

STUDENTS ARE REQUIRED TO READ THIS ENTIRE SYLLABUS.

Course Number: POL 481.03 Course Title: Problems in Political Science:
Statistics for Political Science

Term: Spring Semester 2007 Location of Class Meetings: *The University Center*

Class Meeting Times: *Wednesdays, 6:00 p.m. - 8:50 p.m.*

Professor: Robin Marshall Bittick, M.P.A., Ph.D. Office: AB1 319G.

Contact Information: E-mail: rmb004@shsu.edu. Phone: 936-294-4105.

Office Hours: I do not have office hours scheduled at The University Center (TUC), but I am willing to meet with students after class in our classroom, or before class at TUC by appointment. Also, my office hours in my office on the SHSU main campus are: M-W-F, 10:00 am - 11:00 a.m. (walk-in).

Class Website: Go to Blackboard <http://www.shsu.edu/blackboard_login.html>. Students are required to access this website before each class.

Course Description: the following is from the SHSU University Catalog:

This course is designed to examine special topics which cut across the usual areas of concentration in government. A single topic will be considered each semester this course is offered. Topics may include political socialization, ethnic politics, crises in political systems, research techniques, and other subjects. May be repeated when topic varies.

Prerequisites: 6 hours of Political Science. Credit Hours: 3.

Introduction: Welcome to *Statistics for Political Science*! This course will proceed at a brisk pace. So, prepare yourself for a very challenging course. *This is not a math course!* Rather, this is a course in **political science that uses statistics** (and thus, **uses math**) to analyze data and make appropriate decisions concerning matters related to the various sub-fields of political science (e.g. American Government and Politics, International Relations, Comparative Politics, Public Policy and Public Administration, and Political Philosophy/Theory).

Learning statistics requires a great deal of work. For those of you who experience **math anxiety**, you may have to work harder in this class than in many of your other classes. At times the class may seem to move so fast that you feel like you are on a statistics roller coaster. So, brace yourself and plan adequate study time as necessary.

I will do what I can to help you succeed in this course. My lectures are designed to help make sense out of the information contained in the text. Therefore, you must first read the assigned material and attempt to do each homework assignment prior to class even if the homework problems do not initially make sense to you. Since you must *practice* to be successful with statistics, try working other homework problems (especially if you do not feel confident with a particular statistical tool). Learning statistics is like learning a foreign language: it takes consistent practice. Therefore, **you must be diligent and plan the time necessary to complete each**

reading assignment and do the homework assigned each week. Experience shows that students who “cram” for the statistics exams wind up with poor grades. In contrast, consistently reading the assigned chapters and doing the assigned homework has proven to be the best way to approach this class.

Course Goal: the primary goal of this course is to enable students to apply the knowledge and skills of statistical tools to public policy and management problems, and to enable students to provide interpretations of the results for the public workplace, as well as for graduate school.

Course Objectives:

Knowledge:

- Define the Levels of Measurement and associated types of data involved in statistical analysis; identify the levels of measurement used in statistical problems;
- Explain the properties of the normal curve in relation to probability;
- Identify and state the research hypothesis from a given problem;
- Distinguish population and sample data, and know the difference between a parameter and a statistic;
- Identify the difference between the sample mean and the population;
- Distinguish between the associated statistical tools used to analyze population and sample data.
- Explain the assumptions of correlation and regression analysis, and be able to distinguish between the purposes of correlation and regression

Assessment: In-class examples, homework, exams.

Competencies & Related Skills:

- Classify specific statistical tools to associated Levels of Measurement.
- Identify the type of data being measured on a given table of data.
- Calculate and interpret a rate and rate of change.
- Construct a table of data from a given a table of grouped data and associated frequencies, and identify both the class interval with the highest percentage of cases, and the category containing the majority breakpoint.
- Calculate the Measures of Central Tendency and the Measures of Variability given a set of data, and analyze the inferences of the computations.
- Determine the accuracy of the Mean value given the Range and Standard Deviation for a given set of data.
- Solve a basic probably problem given a set of data.
- Solve a probability problem, and compute the percentile rank of a data point using a normal curve.
- Calculate and interpret a confidence interval problem, including making recommendations concerning the accuracy of the estimate for managerial decision-making.

- State, calculate, and interpret a Hypothesis Test for the Difference Between Two Means, including writing out the Research and Null Hypothesis.
- Calculate and interpret Nonparametric Tests of Significance/Chi-Square test.
- Interpret a Pearson's r , and contrast two Pearson's r values.
- Identify the independent and dependent variables from a given statement.
- Construct, calculate, and interpret a given regression equation problem including:
 - State the Research Hypothesis being tested;
 - Plot the given data on a scatter plot;
 - Calculate the Intercept and Regression Coefficient;
 - Write out the regression equation based on your calculations;
 - Interpret the regression equation;
 - Plot the regression line on the scatter plot;
 - Estimate the value of Y given a value of X ;
 - Interpret the Coefficients of Determination and Non-Determination.

Assessment: In-class examples, homework, exams.

Values:

- Discriminate between quantitative evidence and normative values in managerial decision-making, and evaluate the proper foundation for decision-making in public management and policy-making.
- Use data that are fair, accurate, and complete, and report results according to principles of full disclosure.

Assessment: In-class discussions and examples.

Textbook Required:

Levin, Jack and James Alan Fox. 2007. *Elementary Statistics in Social Research: The Essentials*, second edition (Pearson Education, Inc.).

Optional Texts:

Gonick, Larry and Woolcott Smith. 1993. *The Cartoon Guide to Statistics*, first edition (HarperPerennial).

- This book is **not** required for this class, but you may find it helpful, especially for those of you who need extra help with statistical concepts, and who appreciate humor. You may order it from most bookstores.

Required supplies: students must bring a calculator to each class. The calculator must have the basic functions, including a square-root key.

Attendance Policy: Students are subject to having 10% deducted from their final grade if they miss more than two class sessions. Since this course proceeds in a step-by-step manner, **class attendance is mandatory**. My lectures supplement the text extensively. If you determine that you cannot attend class on a regular basis, you must drop this course and take it in a future semester.

Exams: Four (4) Quizzes are scheduled for this course. Quizzes require students to write out definitions of statistical concepts, work our problems mathematically, and write out the interpretation of various statistics covered in class.

- You must show your work to receive credit for problems on each quiz.
- No Make-up quizzes are allowed in this class.
- All quizzes count.

Homework Assignments: Homework assignments are assigned at the end of each class. I may also assign additional homework at the end of each class. You must read each assignment and attempt to complete the assigned homework before class. I review completed homework assignments for Credit or No Credit, but do not assign a letter grade. The percentage of homework completed is multiplied by 50 points possible to determine the final points earned. Homework is due on the day of each quiz, *prior* to administering the quiz. *Late homework is not accepted without my prior approval.*

Homework packages must have your name plainly written at the top of the first page, be stapled, and have each chapter highlighted for each set of homework problems assigned. If I am not able to find each chapter in your homework package, you will not receive credit for that chapter. NOTE: incomplete homework assignments shall not receive credit.

Grading Plan: Grading will be as follows:

Exam/Homework	Points Possible	Percentage	Grade
Quiz #1	50 points	90 - 100	A
Quiz #2	100 points	80 - 89	B
Quiz #3	100 points	70 - 79	C
Quiz #4	100 points	60 - 69	D
<u>Homework Problems</u>	<u>50 points</u>	0 - 59	F
Total Points Possible:	400 points		

All university rules and procedures apply to this class.

Academic Honesty: Students are required to read *Academic Policy Statement 810213* found at <http://www.shsu.edu/administrative/faculty/sectionb.html#dishonesty>.

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

The Instructor reserves the right to require any or all students to submit written work on electronic media (e.g. Word or Word Perfect) so it may be checked using a plagiarism software program.

Americans with Disabilities Act: See *Academic Policy Statement 811006* at http://www.shsu.edu/~vaf_www/aps/811006.pdf. Requests for accommodations must be initiated by the student. Students seeking accommodations must go tot the Counseling Center for certification of the disability in a timely manner.

Student Absences on Religious Holy Days: See *Academic Policy Statement 861001* at http://www.shsu.edu/~vaf_www/aps/documents/861001.pdf.

Instructor Evaluations: students will be asked to complete a course/instructor evaluation form toward the end of the semester.

Classroom Rules of Conduct: Students must read this policy at <https://www.shsu.edu/students/guide/dean/codeofconduct.html>. Students must turn off or silence their cell phones once class begins. Students shall not engage in phone conversations or text messaging during class.

Schedule: The instructor reserves the right to change the schedule as needed. Changes will be **highlighted in yellow** and linked to the class website in Blackboard.

Week	Dates	Class Topic
1	22 Aug	Course Introduction; Introduction to Levels of Measurement; Reading Tables; and, Math Review. Read: Syllabus, Handouts; and. Text, ch. 1.
2	29 Aug	Description: Organizing the Data. Read: Handout; Text, ch. 2.
3	05 Sep	12th Class Day. Description: Measures of Central Tendency. Read: Handout; Text, chs. 3.
4	12 Sep	Description: Measures of Variability, and Review for Quiz #1. Read: Handout; Text, ch. 4.
5	19 Sep	Quiz #1 - Organizing the Data; Measures of Central Tendency and Variation - chs. 1-4; Probability and the Normal Curve.
6	26 Sep	Decision Making: Probability and the Normal Curve. Read: Handout; Text, ch. 5
7	03 Oct	Decision Making: Samples and Populations. Read: Handout; Text, ch. 6

Week	Dates	Class Topic
8	10 Oct	Decision Making: Samples and Populations, continued; and, Review for Quiz #2 - chs. 5-6. Read: Handout; Text, ch. 6
9	17 Oct	Quiz #2: Probability and the Normal Curve, and Samples and Populations - chs. 5-6; and Hypothesis Testing. Read: Handout.
10	24 Oct	Decision Making: Testing Differences Between Means, continued. Read: Handout; Text, ch. 7.
11	31 Oct	Decision Making: Testing Differences Between Means, continued, and Review for Quiz #3. Read: Handout; Text, ch. 7.
12	07 Nov	Quiz #3: Hypothesis Testing and Testing Differences Between Means; and, ANOVA. Read: Handout; ch. 8.
13	14 Nov	Decision Making: Nonparametric Tests of Significance: The Chi-Square Test. Read: Handout; Text, chs. 9.
14	21 Nov	Holiday - No Class!
15	28 Nov	<i>Association</i> : Correlation. Read: Handout; Text, ch. 10.
16	05 Dec	<i>Association</i> : Regression Analysis; and, Review for Quiz #4. Read: Handout; Text, ch. 11.
Finals Week	12 Dec	Finals Week Quiz #4: Correlation and Regression Analysis. NOTE: Class meets from 6:00 pm to 8:50 pm.