This is an abbreviated sample for reference purposes. Syllabus content is subject to change.

SYLLABUS: MPA 2455 AND MPA 2460

The first two modules of the MPA program – Economics and Statistics – will be taught over four and a half weeks beginning in the middle of June. This syllabus describes the core elements of the class as well as a calendar of topics and key assignments.

Course Staff:

FACULTY	**Teaching Fellows**
Jesse Bruhn (Statistics)	Katie Trinh (Statistics)
Bryce Steinberg (Economics)	Bo-Yeon Jang (Economics)
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Learning Objectives

By the end of this course, you will be familiar with basic economics and statistics. You will be able to understand the tradeoffs made by both consumers and producers, and derive their optimal behavior under different circumstances. You will understand market equilibrium, and the implications of various government interventions for welfare. You will also understand probability distributions / modelling, statistical inference, and the basics of causality. Our goal is to help you understand how to use the tools of theory and statistics together in order to analyze real-world policy issues.

Course Overview

This is an in-person course. Attendance and participation in all course meetings is expected. Class periods will focus on problem-solving and active learning, relying on students to absorb the basic material through pre-class reading. The instructors, where possible, will make use of in-class group exercises, Top Hat quizzes, and other interactive methods.

Course Meetings: Each week, on Tuesday, Wednesday, and Thursday there will typically be two meetings per day from 10am-12pm (Statistics) and from 2pm-4pm (Economics). Additionally, after the first week, the two courses will meet together for a policy lab session once a week on Monday from 4pm-5pm. All times referenced in course materials are Eastern Daytime Time (UTC – 4). The class schedule this year can be found at the end of this syllabus and on the canvas website.

Lab Sessions: Each week, the two courses will meet for a joint "policy lab" session (with both instructors). The purpose of this session will be to apply the concepts and tools developed in the two courses together to real-world problems. In the first part of the day, students will work together on a group assignment that will be due on Gradescope by 4 PM. From 4-5 PM, the classes will meet jointly for a policy discussion. Students will then turn in an individual policy memo outlining their policy recommendations.

Review Sessions and Office Hours: On Fridays, the Teaching Fellows will offer review sessions to reinforce the material taught during the week at the regular meeting times of each class. These sessions will partially consist of answering pre-submitted questions, and partially a live Q-and-A session. In addition, all course staff will offer office hours; please see Canvas for detailed information on times.

Course Materials

Canvas: The canvas site for the course will be the source of all materials needed for class. Students will be expected to regularly check the canvas site for announcements and to complete assignments and prepare for class. The website will also have links to supplementary materials and recordings of the lectures.

Texts and Materials: Each section of the course has a suggested textbook:

- Statistics: Introduction to the Practice of Statistics (Moore, McCabe, and Craig) 9th Edition
- Economics: Microeconomics (Goolsbee, Levitt and Syverson)

Pre-Class Readings: Due to the intensive and compressed nature of these modules, the course will rely on students to spend time preparing in advance of each class period. This includes pre-class readings, either to prepare you for some of the technical material or on a substantive application that we will discuss in class.

We will identify sections of the textbook for each class period that roughly aligns with the material presented. Students may also find the following list of recommended texts useful, as they may provide an alternative presentation of the material discussed in class:

- Statistics: "Open Intro Statistics." David Diez, Christopher Barr, Mine Çetinkaya. The electronic version of this textbook is available for free at www.openintro.org. Printed copies may be purchased for about $9 on CreateSpace or Amazon.
- Economics: Feel free to reference any other intermediate micro-economics textbook.

You may find these materials useful to prepare for class or review after it; however, you are not responsible for material in the textbook that we do not cover in class. All readings, textbook sections, and supplementary materials will appear on the course website.

Software: Students will use Excel for data analysis throughout the course. There will be an excel review session during orientation week, and the Teaching Fellows will be able to assist you with Excel during office hours.

Math Preparation: Students should be familiar with algebra and basic calculus. You need to know what a derivative is and be able to compute the derivative of a simple equation. The MPA program has resources for students who feel underprepared mathematically or in need of a refresher.

Assignments and Grading

Although many elements of this course will be taught jointly between Economics and Statistics, students will receive two grades for the two half-courses. The grades will be determined by four elements of performance during the class:

1. *Problem Sets (25%)*: At the end of each of the first three weeks, the students will complete a problem set for each course. We anticipate that students will spend 10-15 hours on problem sets each week. Students may work on problem sets in groups, but must submit their own solutions. Problem sets are due by Sunday at Midnight each week. Students must turn in their problem sets online through Gradescope; we strongly recommend that students type problem sets, rather than write them by hand. There will be no credit given for handwritten work that is difficult to read or understand.

2. *Canvas Quizzes (20%)*: After each lecture, students will be expected to take a review quiz on canvas. These quizzes will be graded for correctness; however, students will have unlimited attempts for each quiz until the following lecture begins.

3. *Policy Labs (20%)*: Each policy lab will have two assignments that will each count for half the grade. First, there will be a group assignment in which students will work together in assigned groups to answer questions about a specific policy using their economics and statistics skills. These will be due on Gradescope by 4 PM on the day of the policy lab. Second, students will write individual 1-2 page memos advising the policy maker based on the analysis they did in class. These memos will be due Wednesday at midnight.

4. *Final Exam (35%)*: Students will take a single three-hour exam the morning of Tuesday, July 15. The exam will cover material from both the economics and statistics portions of the class.

Students who get a total grade of at least 85% are guaranteed an A, 75% are guaranteed a B, and 65% are guaranteed a C, which is the lowest passing grade at Brown. **In addition, students must get at least 50% on the final exam to pass the course.** The instructors may lower these thresholds (make it easier to pass or obtain a higher grade) at their discretion.

COURSE SCHEDULE

	Date	Morning (10-12)	Afternoon (2-4)	Assignments Due
Week 1	6/16	Descriptive Stats	Supply and Demand Elasticities	
	6/17	Probability	Taxes and Applications	
	6/18	Probability Distributions	Consumer Behavior	
	6/19	*Holiday*	*Holiday*	
	6/20	*TF Review Session*	*TF Review Session*	PS #1 Due EOD Sunday
Week 2	6/23	*Joint Lab # 1:*		Lab #1 group-work due
	6/24	Hypothesis Testing	Firm Costs I	
	6/25	Confidence Intervals	Firm Costs II	Lab #1 Memo due EOD
	6/26	Regression	Supply Curve	
	6/27	*TF Review Session*	*TF Review Session*	PS #2 Due EOD Sunday
Week 3	6/30	*Joint Lab # 2:*		Lab #2 group-work due
	7/1	Interpreting Regression	Pricing in a Competitive Industry	
	7/2	Multivariate Regression	Monopoly	Lab #2 Memo due EOD
	7/3	*TF Review Session*	*TF Review Session*	
	7/4	*Holiday*	*Holiday*	PS #3 Due EOD Sunday
Week 4	7/7	*Joint Lab #3:*		Lab #3 group-work due
	7/8	Reading Regression Results	Externalities	
	7/9	Statistical Power	Uncertainty & Behavioral Economics	Lab #3 Memo due EOD
	7/10	*Study Period*	*Study Period*	
	7/11	*TF Review Session*	*TF Review Session*	
Week 5	7/14	*Review Session*	*Review Session*	
	7/15	Joint 3-Hour Final Exam		