Ec11: Introduction to Economics

September – December 2024 (Fall Term)
Tuesdays and Thursdays, 13:00-14:30. Baxter Lecture Hall
California Institute of Technology

Course Instructor

Dr. Antonio Jimenez
Baxter 312; *ajimenez@caltech.edu*
Office Hours: Tuesdays, 5:30-6:30pm; Wednesdays, 5:30-6:30pm and, additionally, by appointment. All students are kindly encouraged to seek out my office hours, not just if you are struggling with the course.

Graduate Teaching Assistants

We are fortunate to have four excellent graduate teaching assistants for this course:
Rumi M. Khan; *rkhan@caltech.edu*. OHs: Tuesdays, 6:30-7:30pm @ B119
Paulo C. Matos Trifu; *pmatostr@caltech.edu*. OHs: Thursdays, 5:00-6:00pm @ B119
Seokyoung Min; *smin@caltech.edu*. OHs: Tuesdays, 4:00-5:00pm @ B119
Sean Wang; *ywang9@caltech.edu*. OHs: Fridays, 10:30-11:30am @ Baxter 128

Recitation

Recitation sessions will be held by our GTAs on Fridays, 1:00-2:00pm, at Baxter Lecture Hall. Recitations are a key learning resource for this course. In recitations, you will work on homework problems, ask questions, and go over material from the course.

Course Description

This is an introductory course in Economics with a model-based approach and emphasis in microeconomics foundations. The goal of the course is to help students develop analytical skills and apply economic models to make sense of a wide variety of problems in the social sciences. While the course will teach students how to use mathematical tools for economic analysis, the emphasis will be in helping students to develop **intuitions** for economics. As a core class, we will cover topics such as supply and demand, utility, preference, constrained optimization, consumer theory, producer theory, competition, market structure, externalities, public and private goods, taxation, trade, growth, and some other special areas of interest. Examples of applications include predicting the impact of technological changes on market prices, calculating the optimal gasoline tax, and measuring the value of new products.

Course Organization

The organization of this course has greatly benefited from the advice and materials that Professors Laura Taylor and Antonio Rangel generously shared with me to prepare its contents. While the organization of this course is my sole responsibility, I owe special thanks to Professors Taylor and Rangel. The course will be organized around the following learning activities:

1. **In person lectures** with me, Prof. Antonio Jimenez. Learning about Economics touches upon both tangible and abstract ideas, including philosophical, policy-oriented, and math-based thinking. These topics lend themselves to discussion, and I encourage students to attend class in person and be ready to ask questions and discuss topics as necessary.

2. **In-class practice quizzes**, around 6-8 (approx.,10-15 mins) in-class quizzes that count towards your grade. They will be assigned during your lectures with me. You will be asked to submit your answers through Canvas. Quizzes days will be unannounced. Quizzes will be drawn directly from our HW problems.

3. **Weekly problem sets** submitted through Canvas (available in the Modules section) that count towards your grade.

4. **Canvas Discussion Board**. The board is a key resource for asking questions about course content or problem sets. Answers provided through the Discussion Board count towards your grade. The board is monitored frequently by the course staff.

5. **Recitation sessions** run by our GTAs. Recitations are a key resource in your learning trajectory for this course. In recitations, you will have the opportunity to work on homework problems, ask questions, and go over material from the course. Each session consists of a review of the material covered during the previous week (approx., 15 mins) followed by practice on challenging problems.

6. Homework-related **office hours with the GTAs**. No appointment required. See Canvas for updates and announcements.

7. General **office hours with me**, Prof. Antonio Jimenez. These office hours are intended for general discussions and other issues. Only one student at a time can sign for each slot, but you are welcome to bring other classmates.

8. **Midterm and Final exams**. There will be a midterm and a final take home exam, submitted through Canvas. See Calendar below and Canvas for details.

Other Resources

The Canvas website for the course offers the following additional learning resources:

1. Lecture slides for every lecture.
2. Old final exams with solutions.

Learning Objectives

By the end of this course, students should have acquired sound knowledge of what Economics is, as well as the organizing framework that it brings to understanding

complicated interactions between individuals, companies, governments, and institutions. At a practical level, students should be able to understand introductory microeconomics, solve basic microeconomic problems, apply mathematical techniques and graphical tools of analysis to solve economic problems and to think about policy questions relevant to the operation of the real economy. Students will become familiar with the organizing framework that Economics brings to complex problem-solving and become knowledgeable with potential future avenues of research.

Suggested Textbooks

As reference textbooks, we will mainly rely on *Microeconomic Theory: Basic Principles and Extensions*, 11th edition (2012), by Walter Nicholson and Christopher M. Snyder and on *Introduction to Economic Analysis*, version 2.1, by Preston McAfee, Tracy Lewis and Donald Dale. This latter resource is available free online at:
https://mc4f.ee/Papers/Introecon/ieav21.pdf
We will also draw somewhat from *Microeconomics: Competition, Conflict, and Coordination* (2022), by Samuel Bowles and Simon D. Halliday. This is also free to read and download at:
http://simondhalliday.com/microeconomics/bowleshalliday_final_2022.pdf

Nonetheless, the course is largely self-contained, and our recommendation is that you focus your efforts on processing the lecture notes, working on the practice problems and problem sets, and participating in the discussion board.

Readings are listed in the course schedule of this syllabus.

Other textbooks that touch upon the topics covered by the course, and students have found helpful in the past, are (these books have NOT been placed on Library Reserve):

- Intermediate Microeconomics with Calculus: A Modern Approach, by Hal R. Varian (2014)
- A Short Course in Intermediate Microeconomics with Calculus, by Roberto Serrano and Allan M. Feldman (2013)
- Essential Mathematics for Economic Analysis, by Knud Sydsaeter and Peter Hammond (2012)

Communication and Course Website

We will use Canvas as a key resource for this course. Course materials such as problem sets, lecture notes and/or slides, discussions, midterm and final exams and other resources will be posted on our course Canvas site. It is thus imperative that you check Canvas regularly or set your notifications to know when I and our GTAs update or post on it.

Rules of Etiquette

Even though this course is a larger class, we will still aim to push material beyond the written lectures through active participation and class discussion where possible. To guarantee an environment that facilitates this, I ask that cell phones be turned off or silenced (and off the desk) unless they be necessary for accommodations. Laptops or iPads are allowed for note taking, although I ask that internet be turned off to avoid distractions for you and other students. Additionally, please be respectful of your classmates' willingness to question material, and differences of opinions. The only way to learn is to feel free to question and explore. Having a variety of responses to material will allow everyone to understand the material more thoroughly and will make the class much more interesting for everyone!

Assessment Rubric

Your final grade will be based on weekly homework, comprised of problem sets and in-Canvas discussion posts (both are handed in for points but not graded); in-class quizzes; midterm and final exams; and in-class participation. There may also be opportunities for bonus points through in-class activities.

Students are allowed to drop their lowest quiz score at the end of the term.

Points will be assigned in the following share of your total grade:

- **Midterm 25%**
- **Final 35%**
- **In-class Quizzes 10%**
- **HW + Discussion Posts 25%**
- **Class Participation 5%**

Problem Sets and Discussion Posts. There will be **six problem sets** assigned throughout the term, due at 11:59pm local time on the due date stipulated in the assignment and listed on the syllabus.

*** Students will get full points for handing in completed problem sets, but they will not be graded otherwise. You are free to collaborate with others on solving them and can work on them in your recitations. ***

On weeks where there is no problem set, you will be asked to create a discussion post and respond to other students in response to a discussion prompt posed by me or a response to a brief video or reading. Students will receive points for participating in discussion posts, but like the problem sets, discussion posts are not graded beyond participation. There will be two weeks where we have discussion posts, and instructions will be posted on Canvas.

Midterm and Final. You will be given a take-home midterm, which will be worth 25% of your grade. **The midterm will be posted on Canvas on Monday, October 28, 2024, by 9:00am, and will be due on Thursday, October 31, 2024, by 11:59pm (local time) submitted via Canvas. Your final exam will also be take-home and will be worth 35% of your grade. The final exam will be released on Canvas on Monday, December 9, 2024, by 9:00am, and due on Thursday, December 12, 2024, by 11:59pm (local time).** For both exams, you must hand in your own work and not coordinate with others or work in a group.

In-Class Quizzes and Class Participation. We will have 6-8 short (~10-15 min), in-person quizzes which will be drawn from previous homework problem sets. There will be no make-up quizzes, and they will not be available online. These quizzes are intended to grant points for attendance, and to gauge student understanding and learning week by week. **Students will be able to drop the lowest quiz**.

Summary of Key Dates:

- Problem Set 1 Due: Monday, Oct. 7, 2024, at 11:59pm local time.
- Problem Set 2 Due: Monday, Oct. 14, 2024, at 11:59pm local time.
- Discussion Post 1: initial response due Friday, Oct. 18, 2024, at 11:59pm local time; and response to others due Monday, Oct. 21, 2024, at 11:59pm local time.
- Problem Set 3 Due: Monday, Oct. 28, 2024, at 11:59pm local time.
- Discussion Post 2: initial response due Thursday October 31, at 11:59pm local time; and response to others due Tuesday, Nov. 5, 2024, at 11:59pm local time.
- Problem Set 4 Due: Monday, Nov. 18, 2024, at 11:59pm local time.
- Problem Set 5 Due: Monday, Nov. 25, 2024, at 11:59pm local time.
- Problem Set 6 Due: Tuesday, Dec. 3, 2024, at 11:59pm local time.
- Midterm released on Canvas on Thursday, October 31, 2024, by 9:00am, and will be due on Monday, November 4, 2024, by 11:59pm (local time).
- Final released on Canvas on Monday, December 9, 2024, at 9:00am, and due on Thursday, December 12, 2024, by 11:59pm (local time).
- In-class quizzes (6-8 quizzes during lectures with me, days can vary).

Final letter grades will be computed based on the final distribution of final scores. Letter grade cut-offs, as well as Pass-Fail thresholds, change from year-to-year based on the distribution of final total scores.

Deadlines and Extensions

Deadlines are binding: there are NO extensions. Exceptions will be made for medical reasons, but only with prior approval from an undergraduate Dean. If you have extenuating circumstances, please contact me in advance (at least 24 hours in advance) of a due date to discuss issues or potential exceptions to this policy. There are no make-up quizzes. To accommodate life's unavoidable and unforeseeable problems, we will drop the score of your lowest quiz score.

Attendance and Participation

Although attendance or participation do not count towards your final grades, I encourage you to attend all sessions and to participate actively. These are crucial learning activities that can really help your understanding of the course topics. Thus, ultimately, they do have an important impact on your final grades.

Regrading

To request a regrade, please submit a request for a regrade to the GTA in charge of that material (listed with each assignment).

To minimize gaming of the system, any material submitted for regrading will be regraded on its entirety, which means that grades can go up-or-down. Requests for regrade will only be allowed up to 1-week after the material was graded. Requests for regrading of the final exam will not be allowed after the final letter grades are released.

Contact Policy

Unfortunately, we will not be able to respond to email questions about the material or problem sets. Students are encouraged to use the discussion board, which will be monitored frequently by course staff, and to attend the various office hours.

Wellness Policy

I want to state clearly that taking care of your health and well-being should be your number one priority. You cannot learn if you are unwell or under extreme duress. The course work should feel challenging in a positive way, but we do not want you to be overwhelmed by your work for this course. If you find yourself overwhelmed or encountering other personal challenges during the term, please reach out to me so we can develop a plan for you to pursue success in this course in a healthy way. In addition, I encourage you to utilize Caltech's resources.

Diversity, inclusion, and belonging are all core values of this course. All participants in this course must be treated with respect by others in accordance with the honor code. If you feel unwelcome or unsafe in any way, no matter how minor, I encourage you to talk to me or one of the Deans.

****Special thanks to Susanne Hall, Adam Blank and Claire Ralph for sharing their policies, which have been adapted for this syllabus.****

Students with Documented Disabilities

Students who may need an academic accommodation based on the impact of a disability must initiate the request with Caltech Accessibility Services for Students (CASS). 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. Students should contact CASS as soon as possible, since timely notice is needed to coordinate accommodations. For more information: *https://cass.caltech.edu/*, *cass@caltech.edu*. If you are having difficulties with access or other challenges in the class you think might be related to a disability, but do not yet have a diagnosis, please feel free to reach out to CASS to learn more about resources.

Academic Integrity

Caltech's Honor Code: "No member of the Caltech community shall take unfair advantage of any other member of the Caltech community."

Understanding and Avoiding Plagiarism: Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit, and it violates the honor code in a fundamental way. You can find more information at: *Avoiding Plagiarism: Guidelines and Expectations for Writing in HSS*.

All instances of plagiarism or other academic misconduct will be referred to the *Board of Control* for undergraduates. For graduate students, contact the *Graduate Office*. Students are not allowed to use external resources such as ChatGPT to complete final or midterm exams. You can find more information at: *HSS Policy on Generative AI*

Collaboration Policy

Collaboration on homework problem sets is encouraged, but all students must submit their own assignment for points. Students may not collaborate with others on midterm and final exams. The partial and final exams will allow access to all course materials.

Discussion Board Policy

The discussion board is a valuable part of the course, and it has been used creatively by students in the past to advance their learning. The course staff monitors the board regularly and provides detailed answers to questions when appropriate.

To safeguard the quality of the Board, we ask students to follow the following policies:

- Do not post, or give away, the solutions for the problem sets.
- Do not discuss the final exam in the board.
- Be always polite and civil, especially with other students.

- We urge you to give us feedback on the course, since we are eager to correct mistakes and improve its content.
- The Board can only be used to matters related to the course.
- Above all, please use your common sense.

Tentative Course Schedule (subject to change)

Week		Date	Lecture Topic	Suggested Readings	Homework Due
1	Lecture 1	Tu, Oct 1	Introduction What is Economics? Math Review	Nicholson & Snyder Ch. 1 McAfee Ch. 1 (Pgs. 8-13) Bowles & Halliday Ch. 1 (Pgs. 3-11)	Problem Set 1 Released (Canvas)
	Lecture 2	Thu, Oct 3	Math Review; Preferences, Utility, Indifference Curves; Constrained Optimization	Nicholson & Snyder Ch. 2 McAfee Ch. 12	
2		Mo, Oct 7			Problem set 1 Due (Canvas)
	Lecture 3	Tu, Oct 8	Supply and Demand	Nicholson & Snyder Ch. 3-6 and Ch. 9-11 McAfee Ch. 2-3	Problem Set 2 Released (Canvas)
	Lecture 4	Thu, Oct 10	Supply and Demand	Nicholson & Snyder Ch. 3-6 and Ch. 9-11 McAfee Ch. 2-3	
3		Mo Oct 14			Problem set 2 Due (Canvas)
	Lecture 5	Tu, Oct 15	Exchange Economies	Nicholson & Snyder Ch. 13 McAfee Ch. 14 Bowles & Halliday Ch. 4 (Pgs. 162-174 and pgs. 179-185)	Discussion Post 1 Prompt Released (Canvas)
	Lecture 6	Thu, Oct 17	Firms and Production	Nicholson & Snyder Ch. 9-11 McAfee Ch. 9	
		Fri, Oct 18			Discussion Post 1 Initial Response Due

4	Mo, Oct 21			Discussion Post 1: 2 Responses to Others Due (Canvas)
Lecture 7	Tu, Oct 22	Production and Cost Functions	Nicholson & Snyder Ch. 9-11 McAfee Ch. 9	Problem Set 3 Released (Canvas)
Lecture 8	Thu, Oct 24	Competition, Entry and Exit	McAfee Ch. 10.1-10.3	
5	Mo, Oct 28			Problem Set 3 Due (Canvas) & Discussion Post 2 Prompt Released (Canvas)
Lecture 9	Tu, Oct 29	Technical Change and Efficiency; Economies of Scale and Scope; Questions about midterm?		***No HW this week --- Midterm ---***
Lecture 10	Thu, Oct 31	Efficiency continued; price controls (ceiling floor; tariffs)		Midterm Released @ 9am (Canvas) Discussion Post 2 Initial Response Due
6	Mo, Nov 4			Midterm Due by 11:59pm (Canvas)
Lecture 11	Tu, Nov 5	Market Power and Monopoly	Nicholson & Snyder Ch. 14-15 McAfee Ch. 15	Discussion Post 2: 2 Responses to Others Due (Canvas)
Lecture 12	Thu, Nov 7	Public Goods	Nicholson & Snyder Ch. 19 McAfee Ch. 8	
7				
Lecture 13	Tu, Nov 12	Externalities	Nicholson & Snyder Ch. 19 McAfee Ch. 7	Problem set 4 Released (Canvas)
Lecture 14	Thu, Nov 14	Property Rights and Investment	McAfee Ch. 7	

8	Mo, Nov 18			Problem set 4 Due (Canvas)
Lecture 15	Tu, Nov 19	Investment and Risk	Nicholson & Snyder Ch. 18 McAfee Ch. 11	Problem set 5 Released (Canvas)
Lecture 16	Thu, Nov 21	Risk Attitudes and Insurance Market	Nicholson & Snyder Ch. 18 McAfee Ch. 11	
9	Mo, Nov 25			Problem set 5 Due (Canvas)
Lecture 17	Tu, Nov 26	Economic Growth (and Measuring Economic Activity)		Problem set 6 Released (Canvas)
	Thu, Nov 28		***No Class Thanksgiving Break***	
10				
Lecture 18	Tu, Dec 3	Information Economics; International Trade		Problem set 6 Due (Canvas)
Lecture 19	Thu, Dec 5	Special Topics – TBA Review Questions		

Academic Resources for Students

- **Tutoring:** The undergraduate dean's office provides a free peer tutoring service; If the course isn't listed, students can talk with the dean's office to arrange for a tutor; *https://deans.caltech.edu/*
- **Writing:** The Hixon Writing Center provides professional writing tutors as well as peer tutors, individual and group writing space, and additional resources; *https://writing.caltech.edu*
- **Registrar & FERPA:** The registrar can answer questions about degree progress, privacy of student records, and course enrollment procedures; *https://registrar.caltech.edu*. The website also lists *Option Representatives* for option-specific advising, policies, and information.
- **Library:** Borrow books, retrieve journal articles, receive guidance about research; *https://library.caltech.edu/*
- **Dean of Undergraduate Students**: Wide-ranging assistance addressing issues (academic and other) for undergraduates; *https://deans.caltech.edu*

- **Dean of Graduate Studies**: Wide-ranging assistance addressing issues (academic and other) for graduate students; *https://gradoffice.caltech.edu*

Additional Resources for Students

- **Student Wellness Center:** Wide variety of health and wellbeing services; *https://wellness.caltech.edu/*
- **Counseling Services:** Free for all students, regardless of insurance plan; *https://counseling.caltech.edu*
- **Occupational Therapy:** Individual sessions and consultations on building healthy habits and routines, time management, planning and organization, and more. Free for all students; *https://ot.caltech.edu*
- **Center for Inclusion and Diversity**: Resources concerning navigating diversity and inclusion, including staff who can speak with students about challenges of harassment and discrimination; *https://diversity.caltech.edu/*
- **Title IX**: Caltech's Title IX Coordinator (*titleix@caltech.edu*) works with students on issues related to sexual harassment, sexual misconduct, and sex discrimination; *https://titleix.caltech.edu/*
- **Caltech Accessibility Services for Students**: The Accessibility Services Specialist works with students with temporary medical conditions, or mental, physical or learning disabilities on accommodation requests and services; *https://cass.caltech.edu*
- **Residential Support**: Resident Associates (RAs) and Residential Life Coordinators (RLCs) are also resources for TAs and students; *https://residentialexperience.caltech.edu/*
- **Career Advising and Experiential Learning:** Provides resources to help students make career decisions; *https://career.caltech.edu/*