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# 應用賽局理論

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辦公室 (Office): 農業綜合館 216 室 教室 (Classroom): 綜合 202

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## 課程概述 (Course Description)

This is an introductory course to game theory. I will discuss what game theory is and isn't, and why we need to understand formal theory even in the era of big data. I will cover the fundamental concepts of game theory, including Nash Equilibrium in pure and mixed strategies, Subgame Perfect Nash Equilibrium, Bayesian Nash Equilibrium, Perfect Bayesian Nash Equilibrium, information asymmetry, signaling games and reputation. We will discuss applications of game theory in many fields throughout the semester. Student will learn to read formal notations and solve simple games.

## 課程目標 (Course Objective)

本門課旨在讓學生能夠:

- 熟悉各種類型的賽局理論模型
- 運用賽局理論分析經濟議題
- 以形式理論架構分析行為者決策
- 運用數理分析提升決策的嚴謹程度、避免邏輯盲點

## 課程要求 (Prerequisites)

- 個體經濟學 (建議, 非必要)
- 微積分 (建議, 非必要)

## Office Hours

週一 11:00 – 13:00 (採預約制)

## 參考書目 (Textbooks)

Strategy: An Introduction to Game Theory, 3rd Edition by J. Watson (華泰文化代理)

## 指定閱讀 (Reading Materials)

尚無。

## 評量方式 (Grading Policy)

分數比例如下：

- 10% 課程參與
- 30% 作業
- 30% 期中考
- 30% 期末考

如果期末考考得比期中考高，期末考分數就會取代期中考。學期末會再依據全班表現調分。

## 課程進度 (Schedule)

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第 1 週	9/27	About this Class Introduction
第 2 週	10/4	The Extensive Form Strategies and the Normal Form
第 3 週	10/11	國慶日放假
第 4 週	10/18	Beliefs, Mixed Strategies, and Expected Payoffs General Assumptions and Methodology
第 5 週	10/25	Dominance and Best Response Rationalizability and Iterated Dominance
第 6 週	11/1	Nash Equilibrium
第 7 週	11/8	Mixed-Strategy Nash Equilibrium
第 8 週	11/15	期中考
第 9 週	11/22	Details of the Extensive Form Sequential Rationality and Subgame Perfection
第 10 週	11/29	Oligopoly, Tariffs, Crime, and Voting Topics in Industrial Organization
第 11 週	12/6	Repeated Games and Reputation Collusion, Trade Agreements, and Goodwill
第 12 週	12/13	Random Events and Incomplete Information Risk and Incentives in Contracting
第 13 週	12/20	Bayesian Nash Equilibrium and Rationalizability Lemons, Auctions, and Information Aggregation
第 14 週	12/27	Perfect Bayesian Equilibrium
第 15 週	1/3	Job-Market Signaling and Reputation
第 16 週	1/10	期末考

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