Torture numbers, and they'll confess to anything.

--Anonymous cynic

And if California slides into the ocean,
   like the mystics and statistics say it will,
I predict this hotel will be standing
   until I pay my bill.

--Warren Zevon, from "Desperadoes Under the Eaves"

Introduction

The purpose of this course is to introduce students to a range of basic statistical and data analytic techniques necessary to understand and conduct quantitative political, social, and policy research. The development of such methodological skills is an absolute necessity for social scientists. Professional social scientists are often called upon to either conduct quantitative research on their own or, at the very least, be able to understand, interpret, and utilize the considerable body of social research that employs quantitative analytical techniques. Courses in statistics subsequently should not be viewed as an obscure degree requirement for the M.A. or Ph.D. programs in social science disciplines, but should instead be seen as providing an introduction to the requisite research skills for practicing social scientists.

While the topics covered in this seminar cannot in any way be considered exhaustive, they do represent many of the basic statistical issues with which social scientists should be familiar. Several topics will be examined in this course. First, we will discuss briefly the philosophy of social science and the role of quantitative methods in conducting research in the social sciences. Second, we will discuss various statistical techniques utilized in univariate analysis—i.e., measures of central tendency and dispersion. Third, the logic of statistical inference and hypothesis testing will be examined. Of primary interest in this section will be the estimation of population parameters (characteristics) based on information collected from random samples drawn from populations. These techniques are the building blocks for more sophisticated statistical analyses. Finally, we will discuss various bivariate and multivariate statistical techniques. Because social science often focuses upon the relationship between two (or more) variables, special emphasis will be placed on establishing the magnitude and direction of such relationships as they exist within both populations and samples of populations.
Two major points should be made about this course. First, one of the best ways to learn about statistical techniques is to practice them as much as possible. Hence, on most days each student will work several problems that require the use of the various statistical techniques examined in this course. By going through the process of computing the answers to statistical problems, it is hoped that each student will develop the statistical skills necessary to understand and conduct empirical research.

Second, one major goal is to help students identify and discard numerous myths which pertain to statistical analysis. To take one example, many students in the social sciences adhere to the view that it is easy "to lie with statistics." While there is a speck of truth to this proposition, for the most part lying with statistics is a more successful strategy when one lies to individuals who do not understand statistical methods. (I would revise this "truism" to state that it is easy to lie with statistics to those who don't understand statistics!) Social scientists who are well-trained in statistical methods can usually differentiate good statistical arguments from bad ones. One goal of this course is to give social science students (and others) the skills necessary to analyze statistical arguments and the validity of inferences drawn from statistical statements.

Course Requirements and Evaluation

Each student will be evaluated on the basis of the following:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Midterm Examination</td>
<td>100</td>
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<tr>
<td>Final Examination</td>
<td>100</td>
</tr>
<tr>
<td>Research Report</td>
<td>100</td>
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<tr>
<td><strong>Total Points</strong></td>
<td>300</td>
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1. **Midterm Examination.** A comprehensive midterm examination covering all material from the first half of the course will be required for all students. Information pertaining to the format of the midterm examination will be provided to all students prior to the exam.

2. **Final Examination.** A comprehensive final examination covering all material from the second half of the course will be required for all students. Information pertaining to the format of the final examination will be provided to all students prior to the exam.

3. **Research Report.** In addition to the midterm and final exams, each student will be required to write a research report that utilizes one of the statistical techniques discussed during the semester. More detailed information about the paper will be provided later in the semester.

The grading scale used in the course is the standard 10-point scale (i.e., 90% and above an "A," 80-89% a "B," etc.).

Reading

The following book has been ordered and is available at the University bookstore:

Graduate Assistants:

The graduate assistant for the course is:

Jeremy Wells
324 Stubbs Hall
Email: jwell33@lsu.edu

Computer Statistics Package

There are numerous statistics programs that can be used to conduct statistical analysis with a mainframe or personal computer. In this course we will use Stata 11.0, a commonly-used (and easy-to-use) statistics program.

If you are serious about doing quantitative research, I would encourage you to purchase a full copy of Stata. Other programs (such as SPSS or SAS) are fine, but Stata is easy to learn and use, and I find that it is much more powerful and flexible for most applications than other programs. Stata will be the only program supported during this class, and computer assignments will be conducted using Stata.

Stata is expensive, but the Stata Corporation provides educational discounts. Stata can be purchased at the following web site:

http://www.stata.com/order/new/edu/gradplans/gp-campus.html

Once you have made your purchase through this web site, you will be directed to an office in the Department of Economics where you will receive your copy of Stata.

Notice that there are multiple purchase options. First, if you are going to purchase Stata, at the very least you should purchase the Intercooled Stata 11.0 with the six-month license ($65). Second, you can purchase Intercooled Stata 11.0 with a one-year license ($98). Third, a mid-range (and recommended) option is Intercooled Stata 11.0 with a perpetual license ($179). Finally, if you (1) know that you will be doing a lot of statistical analysis in your research in the future, particularly with larger data sets, and (2) can at all possibly afford it, I encourage you to purchase Stata / SE 11.0, which is the most powerful version of Stata but is somewhat pricey ($425). Do not purchase the Small Stata 11.0, which is really for very small data sets and will not accommodate some of the data sets that we will use this semester.

Stata Resources

Because many of you have not had experience with Stata, there are several Stata resources that I recommend. First, I will make available to you a .pdf Introduction to Stata:

Sven Juul, Introduction to Stata 8.0.

Even though this manual is designed for Stata 8.0 rather than Stata 11.0, the differences in the two versions are sufficiently small that Juul’s manual will be very helpful to you.
In addition, I would like to direct you to the following web sites that are designed to assist Stata users. These are very useful web sites that provide detailed information about Stata commands. You should bookmark these web sites and refer to them often.

The first is a broad-based Stata web site housed at UCLA. One can find a wide range of information about Stata on this web site. I would encourage you to take a look at the links on this web site and familiarize yourself with what this site has to offer:

http://www.ats.ucla.edu/stat/stata/

This is the Stata "starter kit" for new users, also available on the UCLA web site:

http://www.ats.ucla.edu/stat/stata/sk/

Another introductory web site is found on the University of North Carolina web site:

http://www.cpc.unc.edu/research/tools/data_analysis/statatutorial

This UCLA site has information on estimating regression models and other similar models in Stata. This is a very good resource for information about estimating models:

http://www.ats.ucla.edu/stat/stata/webbooks/reg/default.htm

Here is another UCLA site that has "learning models" for Stata procedures.

http://www.ats.ucla.edu/stat/stata/modules/default.htm

Finally, this is a Princeton web site that has a series of downloadable chapters about how to estimate a variety of models in Stata.

http://data.princeton.edu/wws509/stata/

**Calculator**

In addition, many of the statistical problems to be worked out during the semester require the use of a calculator with a square root function. Each student is strongly encouraged either to purchase such a calculator or otherwise to have one available. A simple calculator with a square root function can be purchased for well under $10.

**Statistical Tables Calculator**

Over the course of the semester you will be asked to use various statistical tests for hypotheses involving political and social data. I have found the following web site to be extremely useful in helping me test these hypotheses. I will discuss this in more detail over the course of the semester.

http://faculty.vassar.edu/lowry/tabs.html
Course Web Site

I have created a web site for this course. The site will include assignments, data sets, links to statistics web sites, and other helpful information. The course web site can be found on my personal homepage at:

http://jgarand.lsu.edu/

I will also make materials available to students via email and on my Moodle page.

Office Hours

Garand: Tuesday, Thursday mornings, 10:30 to 11:15
Other hours by appointment

Wells: Monday, Wednesday afternoons: 1:00 to 2:00
Other hours by appointment

Black: Thursday afternoon, 1:00 to 4:00

In addition, Cassie Black, the graduate assistant for POLI 7962 (section 1), is also available for consultation during her office hours. Her contact information is:

Cassie Black
Stubbs 325
Email: appgrad7282@gmail.com

Academic Misconduct Statement

Academic misconduct is defined by the Code of Student Conduct. You are encouraged to familiarize yourself with the LSU policy on academic misconduct, particularly regarding plagiarism. The LSU Code of Student Conduct can be found on the web site for the LSU Dean of Students:

http://appl003.lsu.edu/slas/dos.nsf/index

Academic misconduct is a serious violation of university policy, but more importantly it is a significant scholarly violation for political scientists. Plagiarism and other forms of academic misconduct will not be tolerated in this course. Charges of academic misconduct will be turned over to the Dean of Students for appropriate disciplinary action.
About the Instructor

James C. Garand (Ph.D., University of Kentucky, 1984) is the Emogene Pliner Distinguished Professor of Political Science and the R. Downs Poindexter Professor of Political Science at Louisiana State University. In addition to holding named professorships in the Department of Political Science, he serves on the faculty of the Mansfield School of Mass Communication and is a Senior Fellow at the Reilly Center for Media and Public Affairs.

Professor Garand has teaching and research interests in the fields of legislative politics, electoral politics, public opinion, public policy, state politics, racial and ethnic politics, domestic political economy, and methodology and statistics. His research on a wide range of topics in American politics has been published in numerous journals, including the American Political Science Review, American Journal of Political Science, Journal of Politics, British Journal of Political Science, Political Research Quarterly, Western Political Quarterly, Comparative Political Studies, American Politics Research (formerly American Politics Quarterly), Public Choice, Electoral Studies, Social Science Quarterly, and Legislative Studies Quarterly. His coedited book, Before the Vote: Forecasting American National Elections, was published by Sage Publications in 2000.

Professor Garand received the 2006 LSU Distinguished Research Master Award in recognition of outstanding faculty accomplishments in research and scholarship. He was President of the Southern Political Science Association in 2004, and he is also former president of the State Politics Section of the American Political Science Association. He served as Vice-President and Program Chair in 2001 for the Southern Political Science Association. Professor Garand is former editor of the American Politics Quarterly, one of the leading subfield journals in American politics. He currently serves on the editorial boards of the American Politics Research, Journal of Political Marketing, and Ralph Bunche Journal of Public Affairs, and he is a former member of the editorial boards of the American Journal of Political Science, Journal of Politics, State Politics and Policy, and Legislative Studies Quarterly. His current research agenda includes numerous projects relating to the study of American politics.

Professor Garand has received numerous faculty awards. In 1997 Professor Garand received the LSU Alumni Association Distinguished Faculty Award in recognition of sustained excellence in teaching, research, and service. In 2001 he received the LSU Foundation Distinguished Faculty Award in recognition of his excellence in graduate teaching, and in 1990 he received the university-wide Student Government Association Teaching Excellence Award for undergraduate teaching. He is also a recipient of the Alpha Lambda Delta Freshman Honor Society certificate of recognition for superior instruction of freshman students during the Fall 2000 semester.
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<td>Variables, Data, and Measurement</td>
<td>Knoke et al., Chapter 1</td>
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<td>Introduction to Stata</td>
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<td>Univariate Analysis: Frequency Distributions</td>
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<td>Knoke et al., Chapter 2, pp. 29-40</td>
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<td>Univariate Analysis: Central Tendency and Dispersion</td>
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<td>Knoke et al., Chapter 2, pp. 40-63</td>
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<td>Sample Estimation of Population Parameters</td>
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<td>Bivariate Analysis: Difference in Two Means</td>
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<td>Bivariate Analysis: Analysis of Variance (ANOVA)</td>
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<td>Knoke et al., Chapter 4</td>
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<td>Bivariate Analysis: OLS Regression</td>
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<td>Knoke et al., Chapter 5 (skim)</td>
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