SOCIOLOGY
STATISTICS II
Spring 2019 Term

T 5:35pm-7:25pm
Classroom: W1631 & B118 (library)

Instructor: Prof. Jessica Hardie   *Office Hours:*
Office: Hunter West 1617A   Tuesdays 4-5:30pm or by appointment
Email   jh1389@hunter.cuny.edu

Learning statistics has been compared learning a language, and if that is the case, then in this course you will be moving from the building blocks of speech to speaking with fluency. In this class, the focus will be placed on using statistical tools to draw conclusions. We will move away from hand calculations (although there will be some of that) to the application of statistical software to test hypotheses and the interpretation of multivariate statistical analyses.

Learning Outcomes
At the completion of this course, students will be able to:
1. Apply the logic of social science research methods using quantitative data measurement and analysis
2. Analyze quantitative data using bivariate and multivariate inferential statistics
3. Understand why and how we use each statistical tool
4. Accurately interpret statistical results
5. Apply statistics and quantitative reasoning to a research question and write research and policy papers based on their analyses.

Course Components

Required materials (available at Shakespeare & Co bookstore and
http://hunter.textbookx.com/institutional/index.php?action=browse#books/1851193/):
- o Allison, Paul. *Multiple Regression: A Primer*
- o Pampel, Fred C. *The Little Sage Book: Logistic Regression*
- o Additional readings will be posted on the course web page on Blackboard.
- o Calculator: Must be able to perform basic trigonometric functions (roots, powers).

Recommended materials:
- o We will be using STATA in this class, in the lab and in-class examples. I suggest you rent a 6-month student version of STATA for home use (http://www.stata.com/order/new/edu/gradplans/student-pricing/) STATA/IC will allow you the most flexibility, but you can use Small STATA as long as you take the time to trim larger datasets from an on-campus computer before attempting to open it at home.

Evaluation
You will be evaluated on the following criteria:
1) **Class participation**: 5%
    a) You will be expected to actively participate in class. Your class participation grade will be determined based on your attendance and my evaluations of your participation in class.

2) **Homework assignments**: 20%
    a) You will complete 5 short assignments throughout the semester to check your comprehension of the previous class's material. These assignments are due at the <u>beginning</u> of class on the day they are due.

3) **Research project**: 50%
    a) You will have the opportunity to choose a topic, investigate prior research in this area, produce analyses, and write your results. Your grade will be determined by three products, with the grade breakdown as follows:
        i) A research paper (30%; approximately 15-20 pages, containing an abstract, literature review, data/methods description, findings, and discussion/conclusion)
        ii) A policy brief (10%; approximately 4 pages, designed to be read and understood by a general audience)
        iii) A presentation of your research and findings (10%; presentation to be given in class)

4) **Midterm Exam**: 25%
    a) Exams must be taken during the time they are noted on the course schedule. If an emergency arises, notification <u>along with documentation</u> must be provided in order to sit for the exam at a later time; otherwise the exam will be graded as a "0". In-class and make-up exams will be different in form and content.
    b) If you arrive late to class on the day of an exam, you will be allowed to sit for the exam <u>provided no other student has already completed the exam</u>. The time given to complete an exam will <u>not</u> extend beyond the time allotted.

Expectations
I expect professional behavior from all students. Professionalism includes arriving to class on time and prepared for the day's work, handing in assignments when they are due and in the required format, demonstrating Academic Integrity (see below), and interacting respectfully with other students and with the professor.

Academic Integrity
Hunter College regards acts of academic dishonesty (e.g., plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

Hunter College Policy on Sexual Misconduct
In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and

gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.

    a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).

    b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.

CUNY Policy on Sexual Misconduct Link:
http://www.cuny.edu/about/administration/offices/la/Policy-on-SexualMisconduct-12-1-14-with-links.pdf

AccessABILITY
In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical, and/or Learning) consult the Office of AccessABILITY, located in Room E1214B, to secure necessary academic accommodations. For further information and assistance, please call: (212) 772- 4857 or (212) 650-3230.

Course schedule:

Tuesday, January 29   **Introduction to course, review, and statistical control**

Tuesday, February 5   **Introduction to Stata (Meet in Lab)**

        Reading:
- Review Stata handout (Blackboard—STATA lab folder)
- Watch short video on STATA interface:
  https://www.youtube.com/watch?v=2Lde75owQlU

Tuesday, February 12   **NO CLASS**

Tuesday, February 19   **Bivariate regression and correlation**

        Reading:
- Frankfort-Nachmias, Chava and Anna Leon-Guerrero. 2014. Chapter 13: Regression and Correlation, pp. 413-454 in *Statistics for a Diverse Society* (Blackboard)
- Allison, Paul. 1998. Chapter 5: How does Bivariate Regression Work?, pp. 97-118 in *Multiple Regression: A Primer*

<u>Due</u>: Homework #1

Tuesday, February 26   **Multiple linear regression, Part I**

<u>Reading</u>:
- Allison, Paul. 1998. Chapters 1-3: pp. 1-70 in *Multiple Regression: A Primer*
- Wasserstein, Ronald L. and Nicole A. Lazar. 2016. "The ASA's Statement on p-Values: Context, Process, and Purpose." The American Statistician 70(2):129-133. (Blackboard)

<u>Due</u>: Homework #2

Tuesday, March 5   **Multiple linear regression, Part II**

<u>Reading</u>:
- Allison, Paul. 1998. Chapters 4, 6-7: pp. 71-96, 119-152 in *Multiple Regression: A Primer*

Tuesday, March 12   **Practice: Bivariate and multiple linear regression (Meet in Lab)**

<u>Reading</u>:
- Rogers, Stacy J. and Paul R. Amato. 1997. "Is Marital Quality Declining? The Evidence from Two Generations." *Social Forces* 75(3): 1089-1100. (Blackboard)
- Review OLS-STATA and OLS-SPSS documents (Blackboard—STATA lab folder)

Tuesday, March 19   **Non-linearity and missing data**

<u>Reading</u>:
- Allison, Paul. 1998. Chapter 8: pp. 153-174 in *Multiple Regression: A Primer*
- Little, Roderick J. A. and Donald B. Rubin. 1987. "The Analysis of Social Science Data with Missing Values." *Sociological Methods and Research* 18(2&3): 292-326. (Blackboard)

<u>Due</u>: Homework #3

Tuesday, March 26   **Non-linearity and missing data (Meet in lab)**

<u>Reading</u>:
- Bianchi, Suzanne M., Melissa A. Milkie, Liana C. Sayer, and John P. Robinson. 2000. "Is Anyone Doing Housework?

Trends in the Gender Division of Household Labor." *Social Forces* 79(1):191-228. (Blackboard)
- Turney, Kristin. 2011. "Chronic and Proximate Depression among Mothers: Implications for Child Well-Being." *Journal of Marriage and Family* 73:149-163. (Blackboard)

Tuesday, April 2 **Midterm exam**

Tuesday, April 9 **Logistic regression**

Reading:
- Pampel, Fred C. 2000. Chapters 1-2: pp. 1-39 in *Logistic Regression: A Primer*
- Hart, Daniel, Thomas M. Donnelly, James Youniss, and Robert Atkins. 2007. "High School Community Service as a Predictor of Adult Voting and Volunteer." *American Education Research Journal* 44(1):197-219.

Tuesday, April 16 **Practice: Logistic regression (Meet in Lab)**

Reading:
- Pampel, Fred C. 2000. Chapter 3: pp. 39-53 in *Logistic Regression: A Primer*

Due: Homework #4

Tuesday, April 23 **NO CLASS—SPRING BREAK**

Tuesday, April 30 **Models and mediation**

Reading:
- MacKinnon, David P., Amanda J. Fairchild, and Matthew S. Fritz. 2007. "Mediation Analysis." *Annual Review of Psychology* 58: 384-389.
- Miller, Byron and John Taylor. 2011. "Racial and Socioeconomic Status Differences in Depressive Symptoms among Black and White Youth: An Examination of the Mediating Effects of Family Structure, Stress and Support." *Journal of youth and adolescence* 41(4):426-437.

Tuesday, May 7 **Practice: Models and mediation (Meet in Lab)**

Reading:
- Springer, Kristen W. 2009. "Childhood Physical Abuse and Midlife Physical Health: Testing a Multi-Pathway Life Course Model." *Social Science & Medicine* 69:138-146. (Blackboard)

- Review process for Sobel-Goodman test:
http://www.ats.ucla.edu/stat/stata/faq/sgmediation.htm

<u>Due</u>: Homework #5

Tuesday, May 14   **Class presentations**

Tuesday, May 21   **Class presentations (finals period)**

Policy briefs and papers due May 22nd