POLI 7962:
Seminar in Quantitative Analysis
Fall 2018
Mondays 1:00 – 3:50
Stubbs 102

James Garand
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Stubbs 212
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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 class days we 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

Course Requirements and Evaluation (continued)

C	72.5% - 77.5%
C-	69.5% - 72.5%
D+	67.5% - 69.5%
D	62.5% - 67.5%
D-	59.5% - 62.5%
F	Below 59.5%

Graduate Assistant:

The graduate assistant for this course is:

Sylvia Gonzalez
327 Stubbs Hall
Email: sgonz25@lsu.edu

Required Reading

There is no required text for this course. There will be some recommended reading during the course. In addition, I will provide a full set of class notes and course assignments. Course readings, class notes, course assignments, and other materials will be made available through Moodle and/or by email.

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 14.0, a commonly-used (and easy-to-use) statistics program. I should also note that if you have a copy of Stata 13.0 or Stata 15.0 that will work for most of what we are going to do.

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Stata Resources

Because some 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:

Scott L. Minkoff, An Introductory Guide to Stata

Even though this manual is designed for Stata 11.0 rather than Stata 14.0, the differences in the two versions are sufficiently small that Minkoff's manual will be very helpful to you.

There is also a lengthy (but informative) introduction to Stata that is a Powerpoint presentation converted to a .pdf format:

Christopher Baum, Introduction to Stata

In addition, I would like to direct you to the following web sites that are designed to assist Stata users.

Office Hours

Monday morning, 9:30 – 11:00

Other hours by appointment

Course Moodle Page

I have created a Moodle page for this course. The site will include assignments, data sets, links to statistics web sites, and other helpful information. The course Moodle web site can be found by logging on to your PAWS account.

Note that I will post all class notes on the course Moodle page.

Calculator

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 to purchase such a calculator or otherwise to have one available.

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:

https://www.lsu.edu/saa/students/codeofconduct.php

Please read the section labelled "10.0 Misconduct." 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.

I am serious about this.

Course Outline

August	20	**Introduction: The Role of Statistics in Political and Social Research** **Variables, Data, and Measurement**
August	27	**Introduction to Stata** **Univariate Analysis: Frequency Distributions (Assignment #1)**
September	3	**Labor Day Holiday (No class meeting)**
September	10	**Univariate Analysis: Frequency Distributions (continued) (Assignment #2)** **Univariate Analysis: Central Tendency and Dispersion**
September	17	**Univariate Analysis: Central Tendency and Dispersion**
September	25	**Sample Estimation of Population Parameters (Assignment #3)**
October	1	**Sample Estimation of Population Parameters (continued) (Assignment #4)**
October	8	**Sample Estimation of Population Parameters (continued) (Assignment #5** **Midterm Examination**
October	15	**Bivariate Analysis: Difference in Two Means (Assignments #6 and #7)**
October	22	**Bivariate Analysis: Analysis of Variance (ANOVA) (Assignments #8 and #9)**
October	29	**Bivariate Analysis: OLS Regression**
November	5	**Bivariate Analysis: OLS Regression (continued) (Assignment #10)**
November	12	**Bivariate Analysis: OLS Regression (continued)** **Multivariate Analysis: Multiple Regression**
November	19	**Multivariate Analysis: Multiple Regression (continued)**
November	26	**Thanksgiving week (No class meeting)**
December	3	**Final Examination**

About the Instructor

James C. Garand (Ph.D., University of Kentucky, 1984) is the Emogene Pliner Distinguished Professor of Political Science at Louisiana State University.

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 research 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*, *Legislative Studies Quarterly*, *PS: Political Science and Politics*, *American Politics Research*, *American Politics Quarterly*, *Public Choice*, *Social Science Quarterly*, and *Electoral Studies*, among others. His coedited book, *Before the Vote: Forecasting American National Elections*, was published by Sage Publications in 2000. His current research agenda includes numerous projects relating to the study of American politics.

Professor Garand received the 2006 LSU Distinguished Research Master Award in recognition of outstanding faculty accomplishments in research and scholarship. In 2009 he was recognized as an LSU "Rainmaker," an award given by the LSU Office of Research and Economic Development (ORED) for national and international recognition "for innovative research and creative scholarship." He served as 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 *PS: Political Science and Politics*, 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.* He also serves as a member of the International Advisory Board of the *Online Portal for Social Science Education in Methodology* (OPOSSEM).

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 2012 he received the Tiger Athletic Foundation Undergraduate Teaching Award recognizing excellence in teaching in the LSU Honors College. In 2001 he received the LSU Foundation Distinguished Faculty Award in recognition of his excellence in graduate teaching, and he is the 1990 recipient of 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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