

## **EA22 COURSE INFORMATION SHEET – APSTA-GE.2001 (3 credits)**

**Instructor:** Tod Mijanovich

**Office Hours:** Mondays 2-4pm, or by appointment (my schedule's flexible, just email me)

**Lecture Meeting Times and Location:** Wednesdays 4:55-7:25pm, Silver Building 414

**Labs Meeting Times and Location:** see Albert for the lab section time you signed up for

**Prerequisites:** A course in high school algebra.

**Course Description:** In this first of a two-semester sequence for doctoral students, beginning with the definition of variables and approaches for measuring them, this course covers statistical tools for organizing and describing quantitative data and for drawing inferences about means to populations based on samples drawn from those populations. The popular computer software packages Stata and R will be used to enable students to learn how to apply those tools to real data and learn what it means to be a data analyst in practice. This course provides a conceptually oriented, non-mathematical approach to learning the material. It is not appropriate for students seeking to learn the mathematical theory underlying these statistical techniques. The topics covered on a weekly basis are listed in the course syllabus.

**Course Objectives:** The objectives of this course are to provide students with a solid foundation in descriptive and inferential statistics, beginning with understanding how variables are defined and measured and ending with inferential tests on means in the context of one, two, and three or more group designs using t-tests and the one-way analysis of variance (anova). Another objective is to give students a working knowledge of Stata or R so as to enable them to carry out their own quantitative data analyses as independent researchers using the methods covered in the course.

Time spent in lab will focus on clarifying answers to questions that arise in lecture, in the textbook, and on homework assignments. Lab also will provide an additional opportunity to practice and become more fluent in Stata and/or R.

### **Course Materials:**

**Website:** Handouts, lecture notes, readings, homework assignments, project assignments, and general information will be posted on our course website.

**Required Text:** Either *Statistics Using Stata: An Integrative Approach, 2<sup>nd</sup> Edition* (2020) by Weinberg, S. L. and Abramowitz, S. K., Cambridge University Press, or *Statistics Using R: An Integrative Approach* (2020) by Weinberg, S. L., Harel, D., and Abramowitz, S. K., Cambridge University Press

**Lectures and Labs:** Attendance is required for lectures and labs. (If this changes—or if anything related to the course changes—you will receive an email with updated information.)

**Power Point Slides:** Are posted on our course website.

**Supplementary Readings:** As posted on our course website.

**Access to computer software:** NYU offers a Virtual Computer Lab (VCL) to all NYU degree-seeking students with active e-mail accounts. The VCL has both Stata and R, but R can also be freely downloaded and installed. To access the VCL: Log into NYUHome ([home.nyu.edu](http://home.nyu.edu)); Select the **Academics** tab, then scroll down until you see the "Virtual Computer Lab" channel; Click **VCL Log In**; Once on the VCL page, click **Log Into the VCL Now!**; Enter your **NetID** and **password**; Click **Log In**. (The first time you log into the VCL, you will be prompted to install Citrix ICA plug-in.). As a student in this class you have priority access to the computer labs which means that you may enter the labs at any time by swiping your ID.

R is freely available for download and installation, as is RStudio, which is a programming environment for R. You may want to purchase a student version of Stata to install on your own machine. Stata can be purchased from [this page](#). The version called Stata/BE is sufficient for class purposes.

### **Course Requirements & Grading:**

**Homework:** Practicing what has been covered in class is essential to learning statistics. Homework will be assigned, collected, and graded each week. All students are responsible for completing all homework assignments on time.

**Project:** Students are expected to complete a project that requires the selection of appropriate statistical methods to answer a series of questions based on a given data set made available by the instructor and to interpret and communicate findings in a journal-like format. Analyses based on the use of Stata or R will be required.

**Exams:** There will be one take-home midterm and one take-home cumulative final. These exams are open book and may require the use of Stata or R.

### **Grading:**

25%	Homework
25%	Midterm Exam
25%	Final Exam
25%	Project that requires the analysis of data and the communication of results in the form of a journal-like article.

### **Grade Determination:**

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	65-69
D	60-64
	There is no D-
F	Below 60

**Syllabus:**

<i>APSTA-GE.2001</i>			<i>Statistics for the Behavioral and Social Sciences I</i>
<i>Month</i>	<i>Day</i>	<i>Week</i>	<i>Topic</i>
September	7	1	Overview & introduction to Stata: Chapter 1; Examining univariate distributions: Chapter 2
	14	2	Examining univariate distributions: Chapter 2, cont'd; Measuring location, spread, & skewness: Chapter 3
	21	3	Examining univariate distributions: Chapter 2, cont'd; Measuring location, spread, & skewness: Chapter 3
	28*	4	Re-expressing variables: Chapter 4
October	5*	5	Bivariate relationships: Chapter 5; Simple linear regression: Chapter 6
	12*	6	Review Chapters 1 thru 6 for the MIDTERM
	12-15		MIDTERM EXAM: Available at 7pm Oct 13, due by 7pm October 16
	19*	7	RETURN MIDTERMS THIS WEEK; Probability fundamentals: Chapter 7; Theoretical probability distributions: Chapter 8
	26*	8	The role of sampling: Chapter 9
November	2	9	Hypothesis testing using the z-test: Chapter 10
	9*	10	Inferential tests on means: Chapter 11
	16*	11	Inferential tests on means: Chapter 11, cont'd; One-Way ANOVA: Chapter 13
	30	12	One-Way ANOVA, cont'd; Chapter 13; Introduction to Research Design: Chapter 12
December	7	13	Research Design – Critiquing Articles
	14	14	LAST CLASS; Review for the FINAL EXAM – Chapters 1 – 13; PROJECTS ARE DUE
		Finals week	FINAL EXAM

Classes will end at 6:45pm on days marked with an asterisk.