

Sociology 4220 Section 001/501
Computing Applications for the Social Sciences
Fall 2015
219 State Hall /Social Science Data Lab FAB 2308
Tuesday/Thursday 3:00-4:50pm

Professor: David M. Merolla, PhD

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Email: dmerolla@wayne.edu

Office Hours: 3-4pm Wednesday, 11am-12pm Thursday; or by appointment

Course Materials:

Texts:

Frankforth-Nachimas, Chava, and Anna Leon-Guerrero. *Social Statistics for a Diverse Society 6th ed.* Los Angeles, CA: Pine Forge Press.

ISBN-10: 1412968240

ISBN-13: 978-1412968249

Best, Joel. 2012 *Damn Lies and Statistics: Untangling Numbers from The Media, Politicians and Activists.* Berkeley, CA: University of California Press.

ISBN 0520274709

<http://elibrary.wayne.edu/record=b4717703>

**This title is available electronically through the WSU library system. You do not need to purchase this book. However, you can probably find a copy online for less than \$20. Be sure to get the updated edition.

Software

This course requires the use of SPSS Statistical Software. Students may obtain a free rental copy of SPSS that you can install on your personal computer. You can obtain your copy at <https://commerce.wayne.edu/clearinghouse/> (click student software).

Calculator

A calculator that can compute square roots is required and should be brought to each course meeting. You should be able to get an acceptable calculator for less than \$20. If you do not know how to operate your calculator, please ask me for guidance. **You may not use your phone as your course calculator.**

Course Description:

Statistics are an important part of modern society and are used daily in science, politics, business and government. To become an informed citizen and successful professional in any field, students must understand the basics of quantitative literacy and statistical reasoning. This course is designed to provide sociology majors with an introduction to foundational statistical concepts, experience with basic univariate and bivariate statistical techniques, an introduction to statistical inference, and hands-on experience computing statistics both manually and with statistical software. Although statistical software has made analysis of large-scale data more accessible than in the past, an understanding of foundational statistical concepts is necessary to take advantage of these advances. As such, this course will focus on conducting basic statistical analyses manually and the meaning of results and how statistics are used in social research. By the end of the semester, you should be able to pose and test bivariate hypotheses, conduct univariate and bivariate statistical analyses either by hand or with computer applications, and reach conclusions based on an inferential statistical analysis.

Student Learning Outcomes:

- The technical skills involved in retrieving information and data from the Internet and using computers appropriately for data analysis. The major should also be able to do (social) scientific technical writing that accurately conveys data findings and to show an understanding and application of principles of ethical practice as a sociologist.
- Students will understand the basics of data organization.
- Students will understand univariate statistical techniques used to describe individual variables and when these techniques are appropriate.
- Students will be able to compute descriptive statistics by hand and using SPSS.
- Students will understand statistical inference and how probability theory informs inferential techniques.
- Students will be able to test univariate hypotheses using inferential statistical techniques
- Students will understand basic bivariate statistical techniques and know when these techniques are appropriate.
- Students will be able to carry out bivariate techniques by hand and using SPSS and interpret results.
- Students will understand how multivariate statistical techniques can improve upon bivariate statistical techniques
- Students will understand how statistics can be used to answer research questions and test hypotheses.

General Course Policies

Attendance: Attendance is required. It will be exceptionally difficult to succeed in this course without attending. Attendance and participation grades will be assessed through in class activities and/or short quizzes administered at random and on lab days. Students who miss class meetings where in-class assignments are completed **cannot** make-up these assignments.

Homework Assignments. Students are required to complete all assignments by the due date; students who have difficulty with a particular assignment are expected to contact the instructor to discuss these problems prior to the assignment due date. Students who are unhappy with their grade on a homework assignment that was turned in on time may make corrections for up to ½ credit within 1 week of the time the assignment is returned to the class. **Assignments not completed by the due date will not be eligible for full credit and will be evaluated at the instructor’s discretion.**

Quality is key. If you are not already of the persuasion that you would not want to put your name on half-baked & last-minute “efforts,” may you come around soon to that way of thinking. Take pride in your work; do it well enough to claim it as your own.

Reading. Students are required to read all course materials by the time class begins and notify the instructor if they have difficulty completing required reading. Please ask questions if you are confused by the course text.

Office Hours. Office hours are designed for me to answer specific questions or assist with specific aspects of an assignment. Please come to office hours with questions ready and attempt to complete assignments independently prior to coming to office hours. If you think you will need more than 20 minutes of time, please schedule an appointment.

Final Grades. Final grades submitted by the instructor are **final**. If you believe that there has been a clerical error or other mistake you may inquire for an accounting of your grade. However, grades are based solely on your scores on course assignments and **will not be arbitrarily adjusted** at the end of the term. Students who aspire for a specific grade should ask me early in the semester about whether they are on track.

Academic Honesty. Students are expected to display academic integrity in all of their work for this course. Academic dishonesty includes cheating, fabrication, and plagiarism. Any student suspected of dishonesty in their work will receive a zero for the assignment in question and referred to the department chair for further disciplinary action. If you have any questions about academic honesty, please contact me.

Honor Code. Students are bound by the Wayne State University honor code that states: “Wayne State University holds its students to the highest academic standards. Pride in the University and in oneself requires students to maintain an environment free from any breach of academic honesty. As lifelong representatives of Wayne State, we seek to cultivate honor, integrity, and civility in order to ensure that we earn our degree honestly and that we provide an ethical platform for our continued success”

Registration. Students may drop this class through September 17. Classes that are dropped do not appear on the transcript. Beginning the fifth week of class students are no longer allowed to drop but must withdraw from classes. It is the student’s responsibility to request the withdrawal through the registrar’s office. Failure to do so will result in a grade of F. Students must be passing at the time of the request to get a ‘WP.’ **After November 15, you cannot withdrawal from the course and you will receive a letter grade.** Incomplete ‘I’ grades are given in very limited circumstances to students who are passing the course and cannot complete final assignments due to extraordinary circumstances. Students that get a grade of incomplete must complete all assignments by February 1 2016.

Disability. If you have a documented disability that requires accommodations, you need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TDD)

only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

Course Requirements and Grading

- 1) **Attendance and Participation:** Attendance and Participation will be assessed via in-class assignments and/or quizzes. You must be in class to receive these points
- 2) **Homework:** There will be 5 homework assignments worth a total of 100 points.
- 3) **Exams:** There will be 2 exams worth a total of 200 points. Given the nature of the subjects, the exams will be cumulative in nature.
- 4) **Book Review.** Each student will read and write a two-page report on the book, *Damn Lies and Statistics: Untangling Numbers from The Media, Politicians and Activists* by Joel Best. The book is available electronically through the WSU library. More information will be given about the assignment in class.
- 5) **Poster:** All students will complete a small independent data analysis project using SPSS. The project will be explained in detail in class and is worth 50 points.
- 6) **Honor's Option.** Students enrolled in the honor's section will have an additional assignment.

Grade Chart:

Assignment/Evaluation	Possible Points	Your points
Participation and Attendance	30	
HW 1	20	
HW2	20	
HW3	20	
HW4	20	
HW5	20	
Book Review	20	
Exam 1	100	
Exam 2	100	
Poster	50	
TOTAL	400	

Grades: A (400-368) A- (367-360) B+ (359-344) B (343-328) B- (327-320) C+ (319-304) C (303-288) C-(287-280) D (279-240) F (<240)

COURSE SCHEDULE- subject to change

Week 1

Thursday 9/3: Class Introduction

Week 2

Tuesday 9/8: The Logic of Quantitative Thinking (Chapter 1)

Thursday 9/10: Introduction to Statistics: Data, Cases, Variables, Research Questions and Hypotheses (Chapter 2)

Week 3

Tuesday 9/15: Frequency Distributions and Level of Measurement (Chapter 2)

Thursday 9/17: Measures of Central Tendency (Chapter 4)

Week 4

Tuesday 9/22: Measures of Dispersion and Variability (Chapter 5)

Thursday 9/24: Graphic Displays of Data: Charts and Graphs (Chapter 3)

Week 5

Tuesday 9/29: **Lab 1: Introduction to SPSS: Central Tendency Dispersion, Figures and Graphs (Chapter 3)**

Thursday 10/1: Understanding Associations: Cross-Tabs (Chapter 10)

Week 7

Tuesday 10/6: **Lab 2: Cross Tabs and Associations** (Chapter 10)

Thursday 10/8: Understanding Associations: Mean Differences (Chapter 9)

Week 8

Tuesday 10/13: Understanding Statistical Inference I: Chi-Square Test (Chapter 11)

Thursday 10/15: Understanding Inference II: T-Test (Chapter 8, 9)

Week 9

Tuesday 10/20: Exam Review

Thursday 10/22: **Exam 1**

Week 10

Tuesday 10/27: **Lab 3: Chi-Square and T-Tests** (Chapter 10,11)

Thursday 10/29: Reading Tables I: Cross Tabs and Mean Differences (Chapter 9,11)

Week 11

Tuesday 11/3: Lab 4: Understanding Data Presentation: Making Tables for Bivariate Associations (Chapter 10)

Thursday 11/5: Measuring the Strength of Associations: Measures of Association of Nominal Variables (Chapter 12)

Week 12

Tuesday 11/10: Measuring the Strength of Associations: Measures of Association for Ordinal Variables (Chapter 12)

Thursday 11/12: Measuring the Strength of Associations: Correlations for Interval Level Variables (Chapter 13)

Week 13

Tuesday 11/17: **Lab 5: Measures of Association**

Thursday 11/19: Statistical Models I: Analysis of Variance (Chapter 14)

Week 14

Tuesday 11/24: Statistical Models II: Simple Regression (Chapter 13)

Thursday 11/26: Holiday No Class

Week 15

Tuesday 12/1: **Lab 6: ANOVA and Regression**

Thursday 12/3: Reading Regression Tables (Chapter 13)

Week 16

Tuesday 12/8: Elaboration Paradigm (pp. 310-322)

Thursday 12/10: Catch up and Review

FINAL EXAM

Monday 12/21: 1:20-3:50pm