

## **POL 602: Data Analysis I**

Fall 2008

Tuesdays and Thursdays 10:30-12:00.

SBS N-702

Instructor: Matthew Lebo

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Office Hours: Monday 10-12 or any other day by appointment. I am happy to meet with you whenever you need it. When you'd like an appointment, the best thing to do is to send me an email with 3 times you are available to meet and I'll pick one.

### **I. Overview**

This course provides an introduction to the theory and practice of quantitative data analysis techniques. Most of the course will focus on probability theory and mathematical statistics. As the first course in a three semester sequence, the primary objective is to provide the foundation that will be necessary for POL 603 and POL 604.

I will make use of the online Blackboard system. Lectures should be posted there ahead of class time and assignments will be posted there. Also, check for messages regarding class news such as possible snow days or other last minute changes or cancellations.

You can access class information on-line at: <http://blackboard.sunysb.edu> If you have used Blackboard before your login information (Username and Password) has not changed. If you have never used Stony Brook's Blackboard system, your initial password is your SOLAR ID# and your username is the same as your Stony Brook (sparky) username, which is generally your first initial and the first 7 letters of your last name.

For help or more information see:

<http://www.sinc.sunysb.edu/helpdesk/docs/blackboard/bbstudent.php> For problems logging in, go to the helpdesk in the Main Library SINC Site or the Union SINC Site, you can also call: 631-632-9602 or e-mail: [helpme@ic.sunysb.edu](mailto:helpme@ic.sunysb.edu)

I will also make my lectures available online at:

<http://ms.cc.sunysb.edu/~mlebo/pol602.htm>

Expect some lag in this process. The lectures from last year are currently posted there but there will be little change between them and this year's. Whatever is posted on Blackboard will be the most up-to-date.

### **II. Computer Work**

A very small part of this class will consist of familiarizing students with Stata. This program will be the major tool for your statistical analyses while at Stony Brook. In this class we'll cover the basics.

### III. Required Textbook

Wackerly, Mendenhall, and Scheaffer. 2002 (7<sup>th</sup> ed.) *Mathematical Statistics with Applications*. ISBN 0-534-37741-6.

Additional readings from political science journals and online resources may be assigned through the course of the term.

#### *Recommended*

A slimmed down version of the early essentials is provided in:

Scheaffer, Richard L. 1995. *Introduction to Probability and Its Applications*. ISBN 0-534-23790-8.

### IV. Course Requirements

Six Problem Sets – 10% each.

Midterm Exam – 20%.

Final Exam – 20%

Homework problems will be assigned weekly but only problem sets will be turned in and graded. It is strongly advised that students learn the homework exercises as they are good guides for problem set and exam questions.

Exams will be administered in class.

The final grades reflect a conventional understanding of graduate work: A to A- means mastery of the material, B+ to B- means satisfactory work, and below B- is failing.

### V. Disability Policy

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631)632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students requiring emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information, go to the following web site:  
<http://www.ehs.sunysb.edu/fire/disabilities/asp>

### VI. Class Schedule and Readings

Reading assignments should be completed before the class for which they are assigned. We will try to keep to this schedule as closely as possible.

**Week 1 – Introduction to Course, Statistics and Probability Theory**

September 2

Read WMS Chapter 1

September 4

Read WMS Chapter 2

**Week 2 – Probability Theory**

September 9 and 11

Read WMS Chapter 2

**Week 3 – Discrete Random Variables**

September 16 – NO CLASS

September 18

Read WMS Chapter 3

**Week 4 – Discrete Random Variables Continued**

September 23 and 25

Read: WMS chapter 3

**Week 5 – Continuous Random Variables**

September 30 – NO CLASS

October 2

Read: WMS Chapter 4

**Week 6 – Continuous Random Variables Continued**

October 7

Read WMS Chapter 4

October 9 – NO CLASS

**Week 7 – Multivariate Probability Distributions**

October 14 and 16

Read: WMS Chapter 5

**Week 8 – Functions of Random Variables**

October 21 and 23

Read: WMS Chapter 6

**Week 9 – Sampling Distributions and the Central Limit Theorem**

October 28 and 30

Read: WMS Chapter 7

**Week 10 – Midterm Exam & Estimation and Confidence Intervals**

November 4 – Midterm exam in class.

November 6– Estimation and confidence intervals.

Read: WMS Chapter 8

**Week 11 – Estimation and Confidence Intervals Continued**

November 11 and 13

Read: WMS Chapter 8

**Week 12 – Properties of Point Estimators & Hypothesis Testing**

November 18

Read: WMS Chapter 9

November 20

Read: WMS Chapter 10

**Week 13 – Hypothesis Testing II**

November 25

Read: WMS Chapter 10

November 27 – NO CLASS

**Week 14 – Hypothesis Testing III and Introduction to Regression**

December 2

Read: WMS Chapter 14 on Chi-Squared test

December 4

Read: WMS Chapter 11

**Week 15 – Introduction to Regression**

December 9 and 11

Read WMS: Chapter 11

**Week 16 – Final Exam on Correction Day**

December 15

**Final Exam in Class**

Other matters:

Stony Brook University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, and/or inhibits students' ability to learn.