# LECTURE 2.0

# GAME THEORY

# GAME THEORY - READING

Chapter 14, “Game Theory and Strategic Behavior” in Besanko and Braeutigam (2002) *Microeconomics – An Integrated Approach* (Available on Canvas)

# WHY STUDY GAME THEORY?

Most relationships within markets and within firms are strategic. Consider the following:

- the firm and its competitors in an oligopoly (e.g. pricing)
- the firm and its suppliers (e.g. contract negotiation)
- a manager and her subordinates (e.g. wage negotiations)
- members of a production team (e.g. allocation of effort)

In each case, the relationships are strategic:

- all parties can impact others
- all parties recognise they are impacted by others
- it matters what I do, and I care about what you do. I need to consider your response.

# WHY STUDY GAME THEORY?

**Game theory studies the strategic interaction between players.**

We can solve strategic problems using the tools of game theory.

This week we will examine some different types of games and approaches to solving them. We will also identify some real-world examples where game theory provides insight into behaviour and outcomes.

# GAME THEORY FOUNDATIONS

Our players will have the following features:

- Decision makers are rational optimisers
- Decision makers understand the game they are playing
- Decision makers need to anticipate choices of rivals
- Decision makers presume that rivals are also rational optimisers who understand the game

In this unit we will focus on non-cooperative games: negotiation and enforcement of binding contracts is not possible.

Cooperative game theory enables players or agents to negotiate binding contracts that allow them to plan and implement joint strategies. Cooperative game theory is beyond the scope of this course.

# GAME THEORY- LECTURES

2.0 Why study game theory?

2.1 Single period games: simultaneous moves

2.2 Mixed strategies

2.3 Single period games: sequential interactions

2.4 Repeated games

2.5 Auctions