

State University of New York at Buffalo
INTRODUCTION TO STATISTICS

PSC 408
Spring 2009

Dr. Michelle Benson
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Office: 513 Park Hall

Office Hours: Tues 8:45-9:30, 12:30-1:45

Thurs. 12:45-1:45, 3:20-4:20

TA: Brian Dettry

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Course Description

The goal of this class is to introduce you to basic statistics for social sciences. Upon the conclusion of this class, you should have an understanding of how different types of statistics can or cannot be used and a mathematical understanding of the statistics used in the real world. To appropriately use statistics, you must have a clear idea of the question you are asking, of the type of data you have available to test your question, and the different possible ways of testing your question. By the end of the class, you will be able to pose fairly complicated questions and provide a statistical “answer” to those questions. At least 50% of the class will deal with math, the rest of the class will deal with the statistical concepts themselves and how to best employ these concepts.

To facilitate this knowledge, you will be doing pencil and paper exercises as well as computer based assignments. Because of the cumulative nature of the course, it is essential that students keep up with the work. If you fall behind it will be *very* difficult to catch up. For this reason, the deadlines for the homework assignments are strict and there will be no make-ups for exams. There is no extra-credit in this class.

Course Prerequisites

This is an upper division class so I expect you all to have had a few substantive courses in the social sciences. However, there are not official prerequisites for this course. I do assume that you all have a working knowledge of basic arithmetic. You should also be comfortable with fractions and decimals, squares and square roots, and basic algebra. Anything else you need to know will be taught along the way. It will also be helpful if you have had a course in research methods but it is not necessary.

If you have a “math phobia” or if you are not comfortable with computers, then this might not be the class for you. However, those with a basic knowledge of algebra (which you should have learned in high school) should do fine.

Required Class Materials

You should bring your Clicker and Calculator to class every day.

Turning Point Clickers are available at the College Store (3908 Maple Rd. /332-3040) now. Books should very likely be available at the College Store on Friday the 16th of January (call first to make sure they have arrived.)

- 1) Fox, William. 2003 *Social Statistics, 4th ed.* Washington: Micro Case, (Including Fox, William. *Doing Statistics Using Micro Case.* Washington, Micro Case.)
- 2) A Turning Point Clicker (available at the College Store)
- 3) Spare batteries + small screwdriver for the clicker
- 4) A calculator (able to do squares and square roots).

Course Requirements (Student's final grades will be based on the following):

- 1) Three Exams 70% (20%, 25%, 25%)
- 2) Math Quiz 5%
- 3) Homework Assignments 15% (5% each)
- 4) Attendance and Class Participation (graded with the clicker) 10%
- 5) Extra Credit (graded with the clicker) 5%

Exams

You are required to bring **a calculator** and a #2 lead pencil to exams. The calculator should be able to do square roots. However, the calculator should not be programmable with statistical formulas. To prepare for the exams you are strongly encouraged to attend class and do all of the readings. Exam questions will be based on class material and readings, even if material in the readings was not covered in class. Cell phones and the like may not be used or turned on during exams.

I understand that sometimes, because of special circumstances, you do not perform as well on an exam as you normally do. If this happens, come talk with me **immediately** to discuss the situation—do not wait until the semester has almost ended. If, for any reason (e.g., illness), you expect that you might not be able to make it to an exam, you must contact me *before the exam*. Failure to do so will result in a zero grade for that exam. Medical absences for an exam will require an independent doctor's note (not a family member) explaining that you were too ill to attend the exam. Students may take the exam early if prior arrangements have been made. Students may not take the exam after the exam date. Students caught cheating on an exam will be dealt with following UB's policy on academic integrity (available at: <http://academicintegrity.buffalo.edu/>).

Homework

There are three homework assignments taken from your workbook that should have been purchased with your textbook. Students caught cheating on homework assignments will be dealt with following UB's policy on academic integrity (available at: <http://academicintegrity.buffalo.edu/>).

Late homework assignments will not be accepted (however, you may turn in early assignments to my office (Park Hall 513)). Failure to turn in an assignment will result in a grade of zero. That, means, by not turning in a homework assignment, you automatically reduce your class grade by 5%. Answers to the homework assignments will be posted on UB learns after the assignments have been graded and returned.

Attendance, Quizzes, and Class Participation

The study of statistics requires diligent work. To facilitate class attendance and participation, I will be using the standard University at Buffalo "clicker" during lectures. Students are required to bring their functioning clicker (please check batteries before coming to class) to each class session (including exams).

Attendance and Class Participation will be graded using these clickers. Your clicker will be registered in your name (please do so on UB learns) so they cannot be shared or exchanged. Every week, there will be at least one clicker session. Students who attend and use their clickers to answer *each* of the questions posed in class will receive full credit for attendance and participation. Students who do not employ their clickers on all questions (by venue of absence, lost clicker, malfunctioning clicker, etc.) will receive a zero on that session. However, two of your clicker sessions will be dropped from this portion of your grade. These two dropped sessions may be used to cover absences, clicker problems, or poor-performance. Employing another student's clicker (or having someone else use your clicker) will be considered to be cheating and will be addressed following the University at Buffalo guidelines.

Many clicker sessions will also include graded exercises based on the class readings for that week (at least one session per week). Students who correctly answer questions will be given extra credit. The total amount of extra credit will add up to 5% of the total class grade.

Make-up Policy

There are no make-up exams in this class. In a situation of medical emergency, either you or someone on your behalf must inform me of the situation *before* the exam. Your return to class must be accompanied by a letter from the doctor or nurse who provided treatment.

Homework assignments may be turned in *early* at my office (Park Hall 513). Late homework assignments will not be accepted. As with exams, there are no make-ups for missed homework assignments.

If you are one of those students to whom “unfortunate” events always seem to occur and have difficulty with deadlines or showing up for examinations, you are strongly encouraged to select another class.

Classroom Etiquette and Attendance

Please be on time to class, you are free to bring coffee, sodas, etc. but please limit food. The classroom policy is to respect and be considerate to all members of the class. You are expected to attend class regularly and take notes. A large segment of the exams is taken from lecture. I will use material for lecture that is not covered in the readings. If you miss class, it is your responsibility to get the lecture notes from a classmate. I will not, under any circumstances, give my lecture notes to students.

Other Issues

If you have any disabilities or language difficulties that might affect your participation in the class, please let me know at the *during the first two weeks* of the course.

Anyone having difficulties in the course should see me during office hours or after class. The earlier we talk about potential problems, the better we can handle them.

COURSE SCHEDULE

Section I: Univariate Analyses

Week 1: Introduction and Math Review

Before class, please sign up for the course and register your clicker on UB learns.

Tues., 1/13: Introduction

Thurs., 1/15: Math Review

Week 2: Statistics and Variables

Read the entire clicker tutorial available at:

<http://ubit.buffalo.edu/ubclicks/students/index.php>

Tues., 1/20: Math Review and Clicker Introduction

Thurs., 1/22: Math Quiz and Chapter 1

Week 3: Frequency and Percentage Distribution

Tues., 1/27: Chapter.. 2

Thurs., 1/29: Chapter 2

Week 4: Averages & Measures of Variation

Tues, 2/3: Chapter 3

Thurs., 2/5: Chapter 3

Week 5: Measures of Variation

Tues., 2/10: Chapter 4

Thurs., 2/12: Chapter 4 and Review

Fri., 2/14: Homework assignment #1 due at Mr. Dettry's office. (Students should consider making copies of all homework assignments to help study for the exam.)

Week 6:

Mon., 2/16 Homework Answers posted on UB Learns.

Tues, 2/17: **No Class (Professor Benson will be at the International Studies Association Conference..)**

Thurs., 2/19: **FIRST EXAM**

Section II: Bivariate Analyses

Week 7: Cross Tabulation

Tues., 2/24: Chapter 5

Thurs., 2/26: Chapter 5

Week 8: The Chi-Square Test

Tues., 3/3: Chapter 6

Thurs., 3/5: Chapter 6

Week 9: 3/9-3/13-- Spring Break (No Class)**Week 10: The Chi-Square Test & Measures of Association, continued.**

Tues., 3/17: Chapter 7

Thurs., 3/19: Chapter 7

Week 11: Comparison of Means and T-test

Tues., 3/24: Chapter 8

Tues., 3/26: Chapter 8

Friday 3/27: Homework #2 due in Mr. Dettry's office. (Students should consider making copies of all homework assignments to help study for the exam.)

Week 12:

Monday 3/30: Homework answers posted on UB learns.

Tues., 3/31: Review of Section II

Thurs., 4/2: **SECOND EXAM**

Section III: Bivariate and Multivariate Analyses

Week 13: ANOVA & Regression & Correlation

Tues., 4/7: Chapter 9

Thurs., 4/9: Chapter 10

Week 14: , Multivariate Cross Tabulation

Tues., 4/14: Chapter 10 and Chapter 11

Thurs., 4/16: Chapter 11

Week 15:

Monday., 4/20: Homework #3 Due in Mr. Dettry's office

Tues., 4/21: Chapter 12 (Only limited parts of Chapter 12 will be on the exam)
Review

Wednesday 4/22: Homework answers posted on UB learns.

Thurs., 4/23: **THIRD EXAM****HAVE A GREAT SUMMER BREAK!**