

THE UNIVERSITY OF THE WEST INDIES, MONA  
**ECON6046: Game Theory I**

Semester I, 2019-20

Pre-requisites: ECON6004, ECON2016, or permission of Lecturer  
Lecturer: Peter-John Gordon

Lectures: M 12 noon – 2:00 pm D101 (GLT1); W 1:00 pm – 2:00 pm D101 (GLT1)  
Office Hours: M, W 9:00 am – 11:00 am

## Description

When your payoff is affected by not only your actions but also the actions of others, we have a strategic situation. Game Theory analyzes these strategic situations and identifies how each party should behave so as to maximize his payoff. This course introduces the main concepts and tools of game theory. The basic concepts of non-cooperative game theory will be covered rigorously with an aim to enable you to represent economic situations as a game and to read original game-theoretic literature.

## Learning Outcomes.

Upon successful completion of the course, the student should be able to:

- Model a game in the normal and extensive form.
- Utilize different information concepts in modeling and solving a game (perfect, certain, symmetric, complete etc).
- Identify and use the strategy space open to players (pure strategies, mixed strategies)
- Explain equilibrium concepts and apply them (Dominance, Iterated Dominance, Nash and its refinements e.g. Bayesian).
- Model Dynamic Games (the concept of sub-game perfect equilibrium)
- Evaluate how repetition affects the outcome of a game
- Determine the Nash Bargaining Solution

## Modes of Delivery

Three hours of lectures per week. Some of these lecture hours will be used for problem solving sessions.

## Assessment

A mid-semester exam (40%) and a final exam (60%). Material covered on the mid-semester will not be re-examined on the final.

## Syllabus

1. The Rules of the Game	Ch. 1
2. Information	Ch. 2
3. Mixed and Continuous Strategies	Ch. 3
4. Dynamic Games with Symmetric Information	Ch. 4
5. Reputation and Repeated Games with Symmetric Information	Ch. 5
6. Dynamic Games with Incomplete Information	Ch. 6
7. Pricing	Ch.14
8. Bargaining	Ch. 12

Chapters indicated are from Rasmusen.

Additional Topics and/or References may be given during the course of the class.

## Resources

### Prescribed

- Rasmusen, Eric, 2007. *Games and Information: An Introduction to Game Theory*, 4<sup>th</sup> ed., Blackwell Publishing, Princeton University Press.

I will follow this text very closely. However students might want to consult other texts, some of which are listed below.

### Recommended

- Gibbons, Robert, 1992. *Game Theory for Applied Economists*. Princeton: Princeton University Press.  
This text is comparable to Rasmusen in its rigor and intuition.
- Fudenberg, David and Jean Tirole. 1991. *Game Theory*. Cambridge: MIT Press  
This is the most comprehensive survey of Game Theory available. It makes substantial demands on analytical and mathematical skills.
- Osborne, Martin and Ariel Rubinstein. 1994. *A Course in Game Theory*. Cambridge: MIT Press  
More analytically demanding than Rasmusen.
- Myerson, Roger. 1991. *Game Theory: analysis of Conflict*. Cambridge: Harvard University Press.  
Mathematically very demanding. Provides the most nuanced treatment of the subject of all the text listed.

In order to maximize the benefit for this course, students should see the problem sets as a learning tool to be taken seriously. Every attempt should be made to work these problems, first individually, then collectively, **before** solutions are provided in class.

Answers to the odd number questions in the text book can be found at  
<http://www.rasmusen.org/GI/probs/probsets.htm>