

PSC 408 Basic Statistics for Social Science  
*Fall 2014*

Instructor: Austin Mitchell  
[ammitch@buffalo.edu](mailto:ammitch@buffalo.edu)  
Office: Park Hall 516

Class held: Knox 109  
MWF, 1:00 – 1:50PM

Office Hours:  
MF, 2:00 – 3:00 PM  
R, 1:00 – 3:00 PM, or by appointment

### Course Overview

The capacity to both produce and consume statistical facts is an important aspect of science. Statistics allows for the efficient and concise communication of relationships within data. This makes statistics a very powerful tool for conveying information. However, understanding how the statistic is constructed is necessary to properly understand whether a statistic is an accurate representation of the data.

This class introduces the simple statistical procedures commonly used in politics and political science. The class does not prepare the student to comprehend or produce the majority of statistics used in political science journals, since most publications involving statistics are using advanced methods. However, the simple methods in this class are quite useful in professional political analysis. These methods are used heavily in government work, communications media, and non-government organizations.

[This syllabus and schedule may be amended during the semester as needed.]

### Required Text

Philip H. Pollock III. *The Essentials of Political Analysis*, 4<sup>th</sup>ed.

This text is available at the UB Bookstore or Amazon.com. The 3<sup>rd</sup> ed is fine but the page numbers in the Schedule (below) will be different and the examples we cover in class from the book may be different.

### Grading

A+ =97% to 100%, A=93% to 97%, A- = 90% to <93%, B+=87 to<90%, B=83% to <87%, B- =80% to <83%, C+=77% to <80%, C=73% to <77%, C-=70% to <73%, D+=67% to <70%, D=63% to <67%, D-=60% to <63%, F=<60%.

Homework assignments (10)	25%
Exams (3)	45%
Final exam	30%
Total	100%

<b>Learning Outcomes</b>	<b>Assessment Measures</b>
Understanding of data measurement and research design for generating basic statistics	Homework, Exams
Ability to understand and interpret basic statistics found in media, government, and academic documents.	Homework, Exams
Ability to produce basic statistics of professional quality	Homework, Exams

## **Requirements**

### *Readings*

The readings for this course are meant to supplement lectures. I will provide some discussion of examples in the text, but the lectures will primarily utilize data from outside of the text. However, the concepts within the text provide a guide for the concepts that we will cover in class.

### *Lectures*

Lectures are a necessary part of class to understand the course material. The text uses a discussion style. This is good for comprehension, but less so for understanding the mathematical aspects of the statistics. In lectures, I will provide equations and how to compute the statistics we cover. This information will be covered in the exams.

### *Homework*

There are ten homework assignments in this class. There are no assignments during the weeks of exams. These assignments are to provide the student with an opportunity to find out how well he/she is learning the course concepts. More information about these assignments will be provided in class.

### *Exams*

This class has three in class exams and one final exam. The three in class exams cover the material since the prior exam. The final exam is cumulative. All exams are mandatory. I have scheduled for review days before each of the in class exams, and a review week before the final exam. This schedule may change as needed to cover the material.

## Schedule

<u>Week</u>	<u>Monday</u>	<u>Wednesday</u>	<u>Friday</u>
<i>Week 1–Week of August 25th</i> Course Overview, Ch 1 Concepts	Introduction and syllabus overview	Examples of Stats	Concepts (Ch 1)
<i>Week 2–Week of September 1st</i> Ch 2 Measurement	No class – Labor Day	Measurement (pp28-32)	Describing Variables (pp32-46) <b>HW1 due</b>
<i>Week 3–Week of September 8th</i> Ch 3 Hypotheses and Ch 4 Relationships	Excel Walk-through 1	Theory and Hypotheses (read pp48-58 skim pp58-76) Random Assignment and Experiments (pp78-86) Relationships (pp86-99)	Cross tabs (pp102-109) <b>HW2 due</b>
<i>Week 4–Week of September 15th</i>	Cross tab interactions (pp109-120)	Review	<b>Exam 1</b>
<i>Week 5–Week of September 22nd</i> Ch 5 Crosstabs	Standard error (pp122-135)	Central limit theorem, and normal distribution (pp135-140)	Inference with Z distributions (pp140-144) <b>HW3 due</b>
<i>Week 6–Week of September 29th</i> Ch 6 Inference	Z distributions cont'd	Inference with T distributions, and proportions (pp144-154)	t distributions cont'd <b>HW4 due</b>
<i>Week 7–Week of October 6th</i>	Comparing sample means and proportions (pp155-164)	chi-square test (pp164-169)	Review <b>HW5 due</b>
<i>Week 8–Week of October 13th</i> Ch 7 Association	No class	<b>Exam 2</b>	Scatterplots and correlation (pp182-187)
<i>Week 9–Week of October 20th</i> Ch 8 Correlation I	Pearson's R	Bivariate Regression and prediction (pp187-192)	Regression continued <b>HW6 due</b>
<i>Week 10–Week of October 27th</i> Ch 8 Correlation II	Regression continued	Regression continued	Regression continued <b>HW7 due</b>
<i>Week 11–Week of November 3rd</i> Ch 8 Correlation III	R sq (pp192-196)	In class demonstrations	In class demonstrations <b>HW8 due</b>
<i>Week 12–Week of November 10th</i> ANOVA	dummy variable regression (pp196-199)	Interactions in graphs	Logging variables <b>HW9 due</b>
<i>Week 13–Week of November 17th</i> Miscellaneous	Regression inference	multiple regression (pp199-201), multicollinearity (pp205-210), interactions (pp201-205), and squared terms	Review <b>HW10 due</b>
<i>Week 14–Week of November 24th</i> Fall Break	<b>Exam 3</b>	<i>Fall break</i>	<i>Fall break</i>

Week 15–Week of December 1st Review Week	Review - Ch 1-4	Review - Ch 5-6	Review - Ch 7-8
Week 16 – Week of December 8th Final Exam Week (through 12/15/14)			Friday, Dec 12 <sup>th</sup> 11:45AM - 2:45PM Knox Lecture Hall 109

## Course policies

This course adheres to all University policies. To view Academic policies see the University at Buffalo SUNY [Undergraduate Catalog](#).

### *Absences*

Students are expected to attend all classes and exams. If a student contacts the instructor prior to an exam, the student may reschedule due to illness or an emergency.

### *Academic Dishonesty*

Academic dishonesty includes but is not limited to cheating on quizzes and plagiarizing on written work both of which are serious violations of University policy and will not be tolerated. For more information on University policy see the [Undergraduate Catalog section on Academic Integrity](#).

### *Incomplete grades*

Requests for incomplete grades must be made prior to the end of the semester. For more information see the [Undergraduate Catalog section on incompletes](#).

### *Disability services*

Reasonable Modification of University Policies, Practices, and Procedures (including this course) is available through the office of [Accessibility Resources](#) but students are required to register with that office in order to receive accommodation for physical and learning disabilities