Intermediate Microeconomics (Econ UA-10)

Summer Session I 2022

Instructor:	Eric Spurlino (spurlino@nyu.edu)	**Lecture:** MTWR 9.00-10.30
Grader:	Mina Kim (mina.kim@nyu.edu)	Silver Center Room 101A
Office Hours:	Eric: MT 4–5, 19 W 4th St, Room 620	

The course comprises six units, with roughly one each week:

1. Preferences and Utility
2. Consumer Choice and Demand
3. The Market
4. The Firm
5. Choices Over Risk and Time
6. Strategic Interaction

Lecture notes (in the form of slides) for each week will be uploaded to Brightspace before the Monday of that week, with adjustments made as appropriate. The lecture notes should be seen as guides to the course, to be filled in with more detail by yourself through attending lecture. Current department guidelines are to not have "in-person" designated courses be offered as "hybrid", and therefore lectures will not be recorded, and in person attendance is highly recommended!

My office hours will be accessible via both in person and over Zoom. If you cannot make official hours (noted above), please email me for an alternative time.

There are two aspects of the course that will contribute to the overall grade.

- There will be a series of 6 problem sets, one for each week. These problem sets will together account for 40% of the grade. For each student, the lowest individual homework score will be dropped and not count toward the grade. Each week's homework will be available online starting on the Monday of that week, and will be due by the start of lecture on the following Monday. Homework must be submitted online on Brightspace by this time, in PDF format only. You can work on homework in groups, but each student must turn in their own copy.
- There will be two equally weighted exams which will be in person and in class. Together, the exams will account for 60% of the grade. The first exam covers Weeks 1-3, and the second exam covers weeks 4-6 (i.e. it is not cumulative). You must complete both exams. If you have to miss an exam, please email me in advance so we can schedule a prompt (in-person) make-up exam.

Course grades will be determined using the scale above. Letter grades will not be given for anyone component, but point grades will be given for each. These points are then weighted by the scheme given above. Once your final course score (out of 100) is determined, we will use the class distribution of scores to determine how these translate to letter grades. The economics department guidelines for class grade distributions are roughly (A: 29%, B: 40%, C: 22%, D: 5%, F: 4%), where, for example, B refers to B+,B, and B-). Note that this is a rough guideline, and not at all a strict curve. I will commit to doing no worse than the department grade distribution. For example, if your course score is in the top 29% of the class, you are guaranteed to do no worse than a A-.

In addition to the Lecture Notes, I would recommend (although do not require) using any edition of *Intermediate Microeconomics* by Hal Varian. I will denote corresponding Varian (9th edition) chapters in the lecture guide attached, but encourage you to get whatever version you find cheapest, and you can contact me about finding the corresponding chapters in that edition.

Week 1: Preferences and Utility (Varian 2-4)

1. Monday May 23: Introduction, Preferences and Choice
2. Tuesday May 24: Utility Functions
3. Wednesday May 25: Budget Sets
4. Thursday May 26: Optimization

Week 2: From Primitives to Observables (Varian 5-6, 8)

5. Monday May 30: Memorial Day, NO CLASS
6. Tuesday May 31: Utility Maximization
7. Wednesday June 1: Demand and Choice I
8. Thursday June 2: Demand and Choice I

Week 3: Into the Market (Varian 7, 32)

9. Monday June 6: Revealed Preference
10. Tuesday June 7: The Edgeworth Box
11. Wednesday June 8: Exchange Equilibrium and Pareto Optimality
12. Thursday June 9: Computing Equilibrium

Week 4: Exam 1 and The Firm (Varian 19-20)

13. Monday June 13: The Firm 1
14. Tuesday June 14: The Firm II and Review
15. Wednesday June 15: Exam 1
16. Thursday June 16: NO CLASS

Week 5: Enriching the Choice Space–Time and Risk (Varian 10, 12, 13)

17. Monday June 20: Juneteenth, NO CLASS
18. Tuesday June 21: Lotteries
19. Wednesday June 22: Expected Utility Risk Aversion
20. Thursday June 23: Choice over Time

Week 6: Strategy (Varian 28-29, 38)

21. Monday June 27: Insurance and Adverse Selection
22. Tuesday June 28: Oligopoly Behavior
23. Wednesday June 29: Games I
24. Thursday June 30: Games II

Week 7: Exam 2

25. Monday July 4: Independence Day, NO CLASS
26. Tuesday July 5: Review
27. Wednesday July 6: Exam 2

Econ-UA 18: Statistics

2021 Summer Session I

Instructor:	Eric Spurlino	**Time:** MTWR 12:30pm-2pm
TA:	Aleksandra Alferova	**Recitation:** R 3-4:30pm
Zoom Office Hours:	Eric: T 10-11am, R 9-10am	Aleksandra: F 10-11am

Course Description

This is an introductory course in probability and statistics. The goal of the course is to develop a fundamental understanding of statistics, which requires a sufficiently detailed course in probability. Models of probability and statistics are among the most fundamental tools in the Economics toolbox. While an underlying goal of this course is to prepare for future study of Economics, the material will only cover general topics to provide a deeper understanding of all sciences. As statistics is an essential component of scientific language, students will ideally finish the course better-equipped to embrace all forms of scientific literature.

Textbook

Since textbooks are expensive and I won't be following any directly, I recommend two textbooks easily available online for free.

1. *Probability and Statistics* by DeGroot and Schervish, which can be obtained online for free as a PDF (http://bio5495.wustl.edu/Probability/Readings/DeGroot4thEdition.pdf). This book is very long and very comprehensive, and no doubt covers much more than we will be able to cover in this course.

2. *OpenIntro Statistics* available here (https://www.openintro.org/book/os/) for free. This one is less exhaustive than the book above, but written very clearly and with lots of supplemental materials which will aid any studying

Course Structure

Lectures will all be synchronous (live) and take place on Zoom through the course website. Attendance to these is not mandatory, and all lectures will be recorded for later viewing to accommodate those in distant time-zones. While attendance is not mandatory and the courses will be recorded, your attendance is **highly** recommended if possible.

Office Hours

Office hours will be at the times designated in the header. These will also take place virtually, by joining the appropriate Zoom room on the course webpage at the designated times. If you need to schedule additional time to talk by appointment because of timezone difficulties, you can email myself at **spurlino@nyu.edu** or Aleksandra at **aa6549@nyu.edu**.

Grading

There are four components to your grade:

1. Homework (5 total, 4 graded): 33%

2. Exam 1 (Monday, June 14th): 33%

3. Exam 2 (Thursday, July 1st): 33%

Homeworks will be submitted online on the class website, and graded by Aleksandra. Homeworks will be due on Thursdays prior to recitation. Since COVID and virtual learning presents the opportunity for disruptions in one's schedule and ability to complete course assignments, we will drop the lowest grade on any homework. If a problem comes up that prevents you from completing any one homework on time, you can use this policy to have that one missed homework not count against your grade. But remember you can only use this **once** during the session. Since Aleksandra will be going over the homework solutions during her recitation, late homeworks will not be accepted. Collaboration on homeworks is allowed, but each student must upload their own solutions, written by themselves.

Exams will not be multiple choice and be similar to homework in their level of difficulty and type of question. The two exams are assigned equal weight, and the cover only the content covered in the previous 3 weeks. However, the material of this course naturally builds off of itself, so some concepts from the first half will still be relevant for the second exam.

Exams will be open book and take home. You will have a 12 hour window in which you may start your exam, and you will have at least 90 minutes to upload your completed exam once you begin the exam. The exact technology for doing this is not yet determined, but you will be shown specifically how to upload and take the exams prior to the exam date.

Course grades will be determined using the scale above. Letter grades will not be given for anyone component, but point grades will be given for each. These points are then weighted by the scheme given above. Once your final course score (out of 100) is determined, we will use the class distribution of scores to determine how these translate to letter grades. The economics department guidelines for class grade distributions are roughly (A: 29%, B: 40%, C: 22%, D: 5%, F: 4%), where, for example, B refers to B+,B, and B-. Note that this is a **rough** guideline, and not at all a strict curve. I will commit to doing *no worse* than the department grade distribution. For example, if your course score is in the top 69% of the class, you are guaranteed to do no worse than a B-.

Schedule

The first 3 weeks up to the midterm will be focused on the fundamentals of probability theory, leading into the theory of sampling. In the latter 3 weeks we will apply these fundamentals to begin studying the basics of statistical estimation. Further details about specific material and reading will become more clear as we progress.

Week 1: Probability I (Sample spaces, events, set theory, prob. properties, conditional prob.)

Week 2: Probability II (Random variables, distributions, joint dist.), Common Distributions (Discrete)

Week 3: Common Distributions (Discrete and Continuous)

Exam 1: Monday June 14th

Week 4: Inference (Sampling, confidence intervals)

Week 5: Hypothesis Testing

Week 6: Regression, experimental design

Exam 2: Thursday July 1st

Course Proposal: Experimental Economics

Eric Spurlino

Student Learning Objectives

1. Develop an understanding of when and why economics experiments are useful in studying economic behavior
2. Learn the various methodologies and tools necessary in designing economics experiments (e.g. within and between subjects designs, randomization, online vs. in person experiments)
3. Be familiar with both early and modern research within experimental economics on various topics
4. Propose an independent research project using the methods and information learned above

Strategy and Methods

I believe experimental economics is best taught via "learning-by-doing". I would begin the course with a brief introduction of how experiments in economics began (via Vernon Smith and Edward Chamberlin). These were traditionally "market experiments", and I would introduce them by running them with pen and paper in the class. After this introduction, I would proceed topic-by-topic, covering both prominent older research, as well as research on the frontier. While proceeding this way, we will organically introduce experimental methodologies and techniques. In order to encourage active engagement with the readings, students will be asked to write weekly 1-2 page referee reports for an experimental paper in the week's topic. In these reports, students will be asked to summarize the contributions of the paper, critique its shortfalls, and discuss possible extensions or follow-ups. The following list, which is not exhaustive, indicates topics covered, and the methodologies that would be introduced through the topic:

1. Game theoretic experiments (randomized matching, payments)
2. Social preferences and charitable giving (order effects, controls, field experiments)
3. Gender and discrimination (field experiments, order effects, blind designs)
4. Behavioral and interdisciplinary experiments (choice process data, neuroeconomics, eye tracking)

In the last third of the course, we will shift to a different format, in which each student will develop an experimental proposal of their own. This will involves (1) identifying a topic of interest, (2) reading the relevant literature and presenting a brief literature review, (3) determining a research question, and (4) developing an experimental design. In the last week, we will pilot the experiments (un-incentivized) on each other, and then present the results. The final product will be a research proposal, which can turn into a full research project that I would be happy to advise after the course.

Selected Readings
Examples from each topic, as well as a general text:

- General Text: The Handbook of Experimental Economics Volumes 1 and 2 (John Kagel and Alvin Roth) is an excellent overview of the field, and readings for the general literature would be selected from here.

- Early experiments: Smith, Vernon L. (1962). An Experimental Study of Competitive Market Behavior. Journal of Political Economy, 70, 111- 137.

- Social Preferences: Fehr, E., Gachter, S. (2000). Cooperation and Punishment in Public Goods Experiments. The American Economic Review, 90(4), 980–994.

- Charitable Giving: Andreoni, James, Rao, Justin M., Trachtman, Hannah. Avoiding the Ask: A Field Experiment on Altruism, Empathy, and Charitable Giving. Journal of Political Economy, 125 (3).

- Gender: Baldiga, K. (2014). Gender Differences in Willingness to Guess. Management Science, 60(2), 434-448.

- Discrimination: Bertrand, Marianne, and Mullainathan, Sendhil. (2004). Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. American Economic Review, 94 (4): 991-1013.

- Behavioral Economics: Nagel, Rosemarie. "Unraveling in Guessing Games: An Experimental Study." The American Economic Review 85, no. 5 (1995): 1313–26.