COQUITLAM COLLEGE
Established 1982

COURSE OUTLINE

Last Revised: January 2022

COURSE INFORMATION

Course Title: Introduction to Game Theory

Course Number: ECON 226 **Credits:** 3

Total Weeks: 14 (Fall, Spring) **Total Hours:** 39
12 (Summer)

Course Level: ☐ First Year ☒ Second Year
☐ New Course ☐ Revised Course
☐ Replacement Course

Department: Economics **Department Head:** S. Plater

Former Course Code(s) and Number(s) (if applicable): N/A

Pre-requisites (If there are no prerequisites, type NONE): ECON 101, ECON 102 and 3 credits of first-year English or Communications

Co-requisite Statement (List if applicable or type NONE): NONE

Precluded Courses: NONE

COURSE DESCRIPTION

Game theory is the study of strategic interactions between individuals, firms, politicians, governments, et. cetera. Game theory is also a set of tools used in economics to analyze all sorts of situation where the outcome for an individual in a situation depends not only on their own choice of action, but on the actions of all active players.

This course is an introduction to game theory. We will introduce the basic concepts of game theory and will develop strategic methods for determining the optimal strategies, outcomes, and equilibriums of games. A variety of games will be analyzed, played, and discussed, where we will apply our theory into practice, and to enhance your critical and strategical thinking. Topics that will be covered in this course include strategic form games, mixed strategy games, extensive form games, repeated games, and signaling games

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to:

- Explain and apply basic game theory concepts and methods
- Determine the optimal strategies, outcomes, and equilibrium of various forms of games
- Demonstrate competence in their ability to evaluate, decide, and predict the behaviours of others involved in a strategic situation
- Apply theory into real world practices

INSTRUCTION AND GRADING

Instructional (Contact) Hours:

Type	Duration
Lecture	3
Seminars/Tutorials	
Laboratory	
Field Experience	
Other (*specify):*	
Total	39

Grading System: Letter Grades ☒ Percentage ☐ Pass/Fail ☐ Satisfactory/Unsatisfactory ☐ Other ☐

Specify passing grade: 50%

Evaluation Activities and Weighting (total must equal 100%)

Assignments: 10% *Specify number of, variety, and nature of assignments:* 6 to 8 assignments	Lab Work: %	Participation: 5% *Specify nature of participation:* Forum Responses	Project: % *Specify nature of project:*
Quizzes/Test: 15%	Midterm Exam: 35%	Final Exam: 35%	Other: %

Typical Proportion of Individual Work or Group Work
% of Individual Work: 100 % of Group Work:

TEXT(S) AND RESOURCE MATERIALS

Provide a full reference for each text and/or resource material and include whether required/not required.

Required Textbook: Avinash Dixit, Susan Skeath, and David H. Reiley, Games of Strategy, 4th Edition, Norton, 2015. ISBN-13: 978-039312444-6

COURSE TOPICS

List topics and sequence covered.

Week	Topic
Week 1	Introduction: Preferences and Utility
Week 2	Nash Equilibrium: Simultaneous Games
Week 3	Nash Equilibrium: Coordination Games
Week 4	Nash Equilibrium: Sequential Games
Week 5	Oligopoly Model: Cournot
Week 6	Oligopoly Model: Betrand
Week 7	Midterm Examination
Week 8	Oligopoly Model: Stackelberg
Week 9	Mixed Strategy Equilibrium
Week 10	Repeated Games: Prisoner's Dilemma
Week 11	Repeated Games: Grim Trigger and Tit-for-tat

Week 12	Application: Auctioning
Week 13	Application: Selected Topics
Week 14	FINAL EXAM

NOTES

1. Students are required to follow all College policies. Policies are available on the website at: Coquitlam College Policies
2. To find out how this course transfers, visit the BC Transfer Guide at: bctransferguide.ca