Political Science 390 Section 1: Political Inquiry and Analysis

Fall 2018: 12:30-1:45 Kuykendall 210

Final Exam: Friday, December 14, 12:00-2:00 PM

Lawrence H. Nitz, Professor; lnitz@hawaii.edu; 808-956-8665

About......This is one of two different versions of Political Science 390 offered by the department. This version is committed to bringing students to a level of competence in quantitative analysis and experience in policy analysis that will carry them into the world of work or scholarship in their next endeavors. It is not a baby statistics course, nor is it a painful climb through a thick $130 textbook that illustrates all the mathematics of how to do everything. This is a laboratory course. It is based on the SAS Institute's professional visual statistics program, **JMP**. It requires that students get their own copy of the JMP statistical package (depending on edition about $30 or $60 per semester). About two dozen on-line tutorials and on-line books are available free.

Mastering the tools of JMP is fairly easy—anyone who can program a phone with only their thumbs can run the JMP menus. Our real focus will be on (1) learning some of the critical data sets that characterize the U.S. population (and occasionally other populations) and (2) focusing on analyses that illustrate a serious policy problem, or open a door to proposing serious solutions.

First, let's set out a bunch of free resources published by (SAS [JMP]) and some folks at other universities. Appendix 1 lists a batch of free on-line tutorials that will take you through the entire program, starting with the basics.

We will pay some attention to a set of data sets that describe policy issues in the United States, and a data set or two from elsewhere. The initial sets of data have already been formatted as JMP files. Others we will format as needed.

Initial Data Examples: Directories will be uploaded to Laulima Resources

1	The Trump Tweets 2016	As a basis for exploration of text analysis, a collection of tweets provides a very contemporary base for assessing political communication. This is a collection that I downloaded from a public source. I cannot verify whether it is complete.
2	The Trump Tweets 2017	These are similar tweets from 2017, up through some time in August.

3	Consumer Financial Protection Bureau (Full)	The CFPB publishes a collection of complaints that consumers have consented to make public. Some have detailed descriptions of the problem. All specify the industry in which the problem occurred, the nature of the complaint, and whether the consumer was elderly, a veteran or an active duty service member. The master file contained 822,000 cases in the first week of August.
4	Consumer Financial Protection Bureau with additions	CFPB_w_Census data added to select subsets of the file.
5	Survey of Household Economics and Decision Making (SHED)	SHED_files are the record of a major survey conducted by the Federal Reserve System of how households make economic decisions. There are thousands of cases, and a codebook which lists the questions, answers and defines the variables. The questions allow us to explore a range of notions of rationality in citizens'' economic decisions.
6	IPUMS Harmonized International Census Data	Self-Download form IPUMS) You need to log in for this, but the collection gives you a collection of common census files, collected from several dozen countries. The files are edited so that each kind of variable has the same name—all household income variables have the same name across countries, etc.
7	Hawaii Senate Testimony on SB1129 (Aid in Dying)	These files were downloaded from the Hawaii State Capitol website, and constitute the bulk of the testimony submitted on SB1129. The testimony files are really messy to analyze, in part because of the nearly content-less duplicate testimony and the general randomness of the presentation format. The JMP text analysis software can skip over these items and forgive a lot.
8	FTC Civil Penalty	Civil Penalty Files. The Federal Trade Commission provides several collections of its cases. This is a collection of civil

		penalties against corporations for various kinds of fair trade violations.
9	FTC Non-Merger Enforcement Actions	FTC_Non_Merger—These are FTC files of trade issues, again troubles of troubled firms, and a good reflection of at least one domain of federal enforcement.
10	Survey of Income and Program Participation (Subset)	The SIPP has been running for perhaps 20 years. It is designed to collect a comprehensive reflection of the government services that American citizens use, from federal, state and county governments. We will look at one or two years, quite far apart. The data can present an image of who uses what services, under what circumstances.
11	Health and Retirement Study (HRS)	This study has been running since 1990. It is designed as a longitudinal panel. The subjects are followed from late middle age (55 or so) forward. As the sample ages, new cohorts are added. The result is that we can see change over time in the sample members in terms of employment, marital status, and a number of indicators of health.
12	MEPS-Medical Expenditure Panel Study	The MEPS is derived \from Medicare expenditure data. This body of data is the basis for the determination that opioid dependency has dramatically increased. The data set is large, so requires a bit of application to the codebook. In the case of the MEPS or the HRS it is very useful to explore some of the published work from the studies.

Flow of the Class

This class will be more lumpy than most. Some of our time involves demonstrating how the JMP package works. We shall start with data packaged to show program functions. Since there is a magnificent collection of sample data and demonstration videos, the critical task is to play with the program. Our real goal is to probe a set of policy questions and assertions that can be addressed with the data sets available.

Basic Assignments are intended to gain insight into the basic ways we come to understand populations by describing them, showing whole distributions and comparing differences. We will do demonstrations of the first three items in class, and then build more complex inquiries.

   a. **Describing a population**
   b. **Showing distributions**
   c. **Comparing Differences**
   d. **Who is affected?**
   e. **What can we do?**
   f. **How much difference does it make?**
   g. **Your own policy study (small)**
   h. **Your own policy study (bigger)**

There is no calendar, per se. Instead, we have a set of policy questions and assertions to pursue:

What are the big issues of the day? Real or imaginary?

   1. Allegation: Affirmative action in favor of minorities puts whites at a disadvantage.
   2. Assertion: All states protect their citizens against fraud and abuse.
   3. Assertion: Ethnic and racial differences in earnings occur when some people do not pursue the amount of education required to secure a good salary.
   4. Assertion: Opportunities to do well and secure a reasonable income are the same in all the states.
   5. Assertion: If you get a college degree, you will do well wherever you live.
   6. Allegation: Some folks are just "takers." You can see that by all the government services they consume.
   7. Allegation: Alleged differences between salaries of men and women are purely the result of most women choosing low-wage occupations. If they had picked medicine or engineering, there would be no difference.
   8. Assertion: No industrialized nations have more income inequality than the United States.
   9. Assertion: There is no evidence that financial service companies abuse retirees or active armed forces members.
   10. Assertion: Federal agencies never go after corporate misdeeds.
   11. Assertion: Records of legislative testimony provide clear guidance for legislators.
   12. Assertion: Young people make no more disadvantageous financial decisions than older people.
   13. Assertion: Money transfer services are an upright, valuable financial service for most people.
   14. Assertion: Records of long-running Twitter interactions illustrate reasoned and judicious presentation and argumentation.

15. Assertion: Suppose one could get a sample of folks from the Islands who are living elsewhere on the U.S. Mainland. We would likely find that their income and quality of life elsewhere is inferior to that obtained by someone with the same level of education and age living in Hawaii.
16. Allegation: Everyone has equal access to housing and financial markets. Irrespective of ethnic origin, everyone with the same income level has the same access to housing, and experience in saving for the future.
17. Assertion: The big users of opioids are (a) middle-aged Americans who have lost their jobs or work in dying industries; or (b) live in counties where the medical practice of prescribing pain killers is at best "problematic."

Our first real task: Which of the data sets is a candidate to address each of these questions?

Appendix 1.

The JMP Software

JMP is available from at least two sources, the UH Site License Office and the "On the Hub" educational software vendor.   Both offer attractive prices, with the 6 month lease from OntheHub running about $30- and the year lease from either source around $60. The UH IT version is JMP Pro which includes a powerful text mining program. The contact information is here:

https://www.hawaii.edu/sitelic/sasjmp/jmpform.pdf.

http://onthehub.com/download/software-discounts/jmp.

Both Mac and PC versions are available. All versions are downloadable.   One distinct difference in the UH one-year lease offering is that UH distributes JMP 13 Pro, while OntheHub distributes JMP13. Either version will work for our purposes.

JMP Resources

JMP Basic Documentation—On-Line Guides.

- Using JMP   (Online Documentation)
- Discovering JMP (Online Documentation)

These are two of the most comprehensive introductions to JMP. Each sets out pieces of the program in small, short illustrations or tutorials. Many tutorials refer to the collection of samples cases shipped with the JMP software, so you can replicate the illustration for yourself. Start with the Using JMP module and learn how JMP organizes its displays, actions, and data. Play with the examples that are introduced. You will want to open JMP, have it on the screen, and then open the documentation.

An additional resource is the JMP "JMP in Action" page, which provides illustrations of a wide range of applications, lists white papers and book chapters, and generally tells interesting stories:

https://www.jmp.com/en_no/software/data-analysis-software.html.

https://www.jmp.com/en_us/applications/statistics-predictive-modeling-data-mining.html.

JMP Learning Library—tutorials and videos showing important operations:

The categories below list a variety of video tutorials.

- Using JMP
- Graphical Displays and Summaries
- Probabilities and Distributions
- Basic Inference - Proportions and Means
- Correlation and Regression
- Time Series

- Multivariate Methods
- Data Mining
- Quality and Process
- Reliability and Survivability
- Designed Experiments
- Using SAS from JMP

In addition to the tutorials above, JMP has a page that lists all of the on-line documentation for the program: http://www.jmp.com/support/help/13/.

The University of Tennessee, Knoxville Department of Business Statistics has released a number of short tutorials, along with a few video discussions.

Go here for some of the Tennessee video tutorials)

Creating, Importing and Exporting Files with JMP

- Creating a JMP data table
- Importing an Excel file into JMP
- Exporting a JMP file into Excel

Graphical Display of Categorical Data

- Bar Chart
- Pie Chart
- Pareto Chart
- Mosaic Plot

Graphical Display of Quantitative Data

- Histogram and Box Plot
- Stem and Leaf Plot
- Side-by-Side Box Plots
- Normal Probability Plot and Goodness of Fit Test
- Time Plot

Numerical Summaries of Quantitative Data

- Calculating Summary Statistics of Quantitative Data

Correlation and Regression

- Scatterplot
- Correlation
- Least-Squares Regression Line, Residuals Plot and Histogram of Residuals
- Inference about Regression Coefficients

- [Confidence Intervals and Prediction Intervals for Regression Response](#)

Transformations of Variables - Examples

- [Log Transformation](#)
- [Negative Reciprocal Square Root](#)

Inference About a Population Proportion

- [Confidence Interval and Hypothesis Testing for a Population Proportion](#)

T-Tests (Confidence Intervals and Hypothesis Testing)

- [One-sample t Test](#)
- [Matched Pair t Procedure](#)
- [Two-Sample t Procedure (assuming unequal population variances)](#)

Test of Independence for Two Categorical Variables

- [Chi Square Test for Two-Way Table](#)

Miscellaneous Topics

- [Excluding Data from an Analysis](#)
- [Getting JMP Graphics into Microsoft Word](#)
- [Taking a Simple Random Sample](#)
- [Getting Multiple Histograms on the Same Scale](#)
- [Forcing Categorical Data to Display in a Specific Order](#)
- [Using Different Symbols for Different Groups in Graphical Displays](#)

JMP Quick Guides (Two to five page reference cards)

- [JMP 12 Quick Guide (PDF)](#)
- [JMP 12 Student Edition Quick Guide (PDF)](#)

Appendix 2: Case Study Libarary

Links to JMP Case Study Library: https://www.jmp.com/en_us/academic/case-study-library.html.

The case-study library provides a whole bunch of detailed analysis examples:

Application Areas

- Design of Experiments

- Quality Engineering, Reliability and Six Sigma

- Statistics, Predictive Modeling and Data Mining

- Data Visualization and Exploratory Data Analysis

- Consumer and Market Research

- Dashboard Building

Selected Market Segments

- Academic

- Government

- Life Sciences