22S:002   STATISTICS AND SOCIETY   Fall 2007

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Office Hours: 5:30-7:00 PM Mondays and Wednesdays

Recommended Text: *Statistical Reasoning for everyday life*, 2nd edition   by Bennett, Briggs, and Triola

Course Specific Information

Overview

In this course we will attempt to assess basic statistical evidence. The goal in statistics is to be able to reach conclusions when there is uncertainty. Some of the examples we might consider are:
- Do vaccines cause autism?
- How can we tell if there is global warming?
- When does it pay to play the lottery?
- How can we tell when we should recall a specific product?
- Which test should I take, the ACT or the SAT?

In each of these cases, there is uncertainty over the correct action, and we want to be able to take the appropriate action, based on objective evidence. To that end, we will discuss how data is collected, which ways are good and which ways are bad. We will look at some basic summaries of data that people use to describe the way things are, and how these are interpreted. Finally, we look at the way data is used to reach decisions about how things are related. At the end of this course, you should be able to look at a summary of issues where the evidence is statistical in nature, be able to understand what is being said, and to critique the value of the study in question.

This course satisfies the university's general education requirement in quantitative and formal reasoning. As such, we will spend a great deal of time on the reasoning used in statistics. The level of mathematics required is quite low, and for the most part it only occasionally requires simple arithmetic. There are some cases where some facility with very simple algebra is useful. No formulas need to be memorized.

Class Notes

Each day, an edited version of the lecture's slides are available to you on the ICON system. You are responsible for downloading the notes before class and bringing them with you. I will fill in the gaps as we go through each topic. Note that the font size is quite large (since you need to be able to see them in the lecture). You can print them as is, or reduce the font size and print them after doing so.

Course Grades

Grades are based on the three tests, quizzes and a homework grade. Homework is passed out on each Thursday and is due the following Thursday in discussion, with the exception of weeks when there is an exam. No late homework will be accepted, no exceptions. Quizzes are given in discussion section, either on Tuesday, Thursday, or both days. They are unannounced. These will consist of a single problem covering material from that day. To account for absences, the lowest 3 quiz grades will be dropped.

Grades will be calculated as

Homework	15%
Quizzes	20%
Exams 1 and 2	20% each
Final exam	25%

For the final grade, there will be no curve, 90% or higher is an A, 80%-90% is a B, etc.

Exams are multiple-choice, and will be in the lecture room, unless otherwise specified. Each exam will cover all material in the weeks up to the exam date, with the exception of the final exam, which is cumulative. For each exam, you will be allowed one 8 ½ by11 sheet of paper on which anything may be written.

Course Schedule

The table below gives the topics we cover each week. We are following the textbook order, so the sections listed refer to the text. I do not require the text, but there is typically a good discussion of the topic we are covering, as well as some extra examples. Make sure you know the dates of the tests.

Week of	Topic	Readings
August 27	Populations and Samples	Sections 1.1 and 1.2
September 3	Samples and Types of Studies	Section 1.2 and 1.3
September 10	Studies – good and bad and properties of measures	Section 1.4 and 2.2
September 17	Percentage changes and the CPI	Sections 2.3 and 2.4
September 24	Data summaries –location and shape	Sections 4.1 and 4.2
Exam 1 is Monday, October 1		
October 1	Measuring spread	Sections 4.3
October 8	Normal probabilities	Sections 5.1 and 5.2
October 15	CLT and Definition of probability	Sections 5.3 and 6.1
October 22	Expected value and the rules of probability	Sections 6.2 and 6.3
October 29	Correlation	Section 7.1
Exam 2 is Monday, November 5		
November 5	Cause and effect with correlation and regression	Sections 7.2, 7.3 and 7.4
November 12	Sampling distributions and confidence intervals	Sections 8.1 and 8.2
November 19	**Thanksgiving Holidays**	
November 26	Confidence Intervals and hypothesis testing	Sections 8.3 and 9.1
December 3	Hypothesis testing and contingency tables	Sections 9.2 and 10.2
December 10	Contingency tables and Simpson's paradox	Sections 10.1 and 10.3
December 17	**Final Exam is Thursday, December 20 at 12:00**	

Generic Information

Statistics Lab

There is a statistics tutorial lab in rooms 202 CC. Hours are still being finalized and will be announced. At these times, at least one of the TA's from this class will be in the lab and will be available to assist you. These are in addition to the regularly scheduled office hours for your TA.

There is also a list of tutors available on the Statistics and Actuarial Science Department website: http://www.stat.uiowa.edu/courses/tutors.html

Special Needs
I would like to hear from any student who has special needs that might require a specific need as far as modification of the lecture room, alternative arrangements for testing or any other specific accommodation. Please contact me as soon as possible so that we can arrange to meet your needs.

The College of Liberal Arts and Sciences Policy and Procedures

Academic Fraud
Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and then to the Associate Dean for Academic Programs and Services in the College of Liberal Arts and Sciences.
www.clas.uiowa.edu/students/academic_handbook/ix.shtml

Making a Suggestion or a Complaint
Students have the right to make suggestions or complaints and should first visit with the instructor, then with the course supervisor if appropriate, and next with the departmental DEO. All complaints must be made within six months of the incident. www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5

Accommodations for Disabilities
A student seeking academic accommodations first must register with Student Disability Services and then meet with a SDS counselor who determines eligibility for services. A student approved for accommodations should meet privately with the course instructor to arrange particular accommodations. www.uiowa.edu/~sds/

Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit www.sexualharassment.uiowa.edu/ for definitions, assistance, and the full policy.

Administrative Home of the Course
The administrative home of this course is the College of Liberal Arts and Sciences, which governs academic matters relating to the course such as the add / drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various CLAS requirements. Please keep in mind that different colleges might have different policies. If you have questions about these or other CLAS policies, visit your academic advisor or 120 Schaeffer Hall and speak with the staff. The CLAS Academic Handbook is another useful source of information on CLAS academic policy:
www.clas.uiowa.edu/students/academic_handbook/index.shtml

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