

SOC 3630 – Statistical Analysis of Social Data
Spring 2011: CRN 33368, Section 002

Professor Michael D. Gillespie, Ph.D.
Blair Hall 2165: M/W/F: 11:00a–11:50a
Lab: 3013 Old Main; W: 2:00p–3:50p

Office: 3139 Blair Hall
Office Hours: 12:30p–1:30p M/W
12:00p–1:30p T
12:30p–3:00p F

Email: mgillespie@eiu.edu
Telephone: 581-7107

COURSE DESCRIPTION AND OBJECTIVES:

This course is designed to introduce students to the methods that sociologists, social workers, criminologists, and other social scientists use to summarize and analyze relationships in **numerical social data**. Social scientists study individual people through responses to surveys, census demographic indicators, and rates and counts of social behavior (e.g., crime, unemployment, and welfare data). We also use similar data to study aggregate units of analysis such as nations, states, counties, and cities.

This course is designed to help students learn how statistics can be *applied* to understand social phenomena relevant to the social sciences. Major topics include frequency distributions, graphical presentations of data, measures of central tendency, measures of dispersion and variation, cross-tabulation, statistical inference, and bivariate associations such as regression and correlation.

The specific course objectives include:

- Overcome students' anxieties and fears of working with numbers
- Improve students' critical thinking and problem solving skills
- Enhance students' computer skills through use of PASW/SPSS to manage and analyze data
- Develop students' competence in using graphs and charts to summarize quantitative information
- Develop students' competence in calculating basic descriptive and inferential statistics by hand and by computer
- Develop students' competence in interpreting basic descriptive and inferential statistics

By the completion of this course, you will:

- Be able to calculate the appropriate measures of central tendency and variation for variables in a data set
- Be able to analyze your own data using PASW/SPSS
- Be able to test hypotheses using the appropriate significance tests
- Be able to present research results in multiple ways (words, graphics, and tables)
- Be able to write about your results in an appropriate manner
- Be able to understand quantitative research conducted by other social researchers

REQUIRED TEXT:

Healey, Joseph F. 2009. *Statistics: A Tool for Social Research*. Belmont CA: Thompson Wadsworth.

"Statistics: Concepts and Applications" posted on the course Blackboard site

Additional Required Items:

1. A Scientific Calculator
2. Access to and use of PASW/SPSS
Campus public computing sites, such as the sociology computer lab and Booth Library computing facilities have PASW/SPSS for student use.
3. Access and knowledge of Blackboard is important for course announcements, lecture materials, lab and homework assignments, and grade feedback. Additional class materials, if available, will also be posted prior to each class session.

COURSE REQUIREMENTS: 550 TOTAL POINTS

Below is a list of the course assignments with total point values and due dates. Each item listed is required. A detailed assignment guide will be provided on Blackboard.

Graded Requirements:

Weekly Homework Lab Assignments (12 assignments, 15 points each, 180 total):
Each student will complete a series of homework assignments each week. The assignment will be posted on Blackboard each Monday and is due the following Monday **at the beginning of class**.

Midterm Exam (100 points):

The midterm exam will cover the first six chapters of the text and will be on Wednesday March 9, 2011 during the normal class period. The midterm exam will be in two parts: an in-class section of multiple-choice and short answer questions, and a take-home portion of statistical computations and analyses. The take-home portion will be due on Friday March 11, 2011 by noon, in person in my office.

Final Exam (150 points):

The final exam is Tuesday May 3, 2011 from 12:30pm to 2:30 pm. Because statistics is a cumulative process, the final exam is cumulative as well. The final exam will be in two parts: an in-class section of multiple-choice and short answer questions, and a take-home portion of statistical computations and analyses. The take-home portion will be due on Friday May 6, 2011 by noon in my office.

Analysis Paper (70 points):

Each student will complete an analysis of real data through the General Social Survey. A detailed guide for this paper will be provided separately after the midterm exam.

In-Class Concept Quizzes (10 quizzes, 5 points each, 50 total):

10 short-answer, unannounced concept and reading comprehension quizzes will be administered throughout the semester. You must be in class to take the quiz. If you miss a quiz, you are not able to make it up at another time. The quizzes focus on concepts from the reading assignment in the textbook and/or previous lecture topics. Each quiz is pass/fail meaning you get either all or none of the points, and will consist of no more than two questions at a time.

Additionally, there are multiple unannounced 'in-class' assignments that you must be in attendance to complete, typically worth 5 to 10 extra credit points.

NOTE: NO LATE ASSIGNMENTS WILL BE ACCEPTED. Every effort should be made to turn in assignments on time. If you know that you will be absent the day an assignment is due, you can email me prior to the start time of the class period and turn in your assignment at the next class meeting.

Based on the requirements, there are 550 points to be earned in this course. Final letter grades are based on the following scale:

A = 495-550 points B = 440-494 points C = 385-439 points
D = 330-384 points F = < 330 points

At any moment in the semester, you can gauge your progress in the course by tracking your grades on Blackboard. If you take the total amount of points you have earned and divide it by the total amount of points possible to that point, your calculation will be your percentage. I will attempt to keep your grades up to date on Blackboard.

Grading FAQ:

Question: *Do you grade on a 'curve'?*

Answer: No. I grade on absolute points; a grading curve is simply grade inflation.

Question: *Can I earn extra credit?*

Answer: Any opportunities for extra credit will be afforded to all students in the course and at the discretion of the instructor.

THE IMPORTANCE OF LABS:

Each week's lab session is provided for you to learn and practice using PASW/SPSS as well as time to begin working on your weekly homework assignment. The lab sessions are an open time where you can work on your homework or other relevant course material. Lab sessions are an important, dedicated time where you as a statistics student will have access to your professor, statistical software, and your peers in an effort contribute to your success in this course.

The first three labs and homework assignments will be done as individuals. On Monday January 31, you will be assigned a lab partner with whom you will work during lab sessions. You are expected to work with your partner, but you will submit your own individual assignment. The completed assignment you submit as an individual, including textbook and computer work, is expected to reflect your own individual effort, including all PASW/SPSS portions.

We will not use PASW/SPSS during lecture; this is the point of the lab sessions. It is up to you to practice using the program. You will have to use it for your weekly homework, as well as to complete the data analysis paper and for the final exam. Therefore it is in your best interest to keep up with the SPSS homework.

OTHER EXPECTATIONS:

Class Attendance, Participation, and Policies:

You will sign-in each class-period. Learning statistics is not like other courses you have taken in your major. Rote memorization and cramming the night before the exam will **NOT** work in this class. Each part of the course systematically builds on all the material preceding it, so missing any part will put you behind for the remainder of the course. Also, the more practice you have working problems the better. So attending class is very important to your success.

While attendance is not a part of the grade requirements for this course, if you have 6 or fewer absences from lecture *and* lab sessions in total, you will be eligible for Prof. G's rounding rule. The rounding rule means that if you are within 1.5 percentage points of the next grade level you will receive the next highest grade (i.e. you have a 78.5% after the final exam, and hence a C, you will earn a B). In essence, your attendance can only help your grade by being present to learn the course material and if you are within the rounding interval!

What is 'Class Participation'?

Class participation is analogous to class *engagement*. Engagement in this course is exercised through your continued productive contribution to the course – reading assignments are completed, assignments are finished and submitted on time, and you come to class ready to be engaged. Engagement in the course is both critical to your personal success and the success of the group.

If you are going to be absent from a class session and have a legitimate reason for missing class (emergency, illness, death, etc.), please *contact me by email or telephone prior to the start of class*. It is your responsibility to be accountable for your attendance and engagement in the class.

General Classroom Policy:

In all of my classes, I strive to provide a positive and productive learning environment for students. It is important that we all act in a respectful manner toward each other and do not disturb the class. I ask your cooperation in observing the following rules:

- Arrive on time.
- Do not come and go during the class period. This is disrespectful and disruptive for me and your fellow students. If you must go to the restroom, do so quietly, causing as little disruption as possible.
- Observe the cell phone and lap top policy at all times (see below).
- Do not carry on side conversations with your neighbors.

Cell Phone and Computer Policy:

If you bring your cell phone to class, please show respect for me and the other members of the class by either turning it off or setting it so that it does not make any noise. It is unacceptable to make or receive calls, or to text message while in the classroom. You will be asked to leave if you are using a cell phone while in class; this includes text messaging.

Should you be an EMT, police officer, or other professional "on call," please set your phone to vibrate during class, and quietly leave the classroom to return any

calls received. Failure to abide by this policy will result in your dismissal from the classroom.

I do not allow use of personal computers in class. If you do bring your PC to lecture, you will be required to put it away or to leave the classroom. If you must use a computer for academic purposes, you must bring appropriate documentation from the office of student services.

Academic Integrity:

ALL STUDENTS ARE EXPECTED TO COMPLETE THEIR OWN INDEPENDENT WORK. While students are encouraged to study in groups, their completed assignments are expected to be the independent work of the individual student.

You are responsible for making yourself aware of and understanding the provisions of the University's Student Conduct Code, available online at: www.eiu.edu/~judicial.

These policies include cheating, fabrication, falsification and forgery, multiple submissions, plagiarism, complicity to such acts, computer misuse, and classroom disruptions. Any breach of academic integrity will result in a failing grade. If there is reason to believe you have been involved in academic misconduct, you will be referred to the Director of Student Standards for appropriate actions.

You are responsible for your work, the quality of your work, and the validity of your work. Any violation of academic integrity is serious and, if founded, will result in a zero for the assignment.

Ignorance is not an excuse and will not prevent a failing grade.

Help with course material:

Office hours are provided for students to seek guidance and help with course content. Office hours are provided for the sole purpose of helping students and should be taken advantage of as needed.

SURVIVING STATISTICS

Lastly, Statistics is not a subject that is learned without practice *and* help. Do not be afraid to ask for help or come see me in my office. **I am more than willing to go the extra mile, but only if you are, too.**

The best rules to live by in this course are:

- 1. Understand that you are going to work hard in this course and should expect to put in plenty of work time outside of the classroom.**
- 2. Do the work – it is worth it.**
- 3. Ask for help.**

IMPORTANT INFORMATION:

Disabilities Statement:

Students with documented disabilities are encouraged to contact the Office of Disability Services (581-6583) if they wish to discuss any necessary academic accommodations.

Medical Emergency Statement:

For medical emergencies, go to the nearest phone and call 911. All faculty offices have telephones and during normal business hours (8-12 and 1-4:30), the Sociology Office (Blair 3170) is open.

Be sure to state the floor and room number of the emergency to the 911 operator. If possible, someone should go to the central entrance of Blair Hall to direct EMS personnel to the medical emergency scene. If the medical emergency is on the second or third floor, someone else should hold the elevator on the first floor for EMS use.

Tornado Statement:

In case of a tornado warning, proceed to the center of the hallway on the first floor, near the posted severe weather signs. Under no circumstances should you attempt to leave the building.

Building Fire Statement:

In case of fire, activate the fire alarm and exit the building. When a fire alarm sounds, everyone must exit the building and cannot re-enter the building until allowed by the building coordinator or fire department official. Fire alarms are located at the north and south ends of the corridors just inside the fire doors.

The closest exits for all classrooms in Blair are on the north and south ends of the building. Under no circumstance should the elevator be used. Group assembly areas for all classes in Blair are either on the patio area between Blair and Old Main or on the southeast corner of the North Quad. As you exit the building, continue moving well away from the exits so that you do not impede the progress of other students or the work of fire officials. Move a safe distance away from the building.

DISCLAIMER

The course content and this syllabus are subject to change at any time to allow for a flexible and open learning environment.

TENTATIVE COURSE SCHEDULE

Week 1 (10-Jan-2011): Introduction and Descriptive Statistics

Readings 10-Jan: Course Introduction
12-Jan: Healey: Chapter 1
14-Jan: Healey: Chapter 2
Lab: #1 - SPSS Intro; Levels of Measurement; Descriptive Statistics

Week 2 (17-Jan-2011): Descriptive Statistics

Readings 17-Jan: **No Class – MLK Day**
19-Jan: Healey: Chapter 2
21-Jan: Healey: Chapter 2
Lab: Continue Lab Assignment #1

Week 3 (24-Jan-2011): Measures of Central Tendency

Readings: 24-Jan: Healey: Chapter 3
26-Jan: Healey: Chapter 3
28-Jan: Healey: Chapter 3
Lab: #2 – Measures of Central Tendency

Week 4 (31-Jan-2011): Measures of Dispersion

Readings: 31-Jan: Healey: Chapter 4
02-Feb: Healey: Chapter 4
04-Feb: Healey: Chapter 4
Lab: #3 – Measures of Dispersion

Week 5 (07-Feb-2011): The Normal Curve

Readings: 07-Feb: Healey: Chapter 5
09-Feb: Healey: Chapter 5
11-Feb: **No Class – Lincoln's Birthday**
Lab: #4 – First with Lab Partners – The Normal Curve

Week 6 (14-Feb-2011): The Normal Curve, part 2; Introduction to Sampling

Readings: 14-Feb: Healey: Chapter 5
16-Feb: Healey: Chapter 5
18-Feb: Healey: Chapter 6
Lab: #5 – The Normal Curve and Sampling Distributions

Week 7 (21-Feb-2011): Sampling and the Sampling Distribution

Readings: 21-Feb: Healey: Chapter 6
23-Feb: Healey: Chapter 6
25-Feb: Healey: Chapter 6
Lab: #6 – The Sampling Distribution

Week 8 (28-Feb-2011): Sampling and Estimation Procedures

Readings: 28-Feb: Healey: Chapter 7
02-Mar: Healey: Chapter 7
04-Mar: Healey: Chapter 7
Lab: #7 – Confidence Intervals (Due 21-Mar-2010)

Week 9 (07-Mar-2011): MIDTERM EXAM

07-Mar Review

09-Mar Exam

11-Mar Take-Home Portion Due by Noon in Prof. G's Office (**no class**)

Lab: No Lab Session

Week 10 (14-Mar-2011): SPRING BREAK

Week 11 (21-Mar-2011): Introduction to Hypothesis Testing

Readings: 21-Mar Healey: Chapter 8

23-Mar Healey: Chapter 8

25-Mar **No Class – MSS Conference**

Lab: #8 – *The Null Hypothesis of NO DIFFERENCE!*

Week 12 (28-Mar-2011): Hypothesis Testing Continued

Readings: 28-Mar Healey: Chapter 8

30-Mar Healey: Chapter 9

01-Apr Healey: Chapter 9

Lab: #9 – *Z-Obtained for the One- and Two- Sample Case*

Week 13 (4-Apr-2011): Hypothesis Testing, once again!

Readings: 04-Apr Healey: Chapter 10

06-Apr Healey: Chapter 10

08-Apr Healey: Chapter 10

Lab: #10 – ANOVA

Week 14 (11-Apr-2011): Bivariate Association

Readings 11-Apr Healey: Chapter 11

Readings 13-Apr Healey: Chapter 11

15-Apr Healey: Chapter 12

Lab: #11 – *Chi-Square*

Week 15 (18-Apr-2011): Bivariate Association Continued

Readings 18-Apr Healey: Chapter 13

20-Apr Healey: Chapter 14

22-Apr Healey: Chapter 14

Lab: #12 – *Bivariate Association*

Week 16 (25-Apr-2011): Bivariate Association Continued

Readings 25-Apr Healey: Chapter 15

27-Apr Healey: Chapter 15

29-Apr Healey: Chapter 15

Lab: Exam Review Time

Week 17 (03-May-2011): Final Exam: TUESDAY MAY 3, 2011: 12:30PM TO 2:30PM