University of Waterloo
Department of Economics
ECON 290
Models of Choice in Competitive Markets
Spring 2020

Instructor Information

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1. General Course Objective

Choice lies at the heart of all economic models. This course focuses on choice by consumers and firms. It explains the notion and use of utility functions and budgets, and shows how their interaction allows economists to make predictions about behaviour. The constrained maximization techniques from ECON 211 are used extensively, and extended to situations covering uncertainty (risk) and time. Profit maximization by firms is explored.

Learning Outcomes:

- Identify the consumer's and producer's problem,
- Compare different models of consumer theory,
- Explain the optimal choice of economic agents,
- Demonstrate the solutions via graphical tools,
- Modify the models by changing the parameters,
- Question the other microeconomic problems by using the model we investigate.

2. Course Materials

Recommended Text:

This course will be loosely based on *'Intermediate Microeconomics: a Modern Approach' (9th edition) by Hal Varian, Norton 2014* (previous editions should work too).

However, the topics are all covered by standard intermediate microeconomics textbooks (that use calculus). You may want to read through the relevant sections of some such book because (a) it can provide a different perspective on material presented, (b) it has a more space devoted to discussions and examples, and (c) it serves as a source of exercises and practice problems. Here is a list of such textbooks:

- Osborne, M.J., and Rubinstein A., Models in Microeconomic Theory (open source).
- Eaton, B.C., Eaton, D.F. and D.W. Allen, Microeconomics: Theory with Applications.
- Perloff, J.M., Microeconomics: Theory and Applications with Calculus.
- Mochrie, R., Intermediate Microeconomics.
- Serrano, R., and Feldman A.M., A Short Course in Intermediate Microeconomics with Calculus.
- Goolsbee A., Levitt, S., and Syverson, C., Microeconomics.

The course should also be self-contained. Everything you need will be available on the class website.

Readings Available on LEARN:

Lecture slides, lecture videos, YouTube links to the lecture videos, exercises and their solutions and/or answers, chapter highlights, and assignment questions will be posted on LEARN.
Although lecture slides are posted on LEARN, watching videos and note taking are higher importance than usual.

3. Course Requirements and Assessment

Assessment	*Weighting*
Weekly Quizzes	32%
Assignments	18%
Midterm 1	12%
Midterm 2	12%
Final Exam	26%
Total	100%

There will be no adjustments to the above grading scheme. Especially not for an individual student.

For any assessment, please remember that:

The University of Waterloo subscribes to the strictest interpretation of academic integrity. Faculty members and students bear joint responsibility in assuring that cheating on assignments or any examination is not tolerated.

Students who engage in academic dishonesty will be subject to disciplinary action under Policy 71.

All assessments are protected by copyright. Reproduction or dissemination of any assessment or the contents or format of the assessment in any manner whatsoever (e.g., sharing the content with other students), without the express permission of the instructor, is strictly prohibited.

By taking this course, every student affirm his/her/their agreement to the following statements:

- **I confirm that I will keep the content of any assessment confidential.**
- **I confirm that I have not received any unauthorized assistance in preparing for or writing of any assessment.**
- **I confirm that I will not access the Internet or any other unauthorized resource in the writing of any assessment.**
- **I confirm that I will use only my own lecture notes, textbooks, and any other document provided by the instructor in the writing of any assessment.**

Weekly Quizzes:

Ten weekly quizzes to be completed during the whole term through LEARN. There won't be any quizzes during the **first** and the **last** week. Each quiz is 4% of the final grade.

The best 8 quizzes will be chosen. You will have access to the quizzes for 48 hours (from 12:01 am on Monday to 11:59pm on Tuesday) and once you start, you will have only one attempt and limited time.

	Date		*Date*
Quiz 1	May 18, Mon – May 19, Tue	*Quiz 6*	June 22, Mon – June 23, Tue
Quiz 2	May 25, Mon – May 26, Tue	*Quiz 7*	June 29, Mon – June 30, Tue
Quiz 3	June 1, Mon – June 2, Tue	*Quiz 8*	July 6, Mon – July 7, Tue
Quiz 4	June 8, Mon – June 9, Tue	*Quiz 9*	July 13, Mon – July 14, Tue
Quiz 5	June 15, Mon – June 16, Tue	*Quiz 10*	July 20, Mon – July 21, Tue

Assignments:

Three assignments to be submitted through Dropbox on LEARN. You will have a problem set to solve. Each assignment worth 6% of the final grade.
<u>Late assignments are not accepted.</u>
Assignments will be handed out one week in advance of the due date, while the material is covered in lectures.

	Due date
Assignment 1	June 19, Friday, 11:59 pm
Assignment 2	July 17, Friday, 11:59 pm
Assignment 3	August 5, Wednesday, 11:59 pm

Midterms:

Two midterms to be completed during the whole term through LEARN. You will have access to the midterm for 48 hours (from 12:01 am on Thursday to 11:59pm on Friday) and once you start, you will have only one attempt and limited time. Details about the coverage of the midterms will be announced on LEARN.

	Due date
Midterm 1	June 11, Thursday, 12:01 am – June 12, Friday, 11:59 pm
Midterm 2	July 9, Thursday, 12:01 am – July 10, Friday, 11:59 pm

Final Exam:

The final exam is cumulative and will test all of the material in the course. You will have access to the final exam for 48 hours and once you start, you will have only one attempt and limited time. Note that the final will not be rescheduled under any circumstances if both midterms have been missed. You should by now be familiar with the deferred final exam policy of the department.

	Due date
Final Exam	August 11, Tuesday, 12:01 am – August 12, Wednesday, 11:59 pm

Missing an Assessment:

Due to the extended time for completion of the assessments, only the medical notes which cover the entire period of the assessment will be accepted: Quizzes: 2 days, Assignments: 7 days, Midterms: 4 days, Final: 5 days.
The weight of a quiz for which a VIF is accepted will be moved to the final exam, the weight of an assignment for which a VIF is accepted will be moved to the other assignments, and the weight of a midterm for which a VIF is accepted will be moved to the other midterm and the final exam in equal parts. If you happen to be sick for both midterms you should consider dropping the course.

4. **Office Hours and Contacting the Instructor/TA**

When sending email, please use your official UWaterloo account and have ECON 290 in the subject line. It is generally a good idea to also have a signature line that includes your full name and student ID. Please treat email correspondence as a somewhat formal venue of communication. Before sending an e-mail, please check the Discussions on LEARN.
If you need a Skype meeting, please ask for an appointment. Instructor and/or TA will let you know the Skype contact and a time period (approximately 20 min per student). Please send your questions with your e-mail while asking an appointment. This will reduce the unnecessary time lost during the Skype appointment.
Please be clear about your questions. Instructor/TA cannot re-explain the whole topic however can help you to understand the unclear points of the topic.

5. Weekly Course Schedule

Date	Topic	Readings	Activities and Assignments (Due Date)	Weight (%)
Week 1 May 11-17	Introduction 1.1. The budget constraint and the budget set	Varian, H. Ch2. p. 20-23	**Quiz 0** Ex.Ch1 WO Ch1	0%
Week 2 May 18-24	1.2. How the budget line changes 1.3. Taxes, subsidies, and rationing 2.1 Consumer preference and assumptions about preferences	Varian, H. Ch2. p. 24-31 Varian, H. Ch3. p. 33-36	**Quiz 1 (May 19)** Ex.Ch1&2 WO Ch1&2	4%
Week 3 May 25-31	2.2. Indifference curves and examples of preferences 2.3. Well-behaved preference assumptions	Varian, H. Ch3. p. 36-48	**Quiz 2 (May 26)** Ex.Ch2 WO Ch2	4%
Week 4 Jun. 1-7	3.1. Utility function 3.2. Examples of utility functions 3.3. Marginal utility and marginal rate of substitution	Varian, H. Ch4. p. 48-67	**Quiz 3 (Jun. 2)** Ex.Ch3 WO Ch3	4%
Week 5 Jun. 8-14	4.1. Optimal choice 4.2. Consumer demand	Varian, H. Ch5. p. 73-83	**Quiz 4 (Jun. 9) Midterm 1 (Jun. 14)** Ex.Ch4 WO Ch4	16%
Week 6 Jun. 15-21	4.3. Lagrangian method in utility maximization 5.1. Net and gross demands and budget constraint 5.2. Changing the endowment and prices	Varian, H. Ch5. p. 90-94 Varian, H. Ch9. p. 160-167	**Quiz 5 (Jun. 16) Ass. 1 (Jun. 19)** Ex.Ch5 WO Ch5	10%
Week 7 Jun. 22-28	6.1. Budget constraint, present and future value 6.2. Preferences for consumption and Optimal Choice	Varian, H. Ch10. p. 182-187	**Quiz 6 (Jun. 23)** Ex.Ch6 WO Ch6	4%
Week 8 Jun. 29 - Jul. 5	7.1. Insurance problem and budget constraint 7.2. Utility functions and probabilities 7.3. Expected utility and Attitude toward risk	Varian, H. Ch12. p. 217-229	**Quiz 7 (Jun. 30)** Ex.Ch7 WO Ch7	4%
Week 9 Jul. 6-12	7.4. Choice under uncertainty 8.1. Technological constraints and examples of technology 8.2. Marginal product, TRS, and Returns to scale	Varian, H. Ch19. p. 350-361	**Quiz 8 (Jul. 7) Midterm 2 (Jul. 10)** Ex.Ch7&8 WO Ch7&8	16%
Week 10 Jul. 13-19	9.1. Profits and short-run profit maximization 9.2. Long-run profit maximization 9.3. Lagrangian method in profit maximization	Varian, H. Ch20. p. 365-374 (except 366 and 367)	**Quiz 9 (July 14) Ass. 2 (July 17)** Ex.Ch9 WO Ch9	10%
Week 11 Jul. 20-26	10.1. Cost minimization and tangent solution 10.2. Cost functions 10.3. Lagrangian method in cost minimization	Varian, Ch21. H. p. 382-395	**Quiz 10 (July 21)** Ex.Ch10 WO Ch10	4%
Week 12 Jul. 27 Aug. 5	10.4. Cost Curves	Varian, H. Ch22. p. 396-409	**Ass. 3 (Aug 5)** Ex.Ch10 WO Ch10	6%
	Aug. 7-15, Final Exam Period			26%

Week 1

Introduction

By the end of this week, you will be able to

- Understand the important points of syllabus
- Learn how to find the related content on course website
- Use the course website for topics, assessments, discussions, and contact to the instructor and TA
- Analyze the budget set and the budget line of a consumer

Recommended Reading

- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch2. p. 20-23

Content

- *Lecture Slides:*
  - o [1.1. The budget constraint and the budget set](#) (9 pages)
- *Lecture Videos:*
  - o [1.1. The budget constraint and the budget set](#) (15:33 min)
- *Or, Lecture Videos on YouTube:*
  - o [1.1. The budget constraint and the budget set (YouTube)](#)
- *Highlights:*
  - o [Chapter 1 Highlights](#)

Activities

Recommended ungraded activities for this week:

- *Exercises:*
  - o [Chapter 1 Exercises (Questions)](#) and [Chapter 1 Exercises (Solutions)](#)
- *Workout Exercises:*
  - o [Chapter 1 Workouts (Questions)](#) and [Chapter 1 Workouts (Answers)](#)
- *Weekly Discussions:*
  - o [Week 1 Discussion](#)
  - o [General Questions](#)
  - o [Questions about Quizzes, Assignments, Midterms, and Final Exam](#)
    - ▪ (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments

This week's assignment:

- *Weekly Quizzes:*
  - o [Quiz 0](#) - This is an ungraded quiz. The aim is to check the knowledge of syllabus. Accessible between May 11, Monday at 12:01 am to May 17, Sunday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 2

Introduction

By the end of this week, you will be able to
- Analyze how the budget line changes affect the consumer
- Apply government intervention, such as taxes, subsidies and rationing to the consumer's budget set.
- Explain the consumer preferences and the main assumptions about preferences.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch2. p. 24-31 and Ch3. p. 33-36

Content
- ***Lecture Slides:***
  - 1.2 How the Budget Lines Changes (7 pages)
  - 1.3 Taxes Subsidies and Rationing (8 pages)
  - 2.1 Consumer Preference and Assumptions (6 pages)
- ***Lecture Video:***
  - 1.2. How the budget line changes (12:29 min)
  - 1.3. Taxes, subsidies, and rationing (13:19 min)
  - 2.1 Consumer Preference and Assumptions about Preferences (15:50 min)
- ***Or, Lecture Videos on YouTube:***
  - 1.2. How the budget line changes (YouTube),
  - 1.3. Taxes, subsidies, and rationing (YouTube)
  - 2.1. Consumer preferences and assumptions about preferences (YouTube)
- ***Highlights:***
  - Chapter 1 Highlights and Chapter 2 Highlights

Activities

Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 1 Exercises (Questions) and Chapter 1 Exercises (Solutions)
  - Chapter 2 Exercises (Questions) and Chapter 2 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 1 Workouts (Questions) and Chapter 1 Workouts (Answers)
  - Chapter 2 Workouts (Questions) and Chapter 2 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 2 Discussions
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments

This week's assignment:
- ***Weekly Quizzes:***
  - Quiz 1 - Accessible between May 18, Monday at 12:01 am to May 19, Tuesday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 3
Introduction
By the end of this week, you will be able to
- Analyze the indifference curves.
- Investigate the examples of preferences.
- Define the well-behaved preferences and examine their assumptions'.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch3. p. 36-48

Content
- ***Lecture Slides:***
  - 2.2. Indifference curves and examples of preferences (11 pages)
  - 2.3. Well-behaved preference assumptions (9 pages)
- ***Lecture Video:***
  - 2.2. Indifference curves and examples of preferences (19:05 min)
  - 2.3. Well-behaved preference assumptions (23:24 min)
- ***Or, Lecture Videos on YouTube:***
  - 2.2. Indifference curves and examples of preferences (YouTube)
  - 2.3. Well-behaved preference assumptions (YouTube),
- ***Highlights:***
  - Chapter 2 Highlights

Activities
Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 2 Exercises (Questions) and Chapter 2 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 2 Workouts (Questions) and Chapter 2 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 3 Discussions
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments
This week's assignment:
- ***Weekly Quizzes:***
  - Quiz 2 - Accessible between May 25, Monday at 12:01 am to May 26, Tuesday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 4
Introduction
By the end of this week, you will be able to
- Define the utility function.
- Analyze the examples of utility functions.
- Investigate the marginal utility and marginal rate of substitution concepts.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch4. p. 48-67

Content
- ***Lecture Slides:***
    - 3.1. Utility function (9 pages)
    - 3.2. Examples of utility functions (10 pages)
    - 3.3. Marginal utility and marginal rate of substitution (7 pages)
- ***Lecture Video:***
    - 3.1. Utility function (19:01 min)
    - 3.2. Examples of utility functions (18:07 min)
    - 3.3. Marginal utility and marginal rate of substitution (15:05 min)
- ***Or, Lecture Videos on YouTube:***
    - 3.1. Utility function (YouTube)
    - 3.2. Examples of utility functions (YouTube)
    - 3.3. Marginal utility and marginal rate of substitution (YouTube)
- ***Highlights:***
    - Chapter 3 Highlights

Activities
Recommended ungraded activities for this week:
- ***Exercises:***
    - Chapter 3 Exercises (Questions) and Chapter 3 Exercises (Solutions)
- ***Workout Exercises:***
    - Chapter 3 Workouts (Questions) and Chapter 3 Workouts (Answers)
- ***Weekly Discussions:***
    - Week 4 Discussion
    - General Questions
    - Questions about Quizzes, Assignments, Midterms, and Final Exam
        - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments
This week's assignment:
- ***Weekly Quizzes:***
    - Quiz 3 - Accessible between June 1, Monday at 12:01 am to June 2, Tuesday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 5
Introduction
By the end of this week, you will be able to
- Define the optimal choice of the consumer.
- Analyze the interior and boundary solutions.
- Examine the consumer demand.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch5. p. 73-83

Content
- ***Lecture Slides:***
  - 4.1. Optimal choice (12 pages)
  - 4.2. Consumer demand (17 pages)
- ***Lecture Video:***
  - 4.1. Optimal choice (18:25 min)
  - 4.2. Consumer demand (24:33 min)
- ***Or, Lecture Videos on YouTube:***
  - 4.1. Optimal choice (YouTube)
  - 4.2. Consumer demand (YouTube)
- ***Highlights:***
  - Chapter 4 Highlights

Activities
Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 4 Exercises (Questions) and Chapter 4 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 4 Workouts (Questions) and Chapter 4 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 5 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments
This week's assignments:
- ***Weekly Quizzes:***
  - Quiz 4 - Accessible between June 8, Monday at 12:01 am to June 9, Tuesday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)
- ***Midterm Exam:***
  - Midterm Exam 1 - Accessible between June 11, Thursday at 12:01 am to June 14, Sunday at 11:59 pm. (Midterm Exams can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 6

Introduction

By the end of this week, you will be able to

- Understand the Lagrangian method for utility maximization problem.
- Define the net and gross demands.
- Analyze budget constraint with endowments.
- Investigate the effects of changing the endowment and prices for consumer's welfare.

Recommended Reading

- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch5. p. 90-94 and Ch9. p. 160-167

Content

- ***Lecture Slides:***
  - 4.3. Lagrangian method in utility maximization (12 pages)
  - 5.1. Net and gross demands and budget constraint (8 pages)
  - 5.2. Changing the endowment and prices (7 pages)
- ***Lecture Videos:***
  - 4.3. Lagrangian method in utility maximization (16:02 min)
  - 5.1. Net and gross demands and budget constraint (16:00 min)
  - 5.2. Changing the endowment and prices (15:01 min)
- ***Or, Lecture Videos on YouTube:***
  - 4.3. Lagrangian method in utility maximization (YouTube),
  - 5.1. Net and gross demands and budget constraint (YouTube)
  - 5.2. Changing the endowment and prices (YouTube)
- ***Highlights:***
  - Chapter 4 Highlights and Chapter 5 Highlights

Activities

Recommended ungraded activities for this week:

- ***Exercises:***
  - Chapter 4 Exercises (Questions) and Chapter 4 Exercises (Solutions)
  - Chapter 5 Exercises (Questions) and Chapter 5 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 4 Workouts (Questions) and Chapter 4 Workouts (Answers)
  - Chapter 5 Workouts (Questions) and Chapter 5 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 6 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments

This week's assignments:

- ***Weekly Quizzes:***
  - Quiz 5 - Accessible between June 8, Monday at 12:01 am to June 9, Tuesday at 11:59 pm.
- ***Assignment Submission:***
  - Assignment 1 - Accessible between June 13, Saturday at 12:01 am to June 19, Friday at 11:59 pm. (Assignment questions can be accessed on the Course Homepage by selecting **Content** then "**Assignment**" file. Assignments must be submitted before the due date via the Course Home page by selecting **Submit** then **Dropbox** on the course navigation bar).

Week 7

Introduction

By the end of this week, you will be able to
- Define the budget constraint for intertemporal choice.
- Interpret the present and future value concepts.
- Examine the preference of the consumer under intertemporal setting.
- Investigate the optimal choice for intertemporal setting.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch10. p. 182-187

Content
- ***Lecture Slides:***
  - 6.1. Budget constraint, present and future value (14 pages)
  - 6.2. Preferences for consumption and Optimal Choice (9 pages)
- ***Lecture Video:***
  - 6.1. Budget constraint, present and future value (20:27 min)
  - 6.2. Preferences for consumption and Optimal Choice (15:21 min)
- ***Or, Lecture Videos on YouTube:***
  - 6.1. Budget constraint, present and future value (YouTube)
  - 6.2. Preferences for consumption and Optimal Choice (YouTube)
- ***Highlights:***
  - Chapter 6 Highlights

Activities

Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 6 Exercises (Questions) and Chapter 6 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 6 Workouts (Questions) and Chapter 6 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 7 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments

This week's assignment:
- ***Weekly Quizzes:***
  - Quiz 6 - Accessible between June 22, Monday at 12:01 am to June 23, Tuesday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 8
Introduction
By the end of this week, you will be able to
- Define the budget constraint under uncertainty.
- Analyze the insurance problem of the consumer.
- Examine the preference of the consumer under uncertainty.
- Explain the consumer's attitude towards risk.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch12. p. 217-229

Content
- ***Lecture Slides:***
  - 7.1. Insurance problem and budget constraint (10 pages)
  - 7.2. Utility functions and probabilities (6 pages)
  - 7.3. Expected utility and Attitude toward risk (7 pages)
- ***Lecture Video:***
  - 7.1. Insurance problem and budget constraint (17:40 min)
  - 7.2. Utility functions and probabilities (08:56 min)
  - 7.3. Expected utility and Attitude toward risk (20:00 min)
- ***Or, Lecture Videos on YouTube:***
  - 7.1. Insurance problem and budget constraint (YouTube)
  - 7.2. Utility functions and probabilities (YouTube)
  - 7.3. Expected utility and Attitude toward risk (YouTube)
- ***Highlights:***
  - Chapter 7 Highlights

Activities
Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 7 Exercises (Questions) and Chapter 7 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 7 Workouts (Questions) and Chapter 7 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 8 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments
This week's assignments:

- ***Weekly Quizzes:***
  - Quiz 7 - Accessible between June 29, Monday at 12:01 am to June 30, Tuesday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 9
Introduction
By the end of this week, you will be able to
- Examine the optimal choice under uncertainty.
- Analyze the technological constraint of production.
- Investigate the examples of production function.
- Define the marginal product and technical rate of substitution concepts.
- Explain the returns to scale of production.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch19. p. 350-361

Content
- ***Lecture Slides:***
  - 7.4. Choice under uncertainty (13 pages)
  - 8.1. Technological constraints and examples of technology (14 pages)
  - 8.2. Marginal product, TRS, and Returns to scale (9 pages)
- ***Lecture Video:***
  - 7.4. Choice under uncertainty (14:57 min)
  - 8.1. Technological constraints and examples of technology (20:35 min)
  - 8.2. Marginal product, TRS, and Returns to scale (13:45 min)
- ***Or, Lecture Videos on YouTube:***
  - 7.4. Choice under uncertainty (YouTube)
  - 8.1. Technological constraints and examples of technology (YouTube)
  - 8.2. Marginal product, TRS, and Returns to scale (YouTube)
- ***Highlights:***
  - Chapter 7 Highlights and Chapter 8 Highlights

Activities
Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 7 Exercises (Questions) and Chapter 7 Exercises (Solutions)
  - Chapter 8 Exercises (Questions) and Chapter 8 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 7 Workouts (Questions) and Chapter 7 Workouts (Answers)
  - Chapter 8 Workouts (Questions) and Chapter 8 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 9 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments
This week's assignments:
- ***Weekly Quizzes:***
  - Quiz 8 - Accessible between July 6, Monday at 12:01 am to July 7, Tuesday at 11:59 pm.
- ***Midterm Exam:***
  - Midterm Exam 2 - Accessible between July 9, Thursday at 12:01 am to July 12, Sunday at 11:59 pm. (Midterm Exams can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 10
Introduction
By the end of this week, you will be able to
- Define the profit of the firm.
- Analyze the short-run profit maximization problem of the firm.
- Investigate the long-run profit maximization.
- Apply Lagrangian method to the profit maximization.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch20. p. 365-374 (except 366 and 367)

Content
- ***Lecture Slides:***
  - 9.1. Profits and short-run profit maximization (16 pages)
  - 9.2. Long-run profit maximization (6 pages)
  - 9.3. Lagrangian method in profit maximization (8 pages)
- ***Lecture Video:***
  - 9.1. Profits and short-run profit maximization (22:06 min)
  - 9.2. Long-run profit maximization (09:58 min)
  - 9.3. Lagrangian method in profit maximization (10:40 min)
- ***Or, Lecture Videos on YouTube:***
  - 9.1. Profits and short-run profit maximization (YouTube)
  - 9.2. Long-run profit maximization (YouTube)
  - 9.3. Lagrangian method in profit maximization (YouTube)
- ***Highlights:***
  - Chapter 9 Highlights

Activities
Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 9 Exercises (Questions)
  - Chapter 9 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 9 Workouts (Questions)
  - Chapter 9 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 10 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments
This week's assignments:
- ***Weekly Quizzes:***
  - Quiz 9 - Accessible between July 13, Monday at 12:01 am to July 14, Tuesday at 11:59 pm.
- ***Assignment Submission:***
  - Assignment 2 - Accessible between July 11, Saturday at 12:01 am to July 17, Friday at 11:59 pm. (Assignment questions can be accessed on the Course Homepage by selecting **Content** then "**Assignment**" file. Assignments must be submitted before the due date via the Course Home page by selecting **Submit** then **Dropbox** on the course navigation bar).

Week 11
Introduction
By the end of this week, you will be able to
- Analyze the cost minimization problem of the firm.
- Define the conditional factor demand function.
- Investigate the cost function.
- Apply Lagrangian method to the cost minimization.

Recommended Reading
- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch21. p. 382-395

Content
- ***Lecture Slides:***
  - 10.1. Cost minimization and tangent solution (8 pages)
  - 10.2. Cost functions (9 pages)
  - 10.3. Lagrangian method in cost minimization (9 pages)
- ***Lecture Video:***
  - 10.1. Cost minimization and tangent solution (13:01 min)
  - 10.2. Cost functions (15:23 min)
  - 10.3. Lagrangian method in cost minimization (08:11 min)
- ***Or, Lecture Videos on YouTube:***
  - 10.1. Cost minimization and tangent solution (YouTube)
  - 10.2. Cost functions (YouTube)
  - 10.3. Lagrangian method in cost minimization (YouTube)
- ***Highlights:***
  - Chapter 10 Highlights

Activities
Recommended ungraded activities for this week:
- ***Exercises:***
  - Chapter 10 Exercises (Questions) and Chapter 10 Exercises (Solutions)
- ***Workout Exercises:***
  - Chapter 10 Workouts (Questions) and Chapter 10 Workouts (Answers)
- ***Weekly Discussions:***
  - Week 11 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments
This week's assignment:
- ***Weekly Quizzes:***
  - Quiz 10 - Accessible between July 20, Monday at 12:01 am to July 21, Tuesday at 11:59 pm. (Quizzes can be accessed on the Course Home page by selecting **Submit** then **Quizzes** on the course navigation bar)

Week 12

Introduction

By the end of this week, you will be able to

- Analyze the cost curves.
- Define the average and marginal cost.
- Examine the relationship between average and marginal cost curves.

Recommended Reading

- Varian, H., Intermediate Microeconomics, 9e, Norton., Ch22. p. 396-409

Content

- *Lecture Slides:*
  - 10.4. Cost Curves (10 pages)
- *Lecture Video:*
  - 10.4. Cost Curves (18:08 min)
- *Or, Lecture Videos on YouTube:*
  - 10.4. Cost Curves (YouTube)
- *Highlights:*
  - Chapter 10 Highlights

Activities

Recommended ungraded activities for this week:

- *Exercises:*
  - Chapter 10 Exercises (Questions) and Chapter 10 Exercises (Solutions)
- *Workout Exercises:*
  - Chapter 10 Workouts (Questions) and Chapter 10 Workouts (Answers)
- *Weekly Discussions:*
  - Week 12 Discussion
  - General Questions
  - Questions about Quizzes, Assignments, Midterms, and Final Exam
    - (Discussions can be accessed on the Course Home page by selecting **Connect** then **Discussions** on the course navigation bar)

Assignments

This week's assignment:

- *Assignment Submission:*
  - Assignment 3 - Accessible between July 28, Saturday at 12:01 am to August 5, Wednesday at 11:59 pm. (Assignment questions can be accessed on the Course Homepage by selecting **Content** then "**Assignment**" file. Assignments must be submitted before the due date via the Course Home page by selecting **Submit** then **Dropbox** on the course navigation bar).

6. Places to learn more about economics

This list is mainly taken from the website of American Economic Association (https://www.aeaweb.org/resources/students) and it is addressed to all students who has interest on further materials about macroeconomics.

Books:

- Charles Wheelan, **Naked Economics: Undressing the Dismal Science**, (W. W. Norton, 2010) ISBN 0393337642
- Daron Acemoglu and James Robinson, **Why Nations Fail: The Origins of Power, Prosperity, and Poverty** (New York: Crown Publishing Group, 2012) 978-0307719218
- Joseph E. Stiglitz, **The Price of Inequality: How Today's Divided Society Endangers Our Future**, (W. W. Norton, 2012) ISBN 978-0393088694
- Robert L. Heilbroner, **The Worldly Philosophers**, seventh edition (New York: Touchstone Books, 1999) ISBN 068486214X
- Steven D. Levitt and Stephen J. Dubner, **Freakonomics: A Rogue Economist Explores the Hidden Side of Everything**, (New York: Harper Perennial, 2005) ISBN 0060731338
- Steven D. Levitt and Stephen J. Dubner, **SuperFreakonomics: Global Cooling, Patriotic Prostitutes, and Why Suicide Bombers Should Buy LIfe Insurance**, (William Morrow, New York, 2009)
- Steven D. Levitt and Stephen J. Dubner, **Think Like a Freak: The Authors of Freakonomics Offer to Retrain your Brain**, (Wiiliam Morrow, 2014). 0062218336

Podcasts:
- EconTalk - sponsored by The Library of Economics and Liberty

Blogs:
- Core Economics
- Economix (New York Times)
- Freakonomics Blog (Steve Levitt and Steve Dubner)
- Paul Krugman website
- Greg Mankiw's Blog
- Real Time Economics (Wall Street Journal)

7. Economics Department Deferred Final Exam Policy
Deferred Final Exam Policy found at https://uwaterloo.ca/economics/undergraduate/resources-and-policies/deferred-final-exam-policy

8. Cross-listed course
Please note that a cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

9. Academic Integrity

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility. See the UWaterloo Academic Integritity webpage and the Arts Academic Integrity webpage for more information.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline. For typical penalties check Guidelines for the Assessment of Penalties.

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4. When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

Appeals: A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 - Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 - Student Appeals.

Accommodation for Students with Disabilities
Note for students with disabilities: The AccessAbility Services office, located on the first floor of the Needles Hall extension (1401), collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

Territorial Acknowledgement

We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabeg and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes six miles on each side of the Grand River.