ECONOMICS 101A – SPRING 2021
MICROECONOMIC THEORY

SYLLABUS (1/19/21)

Welcome to Economics 101A! This course is meant to introduce you to the world of formal economic modeling. Economic models are typically made of three components:

- Consumers;
- Firms;
- A market in which consumers and firms interact.

We deal with these three components sequentially. The course starts by introducing consumer preferences and utility function. We then move on to consider firms and production functions, and finally we study the market-clearing conditions.

The organizational details:

Course Time: Tuesdays and Thursdays, 11-12.30 online

Teacher: Stefano DellaVigna, 515 Evans, sdellavi@econ.berkeley.edu
OH: Tu 10-11 and Th 12.30-1.30

GSI: Bruno Smaniotto, brunosmaniotto@berkeley.edu, OH Wed 6-8pm
Felipe Arteaga Ossa, fharteaga@berkeley.edu, OH Mo 10am-12pm

Webpage:
The link to the website will be on bcourses.
If you want to get a sense of how the class will evolve, you can check out the 101A webpage from the Spring '17 from my website:
https://www.econ.berkeley.edu/course/2017/spring/economic-theory-%E2%80%93-micro

Textbook:
Recommended, not required: Walter Nicholson and Christopher Snyder, *Microeconomic Theory – 12th Edition,* Southwestern Editors. You are welcome to use also the 11th or 10th edition, they will do just fine and will be cheaper.

Course grading:
20% 6 Problem Sets
10% Class Participation (quizzes)
20% Midterm 1
20% Midterm 2
40% Final Exam (Thursday 5/13/21, 8–11 a.m.)
The percentages above sum to 110%. The worst 10% of the score will not count toward your grades. For example, if the worst score is on the final exam, the final exam will only have 30% of weight.

Miscellaneous questions:

1. Are problem sets required?
   Yes, problem sets are an integral part of the course and an important part of the grade. There will be a problem set handed out about every other week.

2. How important is attending class?
   It is important, and especially so this year. In response to student feedback from the Spring 2020 and various teaching experiments, there will be two new features in the class. First, there will be some recorded 15-20-minute segments which you will watch before class, with some in-class discussions/examples. In my experience the past two semesters, this partially flipped approach allows us to make best use of the class time together on zoom. Second, most lectures I will have polls on topics covered in the previous class or in recorded material. The responses will go towards the class grade, with 10% weight. This is meant as a nudge and commitment device to keep us all on track with the material. As a behavioral economist, I know this is especially hard during the pandemic and I hope that this will help.

3. How important is reading the book?
   If you follow the class, read carefully the hand-outs, and attend section, you should be able to learn the material with the occasional reference to the textbook. For many people the textbook will still be a very useful complement, but given its cost I am making it a recommended, rather than required, reading. Let me emphasize again: Coming to the lectures is very important. I will post handouts of my slides during class to help you take better notes and will post them afterwards on the web with notes and graphs. So, again, coming to lecture is key for this class.

4. How do we hand in problem sets? Is it ok if I hand in the problems sets late?
   The problem sets will be uploaded to Gradescope and also on Gradescope you will receive the graded copy back. The problem sets are due in by the deadline, we will not be able to make exceptions. Sorry.

5. Can I work on the problem sets with other people?
   Yes, you can and should. I strongly recommend that you form study groups with other people. In fact, one of the strongest reasons why we require problem sets is precisely the fact that you get to work on economics problems with other people, you discuss with them, and learn from the intuition of others. Nevertheless, we expect that you will write and turn in your own solution to the problem set. After you discuss with other people, you should make sure that you can write your own solution.

6. How do I know which questions are hard in the problem set?
   We try to give you an idea of that by the points assigned to the different exercises. More points means harder. In any case, expect to work hard in order to be able to solve the exercises. But do not get frustrated. It is normal if you find the exercises hard! If you can only get half of an exercise done, just write that part done. This way you can get partial credit. Afterwards, by reading the solution to the problem set, you will pick up the rest.

7. How do I choose between this class and 100A?
   The answer depends on two things: your mathematical background and your interest in economics. As for the first, this course requires a more thorough knowledge of mathematical tools than 100A does. You are supposed to be very comfortable with multivariate calculus, since we are using it throughout the course. 100A, instead, uses calculus sparingly, and is therefore more appropriate for students that are less comfortable with mathematics. In the first class, I give some examples of the level of math you will need for 101A.

A second difference is your interest in the material. While you should expect to work hard in any class, including 100A, the workload for 101A is going to be heavier than in 100A, and is therefore justified for students that are particularly interested in economics. In addition to the basic topics (consumer and production theory), we also cover modern material, such as game theory. We are going to devote 2-3 classes to state-of-the-art findings in economics, such as the economics of self-control problems, which normally do not make it into the basic classes. The problem sets test the knowledge of these topics, and are demanding. I expect anyone who takes the class to be seriously interested in microeconomics, in writing simple models to understand economic behavior.

For the reasons above, 101A is a better class for students considering graduate school in economics.

This being said, I should add that it is not my intention to make this course artificially hard, or require more math than is needed. This is going to be a course in economics that relies on math, not a course in math disguised as economics. Quite simply, since good economics requires some math, we are going to use math when necessary. To keep the focus on the economic content, throughout the course I will try to give intuition and to stress the economic significance to the results we cover.

8. Is it ok to use an older Edition of the Nicholson book?

   Using the older (11^{th}, $10^{th,}$ or even 9^{th} or 8^{th}) edition of the book is fine by me. The editors of books put out new editions more frequently than needed in order to penalize the used book market and sell more copies of the new book. (For a dissenting opinion: Chevalier and Goolsbee, 2007 argue that this is not the case). I am all for saving on the exorbitant cost of the book. The one thing you will have to be careful about is page numbers. I will try to give page numbers for both new and old edition whenever possible. The 12^{th}, 11^{th} and 10^{th} editions of Nicholson are significantly better than the older editions for the third part of the class, so keep that in mind.

9. How are the exams graded? What if I disagree with the grading of an exam?

   Holding exams in this pandemic is hard, as you know. I have chosen to keep the format as close as possible to past years, and have it fully synchronous. That is, I will send a PDF of the exam at the midterm/final exam time. You will do the exam closed book, on the honor code. You can write on the PDF, or you can use a printed copy and then scan it. You will then need to upload the exams to gradescope. In the Spring of 2020 I found that this worked quite well, by the students own feedback. We had no misconduct issues. If we have miscounted points on the midterms or final, tell us immediately and we will correct. If you think that we have inappropriately scored an answer, submit a complaint in writing to me. I will then re-grade your test from beginning to end. You should keep in mind that this may decrease your final grade, but still you should feel free to submit complaints.

10. Who should I talk to if I have a question?

    The GSIs should be your primary contact for questions related to the problem sets or the exams. Bruno and Felipe will hold regular office hours. If you would like to talk to me, I am delighted to meet during my office hours. In particular, I am happy to discuss issues of economic substance, questions inspired by the lectures, and suggestions for your future studies. So, if a class made you wonder why consumers do things that they regret ex post (such as not exercising), or why the price of airline tickets varies so widely, I am more than happy to discuss issues like these with you. Also, no need to call me "Professor", "Stefano" will be great. (ideally pronounced with stress on the "e") – if you want to have fun with it: *www.youtube.com/watch?v=nDsA-Opffvg.*

11. How do GSI sections work?
    Bruno and Felipe will split the sections temporally, as opposed to by day. That is, Bruno will teach all 4 sections through March 10th, and Felipe will teach all 4 sections following that. Notice that both of them hold regular office hours throughout the semester.

12. I am not able to take exams in the normal time because of disability. What should I do?
    I should receive a letter of accommodation directly from the DSP office. Still, send a reminder at least a week before exams or when relevant, thanks.

13. What should I expect to learn from this course?
    I would like you to be able to face a real world phenomenon/puzzle and be able to write down a sensible economic model of it. This will enable you to analyze more problems than you can imagine, ranging from economics to political science, from psychology to sociology. Perhaps, by the end of the course you will agree with me that microeconomics provides a parsimonious and insightful way to look at the world. That's my aspiration, and I will do my best to get you to share my enthusiasm for economics!

14. What is the honor code for this class?
    The student community at UC Berkeley has adopted the following Honor Code: "As a member of the UC Berkeley community, I act with honesty, integrity, and respect for others." Let me be clear that you are expected to adhere to this code, including at exam time.

15. I have a question about enrollment.
    Please refer to the "Summary of Enrollment Procedures" (https://www.econ.berkeley.edu/undergrad/home/enrollment-procedures) and the instructions on "How to Stay Enrolled in an Economics Course" (https://www.econ.berkeley.edu/undergrad/staying-enrolled) on the Department of Economics website. Notice that you need to attend section the first two weeks or you will be dropped from the class. For questions on enrollment, contact the head GSI (headgsi@econ.berkeley.edu). Do not email me or the GSIs as we do not control enrollment.

Here is a preliminary schedule of topics to be covered in class. I anticipate that there will be some changes to this schedule over time. I will distribute updated lists of topics covered as time goes on. The Chapter numbers refer to the Nicholson, 10th edition.

Mathematical Background

Lecture 1 (January 19).
Introduction
Motivation
Maximization in One Variable (Ch. 2)

Lecture 2 (January 21).
Maximization in Several Variables (Ch. 2)
Comparative Statics
Implicit Function Theorem
Problem Set 1 posted on web

Lecture 3 (January 26).

Concavity and convexity
Constrained Maximization (Ch.2)

Consumers

Lecture 4 (January 28).
Constrained Maximization II (Ch.2)
Preferences and Utility (Ch. 3)

Lecture 5 (February 2).
Preferences and Utility II (Ch. 3)
Common Utility Functions

Lecture 6 (February 4).
Utility Maximization and Choice I (Ch. 4)
Problem Set 1 due in class

Lecture 7 (February 9).
Utility Maximization and Choice II (Ch. 4)
Indirect Utility Function
Problem Set 2 posted on web

Lecture 8 (February 11).
Comparative statics
Expenditure Minimization

Lecture 9 (February 16).
Slutzky Equation
Income and Substitution Effects (Ch. 5)
Labor Supply

Lecture 10 (February 18).
Intertemporal Choice
Problem Set 2 due in class

Lecture 11 (February 23).
Economics of Altruism
Choice under uncertainty (Ch. 8)
Introduction to Probability
Expected Utility
Risk Aversion

No Lecture (February 25).
1st Midterm

Lecture 12 (March 2).
Insurance
Investment in Risky Asset
Measures of Risk Aversion
Problem Set 3 posted on web

Lecture 13 (March 4).
Time Inconsistency
Application to health clubs

Producers
Lecture 14 (March 9).
Production Functions (Ch. 11)
Isoquants
Returns to Scale

Lecture 15 (March 11).
2-Step Cost Minimization (Ch. 12)
Total, Average, Marginal Costs
Supply Function
Problem Set 3 due in class

Lecture 16 (March 16).
Geometry of Cost Curves
One-Step Profit Maximization (Ch. 13)
Aggregation
Short-run Market Equilibrium (Ch. 14)
Problem Set 4 posted on web

Lecture 17 (March 18).
Comparative Statics of Equilibrium
Taxes

Spring Break

Lecture 18 (March 30).
Consumer and Producer Surplus
Long-run Market Equilibrium

Lecture 19 (April 1).
Monopoly (Ch. 18)
Price Discrimination
Problem Set 4 due in class

Lecture 20 (April 6).
Game Theory
Mixed Strategy Equilibria

Market Interaction
Lecture 21 (April 8).
Oligopoly: Cournot
Oligopoly: Bertrand
Auctions

Lecture 22 (April 13).
Dynamic Games
Oligopoly: Stackelberg
Problem Set 5 posted on web

No Lecture. (April 15)
2nd Midterm

Lecture 23 (April 20).
General Equilibrium
Edgeworth Box

Lecture 24 (April 22).
General Equilibrium II
Moral Hazard/Adverse Selection Issues I
Problem Set 5 due in class
Problem Set 6 posted on web

Lecture 25 (April 27).
Moral Hazard/Adverse Selection Issues II

Lecture 26 (April 29) – Last lecture!
Applications: House Insurance and Deductible Choice
Applications: Media Bias and Voting
Conclusion

Problem Set 6 due on by noon.

Final exam (Th 5/13, 8-11am)