

National Cheng Kung University

Modular Courses 2026 Summer Program

Academic Year : 115, Semester : 1

Category : Interdisciplinary Integration Courses

賽局理論導論

Introduction to game theory

Instructor

Brice Franke

Brice.Franke@gmail.com

Affiliation

Université Bretagne Occidentale

Graduation (Ph.D.)

Georg-August Universität Göttingen

(德國哥廷根大學)

Course

Course

Student Size

Type

Credit

(Maximum)

Lecture

1

25

+

Recitation

Student Background

College of Science, College of Engineering,

College of Electrical Engineering and Computer Science,

College of Management,

Preliminaries: elementary calculus and readiness to learn new concepts

Difficulty

☐ Challenging ☒ Moderately Difficult ☐ Medium ☐ Entry Level (Basic)

Format of The Course

Lecture 50%, Hands-on Practice 40%, Quiz 10% (15min)

補充說明：同學可以從**quiz**知道自己是否跟上進度，有問題盡快修正補上，避免最後一試定案的遺憾

Grading Policy

- 問題考試 90%：
第2-4天的每次quiz 佔評分12.5%，第5天的 final exam 佔 62.5%
- 出席率10%

Code of Conduct for The Course

Preliminaries: elementary calculus and readiness to learn new concepts

Course Description

Game theory is a mathematical model in which decision-making

involves several participants who interact with each other. In addition, it attempts to derive rational decision-making behaviors from social conflict-situations.

Game theory is originally a branch of mathematics; however, it finds many applications in many fields and disciplines.

賽局理論是一套模擬決策狀況的數學理論，此外它嘗試在社會性衝突情況中抽絲剝繭出理性的決策行為。賽局理論原本是數學的一個領域，但可以應用在很多其他領域（如經濟學管理學系等等）。

Keywords: Zero sum game, mixed strategies, Nash equilibrium

關鍵字：零和賽局，混合策略，Nash均衡

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Timetable and Syllabus

Period	Timetable	Syllabus
2026/7/13(Mon)	14:00 – 17:40	Preliminaries and introduction (講課+演習2h)
2026/7/14(Tue)	14:00 – 17:40	One round zero sum games with two players and their value (講課+quiz15min+演習1h45)
2026/7/15(Wed)	14:00 – 17:40	Mixed strategies in one round zero sum game with two players (講課+quiz15min+演習1h45)
2026/7/16(Thu)	14:00 – 17:40	One round non-zero sum games with multiple players (講課+quiz15min+演習1h45)
2026/7/17(Fri)	14:00 – 17:40	Dynamic games with multiple rounds 1h15 Final Exam

Goal of the Course

1. Ability to model a simple game situation with mathematical objects
2. Ability to analyze different game situations in the mathematical setting.
3. Ability to solve simple games with mathematical tools. The development of the semiconductor industry, which has been leading Taiwan's economy, would not have been realized without the plasma processing technology. In order to understand plasma processing,

The Importance, Cross-Over Disciplinary and Contemporary of The Curriculum

In recent years, the concept of game theory has often appeared in the popular media. This course is aimed to bring interested students into the field to learn how mathematical tools can be applied in the decision-making process.

Remarks

老師希望上課同學能同時學習系統性分析推理邏輯能力，而不是照模式解決問題的慣性，請同學務必在演習時間主動參與提問，有問題一定要提出，實作是深化授課內容最好的方式。

本課程若因天災等不可抗力之因素或中央、地方政府公告停課，授課教師需依情況依建議補課方式調整課程進度與補課；若需使用假日、國定假日補課，則需與所有修課學生達成共識方能用例假日補課。

建議補課方式：

1. 線上授課方式補課；
2. 當預期可能會因天災(颱風、超大豪雨...等)宣佈停課時，建議老師先行調整加快課程進度或預先增加可能天氣預警之前幾次課程時數；
3. 停課後隔天起延後下課，補足停課延誤的進度；若停課超過1天，則在開始上課後延後下課補課，或當週星期六、日補課；

更改課程授課方式，例如：DEMO 改以考試、報告、作業取代。

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