

CARLETON UNIVERSITY  
Department of Economics

ECON 4020 A  
**Advanced Microeconomic Theory**

Instructor: [Professor K.G. Armstrong](#)

2021 Fall

E-mail: keir.armstrong@carleton.ca

“Lectures”: Thursdays, 11:35–14:25, online <sup>†</sup>

~~Telephone: 613-520-2600 x 8696~~

“Tutorials”: Mondays, 16:05–17:25, online

Office: [LA D-899](#)

Office Hours: Post- formative assessment or by appointment <sup>‡</sup>

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### Prerequisites and Preclusion

As stated in the [2021–22 Undergraduate Calendar](#), the prerequisites for this course are “ECON 2020 (or ECON 2009) and ECON 2030 each with a grade of C+ or higher; ECON 3001 (or MATH 2000 or MATH 2004) with a grade of C+ or higher; and ECON 2220 (or equivalent, or STAT 2605 or STAT 3502), which may be taken concurrently with ECON 4020.” Please note that *all* of these prerequisites *must* be satisfied in order to remain registered in the course. Students who believe they have taken a similar background course or courses from another university must provide appropriate documentation to the Department of Economics Undergraduate Administrator, [Renée Lortie](#).

The 2021–22 Undergraduate Calendar also states that ECON 4020 “[p]recludes additional credit for ECON 4200 (no longer offered [since the 2009 Winter term]).”

### Objectives

The aim of the course is to provide a rigorous analysis of the behaviour of economic agents in production, consumption, and general equilibrium. Elementary mathematical tools will be employed in the exposition of these topics.

### Tutorials

The weekly tutorials will be led by a teaching assistant assigned by the Department. The main purpose of these tutorials is to give students guidance in working through particular problems and applications of advanced microeconomic theory covered in the lectures and in the textbook. The teaching assistant may also spend some time answering students’ questions about course materials.

The first two tutorials will be held during the second half of the scheduled classes on Thursday, September 16 and Thursday, September 23. All subsequent tutorials will be held during the scheduled Monday classes beginning on October 4.

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<sup>†</sup> A video lecture of approximately 2½ hours in length will be pre-recorded and released to the course on Brightspace three days in advance of the end of the next scheduled office-hour period—i.e., at about 17:25 on Fridays up to and including September 24 and at about 17:25 on Mondays thereafter (beginning on September 27). Formative assessments via Poll Everywhere will be conducted using BigBlueButton (BBB) via Brightspace from 16:05 to 16:35 on Mondays up to and including September 27 and from 13:05 to 13:35 on Thursdays thereafter (beginning on September 30).

<sup>‡</sup> Office hours will be conducted using BBB via Brightspace as an open question-and-answer session followed by the opportunity to ask questions individually using “break-out” rooms. Individual or group appointments may be set up for other times by e-mail and will also be realized using BBB via Brightspace.

## Required Text

[Varian, Hal R.](#), *Microeconomic Analysis*, 3rd Edition, New York: Norton, 1992 (ISBN-10: 0-393-95735-7); available from [The Bookstore](#).

## Evaluation

Each student's grade in the course will be calculated as a weighted average of scores on eleven, in-class, formative assessments (one per the first through ninth lectures at 2⅓% each plus one per the last two lectures at 4½% each for a total of 30%), a mid-term examination (22%), and an in-class final examination (48%).

Students will be expected come to each lecture having read carefully the relevant parts of the required text as stated in the "Course Schedule and Reading List" below and/or communicated in advance via [Brightspace](#). Chapters 1, 4, 5, 2, 3, and 6 (Module I), 7–10 and 13 (Module II), and 17 and 18 (Module III) of Varian (1992) will be covered in the order indicated (except for Ch. 1, which will be covered in part between Chs. 5 and 2, Ch. 4, which will be covered in part between Chs. 2 and 3, Ch. 5, which will be covered in part between Chs. 3 and 6, and Ch. 10, which will be covered in part between Chs. 7 and 8 and in part between Chs. 8 and 9) over the first through ninth and last two lectures of the (twelve-lecture) term.

Formative assessments of student learning during a given lecture will be based on pertinent multiple-choice questions delivered using [Poll Everywhere](#) ~~and/or discussions/submissions of selected worked problems~~. Students who can document a compelling reason for missing one of the first four or the fifth through the ninth or the last two of these assessments will be excused and a third or a quarter or all of the associated weight will be added to that of each of the other three or four or one assessment(s) in the same module (so that it becomes  $2\frac{1}{3}\% + 2\frac{1}{3}\% / 3 = 3\frac{1}{9}\%$  or  $2\frac{1}{3}\% + 2\frac{1}{3}\% / 4 = 2\frac{11}{12}\%$  or  $4\frac{1}{2}\% + 4\frac{1}{2}\% / 1 = 9\%$ ). Students *must* inform the instructor of such an absence in advance, if possible.

Homework exercises will be assigned each week via [Brightspace](#) three days in advance of the associated lecture (the "due date"). Students will be expected to attempt to write out *their own* solutions to as many as possible of these exercises *prior* to the associated lecture and as many as possible of the balance prior to the subsequent tutorial (during which a selection will be taken up). As most of the assigned exercises will be taken from the required text, which also contains "answers to all odd-numbered problems," students should abide by Varian's (1992, p. XIV) "hope that [they] will have sufficient willpower to avoid looking at the answer until they have put some effort into solving the problems for themselves." Please be aware in any event that plagiarism is serious offence at Carleton and should be recognized and avoided in relation to *all* academic work.

The mid-term examination will take place in (the second half of the) class on Thursday, October 7 and be 75 minutes in duration.<sup>§</sup> It will cover Module I of the course and consist of a number of multi-part problems similar to those discussed in class earlier in the term. Students who can document a compelling reason for missing this examination will be excused and the associated weight will be added to that of the final examination (so that it becomes  $48\% + 22\% = 70\%$ ). Students *must* inform the instructor of such an absence in advance, if possible.

The final examination will take place in class on Thursday, November 25 and be 2¾ hours (or 165 minutes) in duration.<sup>\*\*</sup> It will cover Modules I and II of the course with roughly double the weight on the latter and consist of a number of multi-part problems similar to those discussed in class earlier in the term. Students who can document a compelling reason for missing this examination after informing the instructor of such an absence in advance *may* be granted a deferred final examination. Graded final exam scripts will not be available for (supervised) student perusal until after the course grades have been approved by the Faculty Dean (see the second paragraph of [Academic Regulation 3.3.4](#)).

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<sup>§</sup> The mid-term examination paper will become available on Brightspace at 1:00 p.m. EDT at which point students will be expected to download it, answer the associated questions individually offline, and then upload their answers to Brightspace for submission no later than 2:25 p.m. EDT. Note that these times imply a 10-minute file-transmission-and-submission allowance.

<sup>\*\*</sup> The final examination paper will become available on Brightspace at 11:30 a.m. EST at which point students will be expected to download it, answer the associated questions individually offline, and then upload their answers to Brightspace for submission no later than 2:30 p.m. EST. Note that these times imply a 15-minute file-transmission-and-submission allowance. Note also that students are expected to follow the relevant parts of Carleton's formal "[Examination Procedures](#)," nos. 4, 9, and 11 in particular.

## Course Schedule and Reading List

- Sep. 9: Preliminaries (13:05–14:25)
- Sep. 13: Technology (Varian 1st two examples on p. 3, §1.3, § 1.4 excl. para. following Fig. 1.3, §1.5 excl. 1st para. and 1st prop. & proof on p. 9, §1.6–§1.11 excl. CRS property (1) on p. 15)
- Sep. 20: Cost Minimization and the Cost Function (Varian Ch. 4 excl. §4 & §5 and Ch. 5 excl. §5)
- Sep. 27: Technology and Profit Maximization (Varian Ch. 1 parts excluded above, Ch. 2, and §5 of Ch. 4)<sup>††</sup>
- Sep. 30: The Profit Function and Duality (Varian Ch. 3, §5 of Ch. 5, and Ch. 6)
- Oct. 7: Mid-Term Examination
- Oct. 14: Consumer Preferences and Optimization (Varian Ch. 7 up to end of proof on p. 103)
- Oct. 18: Graded Mid-Term Exam returned ~~by T.A.~~
- Oct. 21: Utility Maximization and Consumer Surplus (Varian Ch. 7 from last two paragraphs on p. 103 to end<sup>††</sup> and §1–§3 of Ch. 10)
- Nov. 4: The Comparative Statics of Consumer Demand (Varian Ch. 8 excl. §4–§6 & §8–§9 & §11 and §5 of Ch. 10)
- Nov. 11: Topics in Consumer Demand Behaviour (Varian Ch. 9 excl. §5, §11 of Ch. 13, and §6 of Ch. 10)
- Nov. 18: Competitive Markets and Welfare Analysis (Varian Ch. 13 excl. §8–§11 and §3 of Ch. 14)
- Nov. 25: Final Examination
- Nov. 29: No tutorial
- Dec. 2: General Equilibrium and Exchange (Varian Ch. 17 excl. §5 & §8–§9)
- Dec. 6: No tutorial
- Dec. 9: General Equilibrium and Production (Varian Ch. 18 excl. §7)
- Dec. 10: No tutorial

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<sup>††</sup> A 1½-hour video tutorial covering the Week 3 homework will be pre-recorded and released to the course on Brightspace at the same time as the associated video lecture—i.e., Friday, September 24 at about 17:25.

<sup>††</sup> Read also: Darrough, Masako N., and Clive Southey, “Duality in Consumer Theory Made Simple: The Revealing of Roy’s Identity,” [\*Canadian Journal of Economics\*, Vol. 10, No. 2 \(May 1977\), pp. 307–317.](#)