



ST. FRANCIS XAVIER
UNIVERSITY ECONOMICS:

Instructor: Cornelius Christian
Email: ccchristi@stfx.ca

ECON 415: INTRODUCTION TO GAME THEORY

Office Hours: By appointment, at NH 508

Lectures: 17:15-18:30, Tue. and Thur.

Prerequisite: ECON 201

Description of Course: Game theory is the mathematical analysis of strategic interactions between players (eg. competing firms, nations at war, a job-seeker and employer, romantic dating). This course will sharpen your ability to think strategically, and to apply game theory with clarity and precision. Throughout the course, we will study applications of game theory to the real world.

Textbooks:

MAIN: *Strategies and Games: Theory and Practice*, by Prajit K. Dutta (MIT Press, 1999)

Supplementary textbooks:

A Course in Game Theory by Martin J. Osborne and Ariel Rubinstein (MIT Press, 1994)

Game Theory by Drew Fudenberg and Jean Tirole (MIT Press, 1991)

Electronic Device Policy: Please do not use cellphones or computers during class. It is distracting to your fellow students, and to me.

COURSE OUTLINE

1. Introduction

Review of Calculus, Probability Theory, and Utility Theory (Chapters 25-27)

Rules of the Game (Chapter 2)

The Strategic Form (Chapter 3)

2. The Strategic Form

Dominance (Chapter 4)

Nash Equilibrium (Chapter 5)

Mixed Strategies (Chapter 8)

Zero-Sum Games (Chapter 10)

3. The Extensive Form

Backward Induction (Chapter 11)

Subgame Perfect Equilibrium (Chapter 13)

4. Repeated Games

Finitely Repeated Games (Chapter 14)

Infinitely Repeated Games (Chapter 15)

5. Asymmetric Information

Moral Hazard (Chapter 19)

Bayesian Nash Equilibrium (Chapter 20)

6. Mechanism Design - How to Manipulate the Game

The Revelation Principle (Chapter 22)

Application: Auctions (Chapter 23)

EVALUATION

Your course grade will be determined as follows:

Assignments (four in total):	20%
Midterm (Thu., February 16):	30%
Final Exam (TBA, April):	50%

CLASSES & EXAMS

You are expected to attend all lectures. The midterm will be scheduled during class time. Proper medical documentation is required for missed exams. The final exam for the course will cover material from the entire term.