

# Microeconomic Theory Syllabus

## Department of Economics

ECON 5509 Fall 2024

*Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.*

*Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.*

---

### COURSE INFORMATION

**Instructor:** Álvaro Parra

**Email:** Parra@dal.ca

**Lectures:** M-W 16:05 - 17:25am @ Marion McCain Arts and Social Sciences, room 1198

**Office Hours:** F: 1:20 - 2:20 pm @ 6206 University Avenue, A23

**Course Delivery:** In person, lectures not recorded

**Course Prerequisites:** Graduate standing in the Department of Economics or permission of the instructor

---

### COURSE DESCRIPTION AND OBJECTIVES

The main objective of the course is for students to be able to analyze problems in microeconomic theory at the beginning graduate level. Students successfully completing the course will be able to comfortably work standard problems in microeconomic theory using calculus-based techniques and methods. Students will be able to develop models appropriate for different problems, present them in mathematical form, derive implications of maintained assumptions, analyze changes in model structure or form, and extend models to more complicated situations. Some of the topics that will be covered include consumer theory, theory of the firm, market structures, game theory and strategic behavior, and general equilibrium analysis.

#### *Course objectives:*

- Critically analyze and explain consumers', firms', and market behaviour using mathematical tools and diagrams.
- Possess a solid grasp of the mathematics of constrained optimization (especially Lagrange's method) and know how to apply it to solve microeconomic problems.

- Assess the microeconomic theories and models in terms of their policy implications, advantages and limitations.
  - Develop models appropriate for different problems, present them in mathematical form, derive implications of maintained assumptions
- 

## COURSE MATERIALS

The main learning resource will be classroom discussion of the slides.

The main text for the course is:

- Jehle and Reny, *Advanced Microeconomic Theory*, Third Edition, Addison Wesley Longman, 2011 [JR]

If you are a Ph.D. student, are planning to apply to a Ph.D. program, or are willing to take a serious challenge you should use this textbook instead:

- Mas-Colell, A.M. Whinston and J. Green, *Microeconomic Theory*, Oxford: Oxford University Press [MWG]
- 

## ASSESSMENT

Your development in the course will be assessed in the following ways:

Assignments (four):	20% (bi-weekly(ish), take home)
Midterm 1:	25% (during class, October 21 <sup>st</sup> )
Midterm 2:	25% (during class, November 21 <sup>st</sup> )
Final Exam:	30% (location and date TBD)

Conversion of numerical grades to final letter grades follows the [Dalhousie Grade Scale](#)

A+ (>=90)    A (85-89)    A- (80-84)    B+ (77-79)    B (73-76)    B- (70-72)    F (70<)

---

## COURSE POLICIES ON MISSED OR LATE WORK AND ACADEMIC INTEGRITY

**Assignment Policy:** All assignments are to be turned in at the beginning of the class in which they are due. Late assignments receive no credit. In the event that a student misses an assignment, the student will get no credit unless proper justification for missing the assignment is provided. There are no make-up exams. Assignments can be turned in early at your instructor's office. Students can cooperate in their assignments, but are expected to hand in individual and original work (not just a copy of the homework of the student you just "cooperated" with). The use of Generative AI and Large Language Models is prohibited beyond checking for grammar and spell check.

*Exam Policy:* In the event that a student misses a midterm, the points from the missed exam will be placed on the final. There are no make-up exams.

The following materials are allowed for use during the exam: graphing calculator, accounting calculator or four-function calculator. **There are to be no books**, papers other than the exam itself, cell-phones or other items that connect to the internet. Students found to be using unapproved items are in violation of the Academic Integrity policy of the University and will be subject to disciplinary action.

*Laptop Policy:* Students are strongly discouraged to use laptops during class. Tablets are ok! **Phones are strictly prohibited on the classroom.**

---

## TOPICS

1. *Consumer Theory:* Preference; utility; demand; constrained optimization; income and substitution effects; Slutsky's equation; substitutes and complements; testing demand theory; the expenditure function; indirect utility functions; duality approaches; Roy's identity; compensated demand curves; consumer surplus, aggregate demand. Uncertainty  
**Read:** JR chapters 1-2 or MWG chapters 1-4, 6

### MIDTERM 1: October 21<sup>st</sup>

2. *Producer Theory:* Technology; production functions; profit and cost functions; duality approaches; Shephard's lemma and Hotelling's lemma; short and long-run supply functions.  
**Read:** JR chapter 3 or MWG chapter 5
3. *Partial Equilibrium-Perfect competition:*  
**Read:** JR chapter 4.1 and 4,3; MWG: chapter 10
4. *General Equilibrium: fundamental theorems of welfare economics Industry supply under perfect competition*  
**Read:** JR chapter 5 or MWG chapters 15 and 16

### MIDTERM 2: November 21<sup>st</sup>

5. *Game theory:* Dominant strategies, Nash equilibrium. Imperfect competition. Monopoly, oligopoly. Auctions, Adverse Selection, and Moral Hazard, time permitting  
**Read:** JR chapters 4.2 and 7 or MWG chapters 7 and 8
6. *Game theory applications (time permitting):* Auctions, Adverse Selection, and Moral Hazard.  
**Read:** JR chapters 8 and 9.1-9.3 or MWG chapters 7 and 8

**VERY TENTATIVE AND ROUGH COURSE SCHEDULE**  
(SUBJECT TO ADJUSTMENTS AND MODIFICATIONS)

	Monday	Wednesday	
Week 1	Sep 2: Labor Day (No class)	Intro + Preferences and Utility (Sep 4)	
Week 2	Utility and Maximization (Sep 9)	Utility Maximization (Sep 11)	
Week 3	Demand-Duality (Sep 16)	Demand-Duality (Sep 18)	
Week 4	Expected Utility (Sep 23)	Expected Utility (Sep 25)	
Week 5	Sep 30: National Day for Truth and Reconciliation (No class)	Expected Utility applications (Oct 2)	
Week 6	Producer Theory (Oct 7)	Producer Theory (Oct 9)	
Week 7	Oct 14: Thanksgiving Day (No class)	Oct 21 – Midterm I	
Week 8	Partial Equilibrium (Oct 23)	Partial Equilibrium (Oct 23)	
Week 9	General Equilibrium (Oct 28)	General Equilibrium (Oct 30)	
Week 10	Game Theory Basics (Nov 4)	Monopoly and Cournot (Nov 6)	
Week 11	Nov 11: Remembrance Day (No class)	Nov 13: Fall Break (No class)	
Week 12	Nov 21 – Midterm II	Bertrand and Hotelling (Nov 23)	
Week 13	Mixed Strategies (Nov 28)	Bayesian Games I (Nov 30)	
Week 14	Bayesian Games II (Dec 2)	Tuesday Dec 3: Auctions	Adverse selection and Moral Hazard (Dec 7)

## University Policies and Statements

### Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or [elders@dal.ca](mailto:elders@dal.ca). Additional information regarding the Indigenous Student Centre can be found at: [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

### Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

### Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

### Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre ([https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

## **Conduct in the Classroom – Culture of Respect**

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

## **Diversity and Inclusion – Culture of Respect**

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.html>

## **Student Code of Conduct**

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at:

[https://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

## **Fair Dealing Policy**

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: [https://www.dal.ca/dept/university\\_secretariat/policies/academic/fair-dealing-policy-.html](https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html)

## **Originality Checking Software**

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html](https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html)

## **Student Use of Course Materials**

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.