

# Econ 51 Syllabus

## Stanford University, Spring Quarter 2018

Please read this document carefully.

It describes some important course policies and deadlines, and I will assume that you are familiar with them.

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Office hours: Mondays 3-4pm and Wednesdays 2-3pm, Landau 144

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### Course Overview and Objectives

The first third of the course will cover *exchange equilibrium*, which is like the normal consumer choice model except that instead of starting with a fixed income, agents start with a bundle and can trade with each other. We will examine how gains from trade exist in a barter economy, and then we will analyze a situation in which agents trade at market prices. This will lead to some classic efficiency results describing how market prices achieve efficient outcomes.

The second two-thirds of the course will examine models in which the assumptions of competitive equilibrium don't hold. In particular, we'll look at several related situations in which the actions of one agent affect the payoffs of other agents — e.g., externalities, public goods, strategic competition among a few large firms, and auctions. We'll develop and use the tools of *game theory* to analyze these situations.

There are three central themes of the course:

- *Economic efficiency*: Can we formally evaluate whether an economic outcome is the “best possible outcome” in a way that makes sense?
- *Time*: We'll move beyond “static” models to models in which actions take place over a number of time periods, both in terms of trading across time (savings and borrowing) and responding across time (credible threats and promises, repeated interactions between agents).
- *Information*: in real life, economic agents don't have perfect information about the world. We'll see how insurance markets arise to allow trading across states of the world, how firms set prices when they can't perfectly observe consumer preferences, and how adverse selection and moral hazard can lead to inefficient outcomes.

Overall, this is a more applied course than Econ 50; it gives you a chance to try out your newfound technical skills on a range of real-world problems. It's the payoff to all your hard work!

## Readings

The required textbook for the class is Varian, *Intermediate Microeconomics*. Any edition will do; older editions are available online for under \$10. For the game theory section, Gibbons' *Game Theory for Applied Economists* is also useful. Copies of both will be available on reserve in the library.

I will post slides and notes online; however, these will not include all of the information covered in class, since a lot will be done on the board. Therefore, the notes you take during class will serve as your single best resource in preparing for exams and homework assignments. *Please note that since many of my slides contain interactivity, they cannot be printed out.*

## Course Lecture Schedule (subject to revision)

Date	Subject	Chapter Titles (Varian)
UNIT I: OPTIMIZATION FROM AN ENDOWMENT		
Tues 4/3	Review of Consumer Optimization	
Thurs 4/5	Buying and Selling	Buying and Selling
Tues 4/10	Intertemporal Choice	Intertemporal Choice
Thurs 4/12	Uncertainty	Uncertainty
UNIT II: EXCHANGE EQUILIBRIUM		
Tues 4/17	Exchange	Exchange
Thurs 4/19	Efficiency and Equity	Exchange; Welfare
Tues 4/24	<i>Midterm (in class)</i>	
UNIT III: PUBLIC ECONOMICS		
Thurs 4/26	Nash Equilibrium	Game Theory
Tues 5/1	Public Goods	Public Goods
Thurs 5/3	Social Choice	Welfare
Tues 5/8	Externalities	Externalities
UNIT IV: GAME THEORY		
Thurs 5/10	Static Games of Complete Information	Game Theory; Oligopoly
Tues 5/15	Dynamic Games of Complete Information	Game Theory; Oligopoly; Game Applications
Thurs 5/17	Static Games of Incomplete Information	Game Applications
Tues 5/22	Dynamic Games of Incomplete Information	Asymmetric Information
UNIT V: MECHANISM DESIGN		
Thurs 5/24	Price Discrimination	Monopoly Behavior
Tues 5/29	The Principal-Agent Problem & Moral Hazard	Asymmetric Information
Thurs 5/31	Auctions and Market Design	Auctions
Tues 6/5	Matching Mechanisms	Auctions
Sat 6/9	<i>Final Exam, 3:30-6:30pm</i>	

**Prerequisite:  
Econ 50**

This course, especially the first unit, would be nearly impossible without the foundation built in Econ 50. For that reason, Axess is programmed such that you will not be able to register in Econ 51 until you have completed Econ 50. (Don't worry, the class isn't capped, so if you're currently in Econ 50 you'll just be able to enroll at the end of the quarter.) If you have satisfied this requirement by transfer credit, rather than by courses taken here at Stanford, please contact Joanne DeMarchena ([jdemar@stanford.edu](mailto:jdemar@stanford.edu)) in the Economics Department Academic Office for an Axess registration code.

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**Class  
Meetings**

Lectures will be held in 200-002 on Tuesdays and Thursdays from 3:30-5:20pm. There will also be some additional meetings for review before the midterm and final exams. It is very important that you attend all classes, particularly since the emphasis I place on topics in class often differs from that in the textbook.

Laptops and even iPads are a terrible way to take notes in an econ class, and phones are incredibly distracting for both me and your fellow students; so **I have a strict no-electronics policy during lecture**. There will be a break halfway through each lecture to access the digital world.

Sections will be held most Fridays. **Section selections transfer from Axess, so please register for your preferred section there**. If you need to change sections after registering, please let me know. We should have plenty of room in all sections.

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**Course  
Websites**

The main course web site is <https://canvas.stanford.edu/courses/80996>. All assignments, notes, slides, etc. will be posted there. Also remember to add Econ 51 to your study list in Axess.

We will use Piazza for **all class communication**. Please sign up ASAP at [piazza.com/stanford/spring2018/econ51](https://piazza.com/stanford/spring2018/econ51). I will assume that you receive any announcements I post on Piazza, so set your notifications accordingly.

Piazza allows you to both ask questions and answer other student's questions. Answering Piazza questions is a great way to solidify your grasp of the material, and **your constructive Piazza activity will be rewarded if you're on the border between two letter grades at the end of the quarter**. Piazza posts may be anonymous to your fellow students, but will not be anonymous to me.

## Grading

Your final numerical average will be calculated based on your performance on online homework, written homework assignments, the midterm, and the final exam. Specific letter grades will never be assigned to individual assignments or exams. Your letter grade will reflect your overall performance in this class.

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## Online Quizzes (5% of grade)

**The purpose of the online quizzes is preparation.** Two hours of lecture in this class can feel overwhelming if you get lost, so it's important that you do the reading before class. Previous students told me that having these quizzes helps to give them the incentive they need to come to class prepared and avoid getting lost. Quizzes are short, relatively easy, and due 15 minutes before each lecture. They are graded for **correctness**, not just completion. *(This is a change from previous quarters.)*

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## Problem Sets (20% of grade)

**The purpose of written problem sets is practice.** The exams for this class are something you train for, not something you cram for; and the homework exercises are your training.

After each lecture, 1-3 exercises will be posted that extend and reinforce that lecture's concepts. **You must upload your exercises for each lecture within 3 days of that lecture.** Solutions will be posted after the due date so you can check your answers. As long as you're doing well in the class, you may choose to self-grade your problem sets or hand them in during section to be graded by your TA. If you fall behind, or find that system isn't preparing you adequately for the tests, your work should be graded by a TA. **All students who score well below average on the midterm must have their homework graded by a TA.**

In addition to the lecture exercises, a limited number of old exam questions will be posted. Solutions to old exam questions will be posted at the end of each unit. You may hand in old exam questions to your TA in section to be graded, up until the point when solutions are posted.

Homework points are cumulative. Each exercise or old exam question will receive a grade of ✓+ (3 points), ✓ (2 points), or ✓- (1 point). Full credit is given for 100 total points: if you get less than 100 points, it will hurt your grade, but getting more than 100 points won't help your grade.

For your own sake, do not cheat on your homework; it's like cheating on doing push-ups. Don't use old solutions sets that may be floating around, or copy off friends. If you work in groups, which is a really great idea, you must credit the members of your group in your problem set, and you must hand in your own solutions. Uploading others' work as your own is a violation of University policy.

**Midterm**  
(30% of grade)

Unlike in Econ 50, **the midterm and final are both evaluative and the final is not cumulative.**

**Final Exam**  
(45% of grade)

There are five units in the course, and five hours of exams. The midterm exam is two hours and covers the first two units; the final exam is three hours and covers the last three units. The final is also more difficult.

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**Missing Work**

Late submissions of online quizzes or problem sets will **never** be granted. There will be **no make-up exams, and no early or late sittings for exams**. Varsity athletes or others traveling on official university business may be able to take exams by fax: please contact me **at least one week in advance** in order to make arrangements.

However, Econ 51 is not the only thing in your life! Things happen — stress, illness, travel, conflicts with other classes. For this reason we have built the following flexibility into the system:

- **Online quizzes:** The lowest three quiz scores will be dropped.
- **Problem sets:** Because problem set points are cumulative, if you miss work one week, just do more another. However, there is a limit to the number of available available points, so don't assume you can amass all needed points at the end! Additional problems will *not* be posted.
- **Midterm:** If, due to an emergency, you are unable to take the midterm exam, your final grade will be based solely on your quizzes, problem sets and final exam. *You must contact me before the exam in order to receive such an accommodation.*
- **Final Exam:** The time of the final exam is set by university rule. If, due to an illness or other emergency, you are unable to take the final exam at the appointed time, but have completed all other requirements for the course, I can give you a grade of "Incomplete" to be resolved by taking the Econ 51 final exam at the end of a future quarter. *Note: you cannot get an "Incomplete" if you miss both the midterm and final.*

## Getting Help

This course moves *fast*. It involves a lot of applications of the techniques we developed in Econ 50. If you're feeling really solid on those techniques, this should be a fun and somewhat less challenging course than that one. If your foundation is a little shaky, you may very well find yourself at sea.

Please make extensive use of office hours and ask questions in class to make sure you're keeping up and not getting lost. If you find Econ 51 difficult, you may also wish to take advantage of tutoring and other study resources on campus. You may also want to sit in on an Econ 50 lecture or two to brush up on the pre-requisite material; come talk to me before you do, and we can figure out how to use your time most strategically.

Please **do not** email me or the TA with specific questions about the content of the course, especially just before a test. **We will be using Piazza for this purpose.** This will allow everyone to see questions that have already been asked, get access to the answers, and get answers from me or the TA's (and each other). Again, please sign up for Piazza ASAP.

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## Students with Documented Disabilities

Students who have a physical or mental impairment that may necessitate an academic accommodation or the use of auxiliary aids and services in a class must provide a verification letter dated in the current academic term from the Office of Accessible Education (OAE). Please contact the OAE as soon as possible and provide me with your letter by the end of the second week of the quarter (April 13) to ensure that we can accommodate you appropriately.

The OAE is located at 563 Salvatierra Walk and online at [studentaffairs.stanford.edu/oea](http://studentaffairs.stanford.edu/oea) (phone 723-1066 Voice; 725-1067 TTY).

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## Economics Department Common Syllabus

All courses taught in the Stanford Department of Economics are governed by a common set of course management rules. A document explaining these rules is on the Economics Department website at [economics.stanford.edu/undergraduate/economics-common-syllabus](http://economics.stanford.edu/undergraduate/economics-common-syllabus). Please be sure to read this document in its entirety, and contact me if you have any questions.

Note in particular that the Econ department forbids discussing regrade requests with any instructor before submitting a formal request to the Director of Undergraduate Studies. This is department policy and I am not allowed to make any exceptions. This policy does not apply, however, to transcription or data entry errors in numerical grades; those you may take directly to the TA for immediate correction.