



B.E. International Program
Faculty of Economics, Thammasat University



Course Outline

EE 418 Economic Theory: Selected Topics (Game Theory)/

EE 415 Game Theory

Semester: 2/2011 (January 8 – May 20, 2012)

Lecturer : Assoc. Prof. Chaiyuth Punyasavatsut
Office : Room 7, 4th floor, 60th anniversary building
Tel: 02-6132466; 081-4001544
E-mail: chaiyuth@econ.tu.ac.th
Office hours: Tuesday 14.00-15.00 or by appointment

Lecture Time: Tuesdays and Thursdays: 12.30-14:00 pm

Lecture Venue: 304, Faculty of Economics

EE 418 Economic Theory: Selected Topics (Game Theory) (Curriculum 2004)

Prerequisite: By lecturer's consent

EE 415 Game Theory (Curriculum 2009)

Prerequisite: EE320 or EE421

Course Description: The application of game theory under complete and incomplete information including strategic games, Nash Equilibrium; Mixed-Strategies Equilibrium; Extensive games; Subgame perfect equilibrium; Bayesian game; Extensive game of incomplete information; other applications of game theory.

Textbooks

1. Gibbons, Robert. **Game Theory for Applied Economists**, Princeton University Press. 1992. [RG] *also as A Primer in Game Theory*, London: Harvester Wheatsheaf.
2. Mas-Colell, Andreu and Whinston, Michael D., with Green, Jerry R. **Microeconomics Theory**, Oxford University Press. 1995. [MWG]

Recommended Texts

1. Fudenberg, D. and Jean Tirole. **Game Theory**, MIT Press, 1991.
2. Osborne, Martin J. **An Introduction to Game Theory**. Oxford University Press, 2004.
3. Dixit, Avinash. and Susan Skeath. **Games of Strategy**, 2nd edition. Norton & Company, 2004.
4. Romp, Graham. **Game Theory: Introduction and Applications**. Oxford University Press, 1997.

Course Evaluation

Homework	30%	
Presentation	10%	
Mid-term exam	30%	(March 1 st at 12.30-14.00)
Final exam	30%	(May 17 th at 9.00-12.00).

Remarks:

- ♦ Second semester begins Jan. 9, 2012
- ♦ Period of withdrawal without “W” Jan. 9-23, 2012
- ♦ Mid-Term Examination Feb. 27 – March 3, 2012
- ♦ Last day of withdrawal with “W” March 21, 2012
- ♦ Last day of class Apr. 29, 2012
- ♦ Final Examination May 4 - 20, 2012

Course Content

0. Introduction

- 0.1 Development of Game Theory: an overview
- 0.2 Applications in Economics and other fields

1. Static Games with Complete Information (3 weeks)

- 1.1 Normal Form or Strategic form game representation
- 1.2 Iterated Elimination of Strictly Dominated Strategies
- 1.3 Nash Equilibrium

1.4 Applications of Nash Equilibrium

- (a) Duopoly model with Cournot Competition
- (b) Duopoly model with Bertrand Competition
- (c) Final-offer arbitration

1.5 Mixed Strategies and Existence of Equilibrium

[Read RG :chapter 1; MWG chapter 7 and 8A-8C, 8D]

[Homework 1]

2. Dynamic Games with Complete Information (5 weeks)

2.1 Extensive Form Game Representation

2.2 Games with Complete Information and Perfect Information

2.3 Backward Induction for Games with Complete and Perfect Information

2.4 Applications of Backward Induction

- (a) Stackelberg model
- (b) Rubinstein (1982) sequential bargaining

[Read RG 2.1]

2.5 Subgame Perfect Nash Equilibrium and applications

- (a) Bank runs
- (b) Tariff and Imperfect International competition

[Read MWG 9.B and appendix A; RG 2.2A- 2.2C]

2.6 Repeated Games

2.6.1 Finite Repeated Games

2.6.2 Infinitely Repeated Games

[Read RG 2.3A, 2.3B, appendix 2.3B]

2.7 Applications

- (a) Collusion in Oligopoly
- (b) Time-Consistent Monetary Policy

[Read RG 2.3C, 2.3E;]

2.8 Weakness of Backward Induction and Subgame Perfect Nash Equilibrium

[Homework 2]

***** [midterm about here] *****

3. Static Games with Incomplete Information (2 weeks)

3.1 Strategic Form Game Representation in Bayesian Games

3.2 Bayesian Nash Equilibrium

3.3 Applications

(a) Mixed strategies revisited

(b) An Auction

[Read RG chapter 3]

[Homework 3]

4. Dynamic Games with Incomplete Information (4 weeks)

4.1 Beliefs and Sequential Rationality Notions

4.2 Weak Sequential Equilibrium

4.3 Sequential Equilibrium

4.4 Applications:

(a) Spence (1970)'s Job Market Signaling games

(b) Milgrom-Roberts (1982) Model of Limit Pricing

4.5 Refinement with Intuitive Criterion

[Read RG 4; MWG 13.C; Tirole pp.367-375]

5. Applications (Group Presentations) (1 weeks !)

***** Final *****

Reading and Video Lecture

1. Noncooperative Game theory: a User's Manual in Tirole, Jean (1994). **The Theory of Industrial Organizations**. The MIT Press.

2. YALE University ECON 159 - Game Theory with Professor Ben Polak at http://videlectures.net/yaleecon159f07_game_theory/