Sociology 311: Research Methods.

Fall 2005
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This is a hands-on workshop to develop students' skills at operationalizing sociological concepts and exploring causality. Although the basic ideas of inference and investigation covered are useful for any kind of analysis, the course focuses on quantitative techniques. Students will develop their own research projects and search the Interuniversity Consortium for Political and Social Research (ICPSR) and the United States Census for relevant data. They will learn how to use a variety of tools (crosstabs, comparison of means, correlation coefficients, multiple regression models) on two computer platforms (the ICPSR SDA interface, and Stata), and they will be introduced to the basic principles of statistical inference that make these tools work. At all times the emphasis will be on deciding what are good measures of social phenomena, and what counts as evidence of a causal relationship when multiple factors are taken into consideration. In addition to attending classes and participating in discussions, students will be expected to complete weekly assignments culminating in a 10 page report on a research question of their own choosing.

Part I: Concepts, Variables, Data, and Measures.

Week 1 Introduction

Tue. Aug. 30 Operationalization of sociological concepts
Thu. Sep. 1 Finding and downloading data: ICPSR

Emile Durkheim, *The Rules of Sociological Method* chapter 1 and "Author's Introduction to the Second Edition" (HM24 .D962)
Howard Becker *Tricks of the Trade* Chapter 4 "Concepts" (H91.B38 1998)
Gary King et. al. *Designing Social Inquiry* Chapter 1 "The Science in Social Science" (H61.K5437 1994)

Week 2 Types of Variables, Types of Measures

Tue Sep. 6 Types of variables and measures
Thu. Sep. 8 Comparing two variables or groups

Alan Agresti & Barbara Finlay *Statistical Methods for the Social Sciences* Chapter 3 "Descriptive Statistics" (QA276.12.A34 1997)

Week 3 Control and Causation

Tue. Sep. 13 The centrality of control
Thu. Sep. 15 The idea of causal inference

Herbert Hyman *Survey Design and Analysis* Chapter VI "The Introduction of Additional Variables and the Problem of Spuriousness" (H62.H92)
Davis, James *The Logic of Causal Order* Chapter 1 (HA29.D335 1985)
Agresti & Finlay Chapter 10 "Introduction to Multivariate Relationships" (QA276.12.A34 1997)
Robert Alford *The Craft of Inquiry* Chapter 4 "Foreground Multivariate Arguments" (HM48.A5 1998)

Part II: Statistical Inference

Week 4 Sampling Distributions

Tue. Sep. 20 Samples and sampling distributions
Thu. Sep. 22 Probabilities and particular values

Agresti & Finlay Chapter 4 "Probability Distributions" (QA276.12.A34 1997)

Week 5 Basic Inference

Tue. Sep. 27 Tails and tests
Thu. Sep. 29 Intervals, point estimates, and sample-size selection

Agresti & Finlay Chapter 5 "Statistical Inference: Estimation" (QA276.12.A34 1997)
Blalock, Hubert *Social Statistics* Chapters 10, 11, 12 (HA29.B59 1979)
Sternstein, Martin *Statistics* Chapters 10, 11, 12

Week 6 Different Tests For Different Combinations of Variables

Tue. Oct. 4 *Z, t,* and χ^2
Thu. Oct. 6 *F*

Agresti & Finlay Chapters 6, 7, 8, 12 (QA276.12.A34 1997)

Week 7 Mid-term Project

Tue. Oct. 11 Work on projects
Thu. Oct 13 Work on projects

Week 8 BREAK!

Part III: Regression.

Week 9 Bivariate Regression

Tue. Oct. 25 Best-fit lines
Thu. Oct. 27 Coefficients and p-values

Michael Lewis-Beck *Applied Regression* Part 1 (QA278.2 .L4)
William Berry & Mitchell Sanders *Understanding Multivariate Research* Chapters 1, 2 (H62 .B454 2000)
Agresti & Finlay Chapter 9 "Linear Regression and Correlation" (QA276.12.A34 1997)

Week 10 The United States Census

Tue. Nov. 1 Individuals, households, tracts, metropolitan areas, states
Thu. Nov. 3 Downloading census data

Week 11 Multivariate Regression

Tue. Nov. 8 Best-fit n-dimensional hyperplanes
Thu. Nov. 10 Interpreting coefficients again

Michael Lewis-Beck *Applied Regression* Part 2 (QA278.2 .L4)
William Berry & Mitchell Sanders *Understanding Multivariate Research* Chapters 3-7 (H62 .B454 2000)
Agresti & Finlay Chapter 11 "Multiple Regression and Correlation" (QA276.12.A34 1997)

Week 12 Control and Causation Again

Tue. Nov. 15 Dummy variables
Thu. Nov. 17 Indirect and interaction effects

Agresti & Finlay Chapter 13, 14 (QA276.12.A34 1997)
James McClave & Terry Sincich *Statistics* Chapter 12 "Multiple Regression and Model Building"

Week 13 Modeling

Tue. Nov. 22 Modeling strategies
Thu. Nov. 24 THANKSGIVING

Week 14 Final Project

Tue. Nov. 29 Work on projects
Thu. Oct. 1 Work on projects