

# COURSE DETAIL

## APPLICATIONS OF GAME THEORY

**Country**

Hong Kong

**Host Institution**

University of Hong Kong

**Program(s)**

University of Hong Kong

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Economics

**UCEAP Course Number**

122

**UCEAP Course Suffix****UCEAP Official Title**

APPLICATIONS OF GAME THEORY

**UCEAP Transcript Title**

APPS OF GAME THEORY

**UCEAP Quarter Units**

5.00

**UCEAP Semester Units**

3.30

## Course Description

This course focuses on presenting and discussing a diverse range of game theory applications and conveying an understanding of how strategic players may navigate such scenarios. Game Theory is the standard tool for analyzing strategic situations and is widely used in many fields, including economics, finance, biology, and political science. It provides a way of thinking about such strategic situations, whether in economics, politics, relationships, evolution, sports, war, law, or everyday life. The first part of the course presents basic concepts such as Nash equilibrium, dominated strategies, or mixed strategies, and the most famous economic games (prisoner's dilemma, battle of sexes, matching pennies, beauty contests, etc.). The second part delves deeper into the analysis of dynamic games and covers questions and applications such as: How to build up a reputation; How to bargain; Duels (when should you shoot?); Cooperation (how selfish players can use "stick and carrot" to cooperate and collude); Hold-up problems (why and when your employer will invest in your human capital); and First- and second-mover advantage in markets - Wars of attrition. The third part of the course presents further applications of game theory that have been particularly influential in the history of economic theory, such as: Signaling (how to signal your qualities to an employer?); Mechanism design (how to sell your old house? how Google and eBay use auctions. What is the winner's curse?); and Information aggregation (is there a wisdom of the crowd?). Throughout the course, games are played with and against each other in class. Prerequisites: ECON1210 Introductory microeconomics; and MATH1009 Basic mathematics for business and economics or MATH1011 University mathematics I or MATH1013 University mathematics II.

### Language(s) of Instruction

English

### Host Institution Course Number

ECON 4214

### Host Institution Course Title

APPLICATIONS OF GAME THEORY

**Host Institution Course Details**

[https://ug.hkubs.hku.hk/f/course/255444/25\\_26-ECON4214.pdf](https://ug.hkubs.hku.hk/f/course/255444/25_26-ECON4214.pdf)

**Host Institution Campus****Host Institution Faculty****Host Institution Degree****Host Institution Department**

Economics

**Course Last Reviewed**

2025-2026

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