

# EF4484: ECONOMIC STRATEGY AND GAME THEORY

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## Effective Term

Semester A 2023/24

## Part I Course Overview

### Course Title

Economic Strategy and Game Theory

### Subject Code

EF - Economics and Finance

### Course Number

4484

### Academic Unit

Economics and Finance (EF)

### College/School

College of Business (CB)

### Course Duration

One Semester

### Credit Units

3

### Level

B1, B2, B3, B4 - Bachelor's Degree

### Medium of Instruction

English

### Medium of Assessment

English

### Prerequisites

Nil

### Precursors

Either one of the following  
EF3440Microeconomics for Business Strategy  
EF3442Intermediate Microeconomics

### Equivalent Courses

Nil

### Exclusive Courses

Nil

## Part II Course Details

### Abstract

This course is an introduction to game theory and strategic thinking. Ideas such as dominance, backward induction, Nash equilibrium, commitment, credibility, adverse selection, moral hazard and signalling are discussed and applied to games played in class and to real life examples drawn from economics, politics, sports and elsewhere.

The course also encourages discovery learning, which takes place when students use their knowledge and skills in game theory to discover solutions to problems in business and life.

### Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Identify the core concepts, models and methodologies of game theory		x	x	
2	Apply game theoretic tools to analyse market structure, competition, firm decisions and industry dynamics		x	x	
3	Apply game theoretic tools and strategic decision making to real life business situations				x

#### A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

#### A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

#### A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

### Teaching and Learning Activities (TLAs)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)	
1	Seminars	The seminars introduce fundamental concepts in game theory to students and encourage them to think critically and logically, with the goal to guide students to develop their ability to solve new problems of economic strategy by themselves.	1, 2, 3	3 hours/week

2	Discussion of Case Studies	Business case studies will be discussed in the lectures. Students will be encouraged to apply the various economic principles and basic theories of game theory to analyse specific industry problems and business practices.	2, 3	incorporated in lectures
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**Assessment Tasks / Activities (ATs)**

	ATs	CILO No.	Weighting (%)	Remarks
1	Midterm examination	1, 2, 3	30	
2	Group assignment	1, 2, 3	10	
3	Class discussion and participation	1, 2, 3	10	

**Continuous Assessment (%)**

50

**Examination (%)**

50

**Examination Duration (Hours)**

3

**Additional Information for ATs**

Students are required to pass both coursework and examination components in order to pass the course.

**Assessment Rubrics (AR)****Assessment Task**

Final Examination &amp; Midterm Examination

**Criterion**

Nil

**Excellent (A+, A, A-)**

Strong evidence of superior grasp of subject matter and knowledge base.

**Good (B+, B, B-)**

Sufficient evidence of superior grasp of subject matter and knowledge base.

**Fair (C+, C, C-)**

Some evidence of superior grasp of subject matter and knowledge base.

**Marginal (D)**

Marginal evidence of superior grasp of subject matter and knowledge base.

**Failure (F)**

Little or no evidence of superior grasp of subject matter and knowledge base.

**Assessment Task**

Class discussion and participation

**Criterion**

Nil

**Excellent (A+, A, A-)**

Strong evidence of original thinking; capacity to analyse and synthesize

**Good (B+, B, B-)**

Sufficient evidence of original thinking; capacity to analyse and synthesize

**Fair (C+, C, C-)**

Some evidence of original thinking; capacity to analyse and synthesize

**Marginal (D)**

Marginal evidence of original thinking; capacity to analyse and synthesize

**Failure (F)**

Little or no evidence of original thinking; capacity to analyse and synthesize

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**Assessment Task**

Group assignments

**Criterion**

Nil

**Excellent (A+, A, A-)**

Strong evidence of original thinking; capacity to analyse and synthesize

**Good (B+, B, B-)**

Sufficient evidence of original thinking; capacity to analyse and synthesize

**Fair (C+, C, C-)**

Some evidence of original thinking; capacity to analyse and synthesize

**Marginal (D)**

Marginal evidence of original thinking; capacity to analyse and synthesize

**Failure (F)**

Little or no evidence of original thinking; capacity to analyse and synthesize

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## Part III Other Information

**Keyword Syllabus**

Part I. Methodology

1. Static Games of Complete Information
2. Dynamic Games of Complete Information
3. Static Games of Incomplete Information
4. Dynamic Games of Incomplete Information

Part II. Applications

1. Bargaining

- 2. Industrial Organization
- 3. Cooperation and Competition
- 4. Law and Economics

### Reading List

#### Compulsory Readings

Title	
1	Watson, J. 2013, Strategy: An Introduction to Game Theory, W.W. Norton.
2	Dixit A.K., S. Skeath, and D.H. Reiley Jr. 2020, Games of Strategy, W.W. Norton.

#### Additional Readings

Title	
1	Dixit, A.K and B.J. Nalebuff, 2008, The Art of Strategy: A Game Theorist' s Guide to Success in Business and Life. W.W.Norton
2	Tadelis, S. 2013, Game Theory: An Introduction, Princeton.
3	Gibbons, R. 1992. Game Theory for Applied Economists. Princeton.
4	Fudenberg, D. and J. Tirole. 1991. Game Theory. The MIT Press.
5	Osborne, M.J. and A. Rubinstein. 1994. A Course in Game Theory. The MIT Press.