |
| 小考Quiz | | % | | 其他1 other ( ) | | | | % |
| 期中考Midterm | | 30% | | 其他2 other ( ) | | | | % |
| 期末考Final | | 40% | | 其他3 other ( ) | | | | % |
| 報告Presentation | | % | | 其他4 other ( ) | | | | % |
| 其他說明  Other description | Students **must** read the document “Important Information” on top of this syllabus, which can be found on the course website.  Assessment methods and course policies could be found in the same document. | | | | | | | | |

**課程規劃表Course Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **週次**  **week** | **日期(週一)**  **Date(Monday)** | **內容**  **Description** | **教材章節**  **Textbook** | **其他說明**  **Remark** |
| **1.** | 9/8 | Course Introduction; Syllabus Rundown; The Extensive Form | 2 |  |
| **2.** | 9/15 | Strategies and the Normal Form; Beliefs, Mixed Strategies, and Expected Payoffs | 3, 4 |  |
| **3.** | 9/22 | General Assumptions and Methodology; Dominance and Best Response | 5, 6 | HW1 |
| **4.** | 9/29 | Rationalizability and Iterated Dominance | 7 |  |
| **5.** | 10/6 | Nash Equilibrium; Mixed-Strategy Nash Equilibrium | 9, 11 |  |
| **6.** | 10/13 | Oligogoly; Location and Partnership | 10, 8 | HW2 |
| **7.** | 10/20 | **Mid-term Exam I**; Evolutionary Game |  |  |
| **8.** | 10/27 | Details of the Extensive Form; Sequential Rationality and Subgame Perfection | 14, 15 | HW3 |
| **9.** | 11/3 | Analysis of Simple Bargaining Games | 19 |  |
| **10.** | 11/10 | Repeated Games and Reputation | 22 | HW4 |
| **11.** | 11/17 | Uncertainty and Risk | 24 |  |
| **12.** | 11/24 | Principal Agent Problem and Revelation Principle | 25 | HW5 |
| **13.** | 12/1 | **Mid-term Exam II**; Bayesian Nash Equilibrium | 26 |  |
| **14.** | 12/8 | Auctions; Perfect Bayesian Equilibrium | 27, 28 |  |
| **15.** | 12/15 | Job-Market Signaling and Reputation | 29 | HW6 |
| **16.** | 12/22 | Christmas Holidays; *Non-mandatory Class* |  |  |
| **17.** | 12/29 | Review Section; Problems Workshop |  |  |
| **18.** | 1/5 | **Final Exam** |  |  |