

Econ 50: Economic Analysis I

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Version 2 - Tentative – Subject to Change

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Textbooks and Other Resources

You do not need to buy a textbook for this course. Comprehensive lecture notes (in fact, an interactive textbook in progress) are posted online [here](#). However, this is complex material, and it can sometimes be helpful to hear how others explain it as well. To that end, we have licensed UCSD's "Intermediate Microeconomics Video Handbook" (IMVH) which has many excellent short videos on topics we'll be covering. These optional but potentially helpful videos may be accessed from within Canvas. If you would like an additional text resource, up until last year we used Hal Varian's *Intermediate Microeconomics: A Modern Approach* for this course, which explains these concepts extremely well, and which will correspond in approach for many (but not all) of the topics we cover. Relevant IMVH videos and Varian chapters will be posted for each applicable lecture.

Course Overview

Econ 50 is one of the most required undergraduate courses on Stanford campus. It is a "core course" in not only the Economics major, but a number of other majors (like MS&E) and tracks within majors (like the Political Economy and Development track in Political Science). The reason this course is seen as a prerequisite to so many other courses is not in the *content* it teaches, but in the *modeling skills* it trains you to use:

1. It introduces the fundamental **building blocks** — *production functions* and *utility functions* — which economists use to model a wide range of phenomena in the real world.
2. It provides training in the **optimization techniques** that economists use to analyze a wide range of decisions made by individuals, firms, and governments.
3. It shows how the tools of **comparative statics** and **equilibrium analysis** may be used by economic policymakers to understand the likely effects of policy proposals or changes in economic conditions.

Importantly, this is not a course in "Truth." The specific model we will use to develop these skills is the neoclassical supply and demand model of competitive markets you've already learned in Econ 1 or AP Econ. We do not examine this model because it is True; indeed, it rests on assumptions (like perfect rationality, nonstrategic behavior, and perfect information) which modern economic thought regards as quaint in many important applications. Rather, we will use this model as a baseline for understanding how an economic model is constructed, and how its *assumptions* and *structure* imply its *conclusions*.

At a higher level than these modeling skills, another the core value of this course — the one that's most useful in a wide range of other courses, and real life — lies in understanding the relationship between *real-world phenomena*, *mathematical models*, and *graphical representations*. Regardless of what field you eventually go into, being able to communicate your ideas verbally, mathematically, and visually will be extremely important. Succeeding in Econ 50 will make you a better presenter of complex ideas, and a more persuasive advocate for causes you believe in.

The course is divided into four units:

Unit 1: Scarcity and Choice

We model the economy *as if* it were a single person — in particular, Chuck from the movie *Cast Away* — who has limited resources (his own labor and some simple tools) and has to decide what to produce. We derive his feasible choices (his “choice set,” bounded by his PPF) and analyze a framework for analyzing his preferences. We analyze Chuck’s constrained optimization problem: how best to use his resources to maximize his happiness.

Lecture 1	Monday, September 14	Math Review
Lecture 2	Wednesday, September 16	Technology and Production Functions
Lecture 3	Monday, September 21	Resource Constraints and the Production Possibilities Frontier
Lecture 4	Wednesday, September 23	Preferences and Utility Functions
Lecture 5	Monday, September 28	Constrained Optimization with Calculus
Lecture 6	Wednesday, September 30	Constrained Optimization without Calculus

Unit 2: Consumer Theory

We rescue Chuck from his island, and analyze a different kind of problem: if his resources are money, and he can buy things rather than make them, how can we derive his optimal choice as a *function* of his income and the prices of the goods? We plot a consumer’s demand curve, and see how changes in prices and income shift the curve. We then “flip the script” to solve a different kind of optimization problem: rather than looking for the optimal way to spend a fixed amount of money, we find the *cheapest way* to achieve a given level of happiness. Using all these mathematical techniques, we derive from first principles many of the core concepts you learned about in Econ 1: demand elasticity, complements and substitutes, normal and inferior goods, income and substitution effects, and consumer surplus (as well as other of consumer welfare called *compensating variation* and *equivalent variation*).

Lecture 7	Monday, October 5	Consumers and Prices
Lecture 8	Wednesday, October 7	Demand Functions
Lecture 9	Monday, October 12	Demand Curves
Lecture 10	Wednesday, October 14	Offer Curves
Lecture 11	Monday, October 19	Income and Substitution Effects of a Price Change
Lecture 12	Wednesday, October 21	Welfare Effects of a Price Change

Unit 3: Theory of the Firm

Just as we derived a consumer’s optimal behavior as a function of income and prices, we derive the firm’s optimal behavior as a function of both resource prices and the price at which it can sell its output. We assume the firm’s only goal is to maximize its profit (its revenue from selling output minus the costs of its inputs), and solve the firm’s profit maximization problem in two cases: one where the firm has market power, and one in which it takes prices as given. We then derive a competitive firm’s supply curve and its demands for inputs from its production function.

Lecture 13	Monday, October 26	Production and Cost
Lecture 14	Wednesday, October 28	Profit Maximization
Lecture 15	Monday, November 2	Output Supply
Lecture 16	Wednesday, November 4	Input Demands

Unit 4: Competitive Equilibrium

We bring consumers and firms together, and show that the market “chooses” the same optimal outcome as a single, benevolent “social planner” would — both in choosing how much of a single good to produce (partial equilibrium analysis) and in allocating resources across the production of all goods (general equilibrium analysis).

Lecture 17	Monday, November 9	Partial Equilibrium
Lecture 18	Wednesday, November 11	Welfare Analysis of Equilibrium: CS, PS, and DWL
Lecture 19	Monday, November 16	Closing the Model: The Circular Flow and General Equilibrium

Course Structure

Class Meetings and in-Class Quizzes

In a normal quarter, there are two 2-hour lectures each week and one 1-hour section. With the shift to online learning, each lecture has been split into two parts: a **pre-recorded video** in which the concepts are introduced (and which you can watch when you wish), followed by one-hour **live, seminar-style classes** on Mondays and Wednesdays. During live classes, your professor will go through some worked examples with you in a small group setting, allowing for student questions and class discussion. There will also be a steady stream of in-class quiz questions, given via PollEverywhere. Attendance in the classes on Monday and Wednesday is mandatory.

Each Friday you will have a 1-hour section, led by a TA, that will review the material for the week and go over some old exam questions to help prepare you for the unit tests. Section attendance is recommended but not required.

Problem Sets

There will be **one problem set of exercises for each lecture**. Doing these exercises is how most of your learning occurs: the questions are often challenging, and are designed to help you deepen your understanding. You may work with other students on problem sets, but you may **not** consult solution sets from past quarters.

Solutions will be posted the morning after the problem set is due; no assignments will be accepted after that point. In fact, extensions (if granted) would not be helpful: there is such a steady stream of assignments in this course that getting an extension would only result in “homework debt.” If you can’t finish an entire assignment on time, try to do at least one or two problems and hand in what you have; then review the solutions afterwards to make sure you understand the material. As noted below, we will be understanding if things come up that prevent you from doing all your work for the class, as long as it’s clear you’re putting forward your best effort when you can.

Unit Tests

At the end of each of the units, there will be a **unit test**. These will generally be offered over the weekend after the unit, except for the last unit test, which will be given the final day of the quarter. You will be able to take each test at any time during the testing window. More details will be announced as we get closer to the tests.

Grading

You will get an overall letter grade for each of the units, based on your performance on problem sets and unit tests, as well as your class participation. Your final letter grade for the class will be based on the unit letter grades. We know that this quarter will be unpredictable: you may need to skip an assignment or class from time to time to care for a family member, or your Internet might give out at just the wrong time. Therefore, there will be no specific formula for determining your grade. Instead, we’ll use the following general qualitative rubric:

Grade	Class Attendance and Participation	Problem Sets	Unit Tests
A	Near-perfect	Consistently strong	Achieved mastery
B	Less than perfect	Inconsistent/sloppy	Covered the basics but haven’t achieved mastery
C	Spotty	Bare minimum	Still struggling with the basics
D or Below	Consistently absent	Below minimum	No data (missed assessments)

We will be thoughtful and generous in how we assign grades. It’s fine to miss work here and there as long as you’re putting in full effort the majority of the time. However, if you have to miss a significant amount of work, please let us know and we’ll create a plan and set expectations for what you need to succeed given your individual situation.

Prerequisites

Success in Econ 50 relies on a familiarity with economics and fluency with quantitative and graphical analysis. The econ prerequisite for Econ 50 is Econ 1 or 1V. The math prerequisite may be satisfied with Math 51, Math 51A, CME100, or CME100A. Access is programmed such that you will not be able to register in Econ 50 until you have completed the prerequisites. If you have satisfied them by transfer credit, rather than by courses taken at Stanford, please contact Joanne DeMarchena (jdemar@stanford.edu) for an Access registration code.

Course Technology

We will use **Canvas** as the main course hub; all other course resources, as well as information on office hours, will be linked from our Canvas page. Lecture notes and readings will also be posted on Canvas. There is no required textbook to buy.

We will use **Zoom** for all synchronous class meetings. Please download Zoom and follow [these instructions](#) to help you get set up. It is important that you do not share our course Zoom links or meeting passwords with anyone outside of our course to protect the privacy of everyone in attendance. Links to meetings will be available in Canvas.

We will use **Poll Everywhere** for class participation, including (graded) quizzes and (ungraded) surveys. Please [download the PollEverywhere app](#) for your phone or tablet. (You can also join from a computer if necessary.)

We will use **Gradescope** to hand in all written work. Links for each assignment will be available in Canvas.

We will use **Piazza** as a platform for you to ask questions, as well as for course announcements and discussion. Please sign up for Piazza [here](#). Please respect the following guidance when using Piazza:

- Please **do** use Piazza to ask questions about problem sets. Both instructors and students can answer questions on Piazza, and you are absolutely encouraged to help your fellow students by answering questions! (It won't hurt your grade if you do, either...)
- Please **do** use Piazza whenever possible to ask logistical questions about the course — it saves us from writing the same email 20 times if we can answer it once on Piazza. If you have a personal question or face a personal challenge, of course, you are welcome to email your instructor directly.
- Please do **not** use Piazza to ask **public** questions about in-class quiz questions or unit tests. You may, however, ask such a question as a **private** question (visible only to instructors). If you see such a question, do not answer it.
- Please do **not** post comments that are disrespectful of us or of your fellow students. You may appear anonymous to fellow students, but you will not be anonymous to the instruction team, and abusive behavior will not be tolerated.

Because the entire course is online, and because many of you may be off campus, it is required that you have a device that connects to the internet and a stable Internet connection. Given current economic conditions, this may present a challenge to you. Please know that Stanford University and its instructors are committed to ensuring that all courses are financially accessible to all students. If you are an undergraduate who needs assistance with the cost of getting online, the Diversity and First Generation Office's Opportunity Fund is designed to financially assist undergraduate students who are experiencing a temporary financial challenge from a hardship or who are seeking funds for an opportunity related to their academic, professional, and/or social development. Go to <https://diversityandfirstgen.stanford.edu/resources> or contact Joseph Brown, the Associate Director of the Diversity and First-Gen Office (jlbrown@stanford.edu). Dr. Brown is available to connect you with resources and support while ensuring your privacy. If you find during the quarter that getting online consistently is difficult, please reach out to the Instructors on Piazza and we'll work with you to chart a path forward.

Course Expectations and Culture

Students and instructors are all adjusting to the changes in circumstances and regulations that have been put in place this year in response to COVID-19. Success in this year will require perseverance, kindness, and flexibility. It's important that you know what you should expect from us, and what we expect from you.

What you can expect from us

We will do everything we can do provide you with the best possible instructional experience during these trying times. Faculty from the Economics department have generously volunteered to take on additional teaching responsibilities so that we can shift from a large lecture format to seminar-style Zoom sessions with limited enrollment to facilitate discussion and questions. We have eliminated the final exam for the course, replacing the usual two high-stakes exams with a steady stream of smaller, low-stakes assessments.

We acknowledge that many of you may lack resources you originally thought you would have available. We are committed to being flexible in calculating grades, as unforeseen events will surely arise that could affect any of you in unpredictable ways. If you find yourself facing additional challenges that make it difficult for you to keep up with the course work, please let us know and we will figure out a way to support you. We will not ask you to explain the details of your situation. If you have suggestions for how we might support your learning in this course, please do not hesitate to let us know.

As teachers, we will try to make class as fun, enjoyable and welcoming as possible for all our students; but, being human, we will inevitably make mistakes. While our intention is never to be offensive, sometimes an off-the-cuff comment or poorly chosen example can inadvertently cause offense. If something one of us says, does, or writes ever bothers you, *please* let us know quickly so that we can correct the mistake, issue a heartfelt apology, and, most importantly, avoid the offensive behavior in the future.

What we expect from you

Because there may be times when circumstances beyond your control may prevent you from participating fully in the class, we expect that when you fully engage with the class during the times when you can. It's much easier to help you get through difficult times if you've been otherwise keeping on track with the class.

Class attendance. When you sign up for the course in Axess, you will select a one-hour course meeting time on Monday and Wednesday. (It will also meet for section on Friday at this same time.) This will be a time you meet in small groups with your professor, and when you'll have in-class quizzes; so please carefully choose a time to which you can commit. **We will expect that you will join for those two hours every week of the quarter**, unless a true emergency arises. If any of our class meetings conflict with religious events, please let us know so that we can make arrangements for you.

Class attention. We know it can be easy to get distracted during online meetings. So, we ask that you [try as best as you can to remain focused and engaged during class](#). We expect you to take an active role in your learning by coming to our virtual class meetings prepared and ready to collaborate with your classmates. We also ask that you share your video in Zoom sessions whenever possible, to support a lively and engaging class culture (though please mute your microphone unless you're talking!).

Respect for Diversity

It is our intent that students from all diverse backgrounds, perspectives, and situations be well served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is our intent to present materials and activities that are respectful of diversity, which may include but not limited to: gender, sexuality, disability, age, socioeconomic status,

ethnicity, race, religion, political affiliation, culture, and so on. We acknowledge that there is likely to be a diversity of access to resources among students and plan to support all of you as best as we can. Please let us know ways to improve the effectiveness of the course for you personally or for other students or student groups.

All people have the right to be addressed and referred to in accordance with their personal identity. In this class, we will have the chance to indicate the name that we prefer to be called and, if we choose, to identify pronouns with which we would like to be addressed. Every member of the instructional team will do their very best to address and refer to all students accordingly and support classmates in doing so as well.

Stanford University Honor Code and the Fundamental Standard

The [Honor Code](#) and [Fundamental Standard](#) are integral parts of this course.

You, as students, are responsible for understanding the University's Honor Code policy. For tips on how to uphold the honor code in an online learning environment, please read [these recommendations](#).

We, as instructors, need to be clear on what is "permitted aid" and "unpermitted aid" in the context of this course, and what the consequences of violating the Honor Code are.

- **Problem Sets:** You are welcome to work with other students on problem sets, as long as you write up your own solutions yourself. You may **not** use solutions to old problem sets. Examples of violating this policy include, but are not limited to:
 - Handing in another student's work as your own
 - Copying answers out from old solution sets, especially if the question has changed (e.g., you submit an answer using last year's numbers instead of this year's)
 - Tracing graphs from old solutions
- **Unit Tests:** You may **not** work with others on or unit tests. Note: many of the questions on unit tests will be randomly generated, so answering another student's question is a clear violation of this policy.

Honor Code violations diminish the hard work everyone puts into this course, and we have zero tolerance for them.

Consequences of violating the Honor Code are therefore appropriately severe:

- **First violation:** maximum grade of C for the unit in which the violation occurs.
- **Second violation:** maximum grade of C for the entire course.
- **Third violation:** automatic NP and report to OCS for disciplinary action.

Economics Department Common Syllabus

All courses taught in the Stanford Department of Economics are governed by a common set of course management rules. The Economics Common Syllabus explaining these rules is on the Economics Department website at economics.stanford.edu/undergraduate/economics-common-syllabus. **The Department does not allow me to grant exceptions to these rules.**

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with the Office of Accessible Education (OAE). Professional staff will evaluate the request with required documentation, recommend reasonable accommodations, and prepare an Accommodation Letter for faculty dated in the current quarter in which the request is being made. Once you have your letter, please email it to Joanne DeMarchena (jdemar@stanford.edu). Please contact the OAE (phone: 723-1066, online at <http://oae.stanford.edu>) as soon as possible since timely notice is needed to coordinate accommodations. Generally speaking, OAE accommodations in the context of this course mean extended time on exams, not extensions on problem sets. As described above, we know that anyone might face challenging consequences this year, causing them to miss work or class time. If this happens to you, please contact your instructor; we will be flexible and work with you on a plan to get the most out of the class, regardless of whether you have an OAE letter or not.