SOCY2200/SOCY7702: STATISTICS

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Class time and location: MW 3-4:15, Campion 300
Course website: http://www.sarkisian.net/socy2200/

Course Description

This is a basic course intended to introduce you to statistics. Various uses of statistics surround you – in newspapers, on television, on the Internet. These media use statistics in discussing topics such as women's roles in the workplace and the family, homelessness and poverty, racial inequality and violence. And you have most likely seen multiple uses of statistics in the other classes you've taken. So frequently you are bombarded with numbers and percentages without any means to understand where they come from and what exactly they mean. In this course, you will learn how information about the world can be presented with statistics, both in useful and misleading ways.

"Data don't make any sense,
we will have to resort to statistics."

Moreover, statistics are increasingly used in a range of careers as the volume of available data is increasing dramatically – in fact, it is forecasted that the number of jobs in statistics will grow 27% between 2012 and 2022 (although it was statisticians who came up with that statistic – and we have yet to decide whether we can trust them ☺).

The course assumes no background in statistics. Many students have concerns about a course like this one, which involves math and statistical analyses. Some students feel comfortable with their math skills, but many of you may have had difficulties in math courses, or feel like it's been a long time since your last math class, or simply believe that you are not "good" at math and statistics. Please set those fears aside! You don't need any prior knowledge of statistics or elaborate math skills to succeed in this class. Math, statistics and computers are tools, and if you keep an open mind and learn to use them in the right way, you'll have no trouble mastering them.

Required Materials

1. Three required texts will be available at the bookstore; they will be also placed on reserve at the library:
- *Statistics for People Who (Think They) Hate Statistics. 6th edition. By Neil J. Salkind. Sage Publications, 2016.*
- *Naked Statistics. By Charles Wheelan. W.W. Norton & Company, 2014.*
- *Using Stata for Quantitative Analysis, 2nd edition. By Kyle C. Longest. Sage Publications, 2014.*

2. Calculator – just a basic one, don't need anything fancy. But you cannot use your cellphone or laptop.
3. Laptop computer – please bring it to every class meeting (unless I explicitly tell you not to) but ONLY use it in class when explicitly instructed to do so.

Course Requirements and Grading

1. Class Participation. You will be expected to attend classes and fully participate in class work and discussions. Your attendance is crucial, as each class builds upon the previous class session. Further, actual participation in class work is a very important part of your learning experience in this course, so please come prepared to do the work, ask questions, and fully engage with the course. Participation and attendance will count as 10% of your grade.

2. Pop quizzes. It is also very important to do the reading so that you are prepared to do exercises and participate in activities in class. Therefore, throughout the semester, there will be six unannounced quizzes on the readings; each will be worth 2% of your grade. You can miss one of the quizzes or drop the lowest grade if you did all of them. Combined, the quizzes will be worth 10% of your grade.

3. Assignments. On the dates when assignments are due, you are expected to submit your assignments to me in the beginning of the class. You will probably write up some portions by hand -- they should be legible! Assignments are each worth 3% of your grade (30% total).

4. Exams. There will be two in-class exams; these exams will cover both the readings and in-class material, and include multiple choice and short answer questions as well as a Stata component. The make-up exams will be scheduled only if you make arrangements with me prior to the exam AND if you can document the reason for your absence. Each exam will be worth 25% of your grade (50% total).

Course Policies

Communication: The course is based on an interactive relationship between the instructor and students, as well as on collaboration among the students. You are strongly encouraged to ask questions in class, and to come and see me or the TA with any additional questions. It can really help you do better in class! Email is the best way to quickly get in touch with me outside of the classroom – I check my email very often. Email is the best way to get a quick question answered or to set up an appointment to discuss something at length. Please make sure to check your BC email regularly as I will send announcements by email from time to time.

Coursework: Throughout the course, you are expected to do all your coursework on time. Ordinarily, no late assignments will be accepted. Unless you have a valid (and documented) excuse, I will not administer make-up exams and will not give credit for late assignments. Travel plans are not an acceptable excuse for a missed exam; no make-up exams will be provided for this reason. Please keep a copy of all of your work

throughout the semester--retain all of the work that is returned to you (homework, exams) until after you have received your final course grade.

Feedback: I would like to know how I could make this course experience as useful and interesting as possible. Therefore, in the end of each class, I will ask you to submit a sheet of paper with your name, the date, and at least one sentence of reaction to that class meeting, indicating what you learned, or something you liked or did not like, found interesting or controversial, found clear or too simplistic, or found confusing and in need of further (or better) explanation. You may also submit comments on the course in general. Please be honest in your comments – if something is unclear or doesn't work for you, I really do want to know about that and will not penalize you in any way!

Electronic Devices: As we will be learning to use a statistical package, Stata, to do data analyses, you will have to bring your laptops to class. But you are not allowed to use your laptops or any other electronic devices (except for the calculator) when not explicitly instructed to do so. I will announce when you should open and use your laptop. I will also announce if you do NOT need to bring a laptop to the following class. Please turn off your electronic devices when coming to class so that they do not make any distracting noises.

Academic Integrity: It is your obligation to be fully aware of the Boston College policies on academic honesty. ANY violation may subject the offender to severe penalty, including course failure. If you are not familiar with the Boston College policy on academic honesty, see:
http://www.bc.edu/offices/stserv/academic/integrity.html

Disability Accommodation: If you are a student with a documented disability seeking reasonable accommodations in this course, please contact Kathy Duggan, (617) 552-8093, dugganka@bc.edu, at the Connors Family Learning Center regarding learning disabilities and ADHD, or Paulette Durrett, (617) 552-3470, paulette.durrett@bc.edu, in the Disability Services Office regarding all other types of disabilities, including temporary disabilities. Advance notice and appropriate documentation are required for accommodations.

Tentative Course Outline (subject to change!)

Date	Topics	Readings	Assignments
August 28	Overview of the course		
August 30	Introduction to Statistics		
September 4	No class: Labor Day		
September 6	Data Description: Averages and Variability	Salkind Ch. 1-3	
September 11	Data Description: Graphs	Wheelan Ch. 1-3, Salkind Ch. 4	
September 13	Introduction to Stata	Longest Ch. 1-2	
September 18	Data Description in Stata	Longest Ch. 4	
September 20	Data Management in Stata	Longest Ch. 3	Assignment 1 (Description)
September 25	Introduction to Inferential Statistics	Salkind Ch.8	
September 27	Sampling Distributions		Assignment 2 (Stata)
October 2	Central Limit Theorem	Wheelan Ch. 8	
October 4	Confidence Intervals		Assignment 3 (Normal curve)
October 9	No class: Columbus Day		
October 11	Error Bars	Wheelan Ch. 9	
October 16	Margin of Error in Polls	Wheelan Ch. 10	Assignment 4 (Confidence intervals)
October 18	Review session		
October 23	Midterm		In-class exam
October 25	Introduction to Hypothesis Testing	Salkind Ch.7	
October 30	Introduction to Hypothesis Testing	Salkind Ch. 9	
November 1	Hypothesis Testing for Single Means	Salkind Ch. 10	
November 6	Hypothesis Testing for Mean Differences: Independent Samples	Salkind Ch. 11	Assignment 5 (Single means)
November 8	Hypothesis Testing for Mean Differences: Paired Samples	Salkind Ch.12, Longest Ch. 6	
November 13	ANOVA	Salkind Ch.13	Assignment 6 (Mean differences)
November 15	ANOVA		
November 20	Correlation	Salkind Ch. 5, 15, Wheelan Ch. 4	Assignment 7 (ANOVA)
November 22	No class: Thanksgiving break		
November 27	Regression	Salkind Ch.16, Wheelan Ch. 11, 12	
November 29	Regression	Longest Ch. 7	Assignment 8 (Correlation)
December 4	Chi-Square Test	Salkind Ch.17, Longest Ch. 5	Proposal/draft is due (by email) for SOCY7702 students

December 6	Overview of Statistical Testing		Assignment 9/10 (Regression & Chi-square)
December 11	Review session		
December 16	Final Exam at 12:30pm		Final exam
December 19	No class		Final paper due for SOCY7702 students

Addendum for SOCY7702 students:

For graduate students taking this course as SOCY7702, there will be one additional assignment – final paper based on statistical analysis. The proposal and data management draft will be due on December 4 (by 11:59pm) by email. The final paper will be due on December 19 (by 5 pm) by email.

The proposal/draft will be worth 5% of your grade, and the final paper will be 15% of your grade. Therefore, for graduate students taking SOCY7702, the two exams (the midterm and the final) will be only worth 15% of the grade each.

For this paper, students will use recent GSS data to conduct their own analysis (dataset will be available on the course website). They will devise a research question that can be answered using 4-6 variables available in the dataset. This research question should be either about group differences or about relationships among variables. Students will then do the data management to prepare the data for analysis, and then conduct the analysis and write up their findings. More detailed instructions for the assignment is provided on the Assignments page.