

# ECO2030 (Second Half) Information Economics and Mechanism Design

University of Toronto, Winter 2021  
Mondays / Wednesdays 2-4 PM (Toronto time)  
<https://q.utoronto.ca/courses/203807>  
Zoom link and passcode available on the website

Syllabus version: March 1, 2021

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Tutorials: Fridays 9-11 AM  
Office hours: Mondays 5-6 PM

## Overview

This is the last portion of the microeconomic theory core sequence targeted at first-year PhD students. This part of the sequence focuses on asymmetric information and its consequences for economic outcomes, as well as on the design of incentives—two topics that turn out to be tightly connected. The goal is to ensure you will be familiar with the core vocabulary of economic concepts and workhorse mathematical models in this area, which have applications throughout every branch of economics.

This course assumes you have seen the previous material in the sequence (ECO2020 and the first half of ECO2030), and the mathematical background assumed is similar to the previous courses.

**Format:** This class, like everything else these days, will take place online. Although this mode of interacting is no longer brand-new, it is still challenging for all of us, so I hope for your patience—and your feedback—as we figure out how to make it work. Please feel free to get in contact directly about any particular constraints you are facing; I will do my best to work around logistical barriers and enable everyone to benefit from the course.

And please do come to office hours to discuss the course; if the regular time doesn't work for you, don't hesitate to ask for a separate appointment.

The home base for the course is the Quercus webpage (listed at the top of this syllabus). This page will include links to all written materials and to Zoom lectures.

**Lectures:** The nature of the subject matter calls for a mostly lecture-based format. Class sessions will be recorded and posted to the Quercus site for the benefit of those who are unable to join in real time. Everyone is encouraged to join at the regular meeting time if at all possible, so that we have the chance to talk to each other.

I will post outlines of the lecture material on the course website ahead of class. These outlines will not be extremely detailed, but they may be useful to follow. (Please point out any errors!) If anyone would like to volunteer to type up more detailed versions, as a public good, I can help coordinate if useful.

After each class, I will also post the notes from the virtual blackboard.

**Textbooks:** The official source for this class is the still-classic

- Mas-Colell, Whinston, & Green (1995), *Microeconomic Theory* (MWG)

Some alternative textbooks that treat much of the same material, and arguably in a more contemporary way, are

- Mailath (2019), *Modeling Strategic Behavior*
- Jehle & Reny (2011), *Advanced Microeconomic Theory*, 3rd ed.

Another book you might find helpful for the screening and mechanism design portions of the class:

- Börgers (2015), *An Introduction to the Theory of Mechanism Design*

Each of these covers some, but not all, of what we will do in lecture. If you are wondering what material you will be expected to become familiar with, the lecture contents are the definitive answer.

**Problem Sets:** As in the first half of ECO2030, there will be problem sets posted weekly, by Wednesday evening. Solutions will be discussed in tutorial the following week, and the solution sets will be posted after the tutorial. Solutions are not graded, but you would do well to work through the problems carefully and write out your solutions as if you had to turn them in. Working together is encouraged.

**Grading:** There will be a final exam, to be run online. Details about scheduling will be forthcoming. Your grade in ECO2030 is the average of your exam grades for the two units.

## Schedule of classes

In normal years, this half of ECO2030 would comprise 11 lectures, due to one lecture slot being taken by the exam for the first half of the class. This year we have 12, but I would like to be mindful of your time (and watching lectures online can be tiring), so the last class on April 7 will be optional.

The lectures will aim to adhere roughly to the schedule below, but expect some adjustments.

- 3/1, 3/3: Adverse selection and disclosure
  - MWG sections 13.A–B
- 3/8, 3/10: Signaling
  - MWG section 13.C, 13 appx A
- 3/15, 3/17, 3/22: Moral hazard
  - MWG, sections 14.A–B, 14 appx A
- 3/24, 3/29: Screening
  - MWG, sections 14.C, 13.D
- 3/31, 4/5: Mechanism design
  - MWG, sections 23.A–E
- 4/7: Optional lecture, subject TBD