SOCY2200/SOCY7702: STATISTICS

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Class time and location: TuTh 3-4:15, Gasson 306
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 involving 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. One required textbook will be available at the bookstore; it 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.*

A few additional readings (marked e-reserve in the syllabus) will be accessible on course reserves page: https://library.bc.edu/courses/

2. Calculator – just a basic one, don't need anything fancy. But you cannot use your cellphone or laptop, especially during exams.

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.

Recommended Materials

One recommended book will also be available both at the bookstore and on reserve at the library; this book will be particularly useful for those who are anxious about learning statistical software:

- *Using Stata for Quantitative Analysis, 2nd edition. By Kyle C. Longest. Sage Publications, 2014.*

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 and answer questions, and fully engage with the course. Participation and attendance will count as 10% of your grade.

2. 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).

3. 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 30% of your grade (60% 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 your feedback on that class meeting, indicating what you learned, what could have been done more effectively, and whether you have any questions or concerns or need 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! Make sure to submit your feedback every time you are in class – your feedback entries will be one of the things that will count towards your attendance/participation grade.

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. And you will need to use either your laptop or another electronic device to answer questions during class and submit feedback in the end. 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 the sound on 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.

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 November 27 (by 11:59pm) by email. The final paper will be due on December 19 (by 11:59pm) 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 20% 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 will be provided as the course progresses.

Tentative Course Outline (subject to change!)

Date	Topics	Readings	Assignments
August 28	Overview of the Course		
August 30	Introduction to Statistics		
September 4	Data Description: Averages	Salkind Ch. 1-2	
September 6	Data Description: Variability	Salkind Ch. 3	
September 11	Introduction to Stata	Chapters 2 & 3 from: Using Stata for Quantitative Analysis, 2nd edition, by Kyle C. Longest. (e-reserve)	
September 13	Data Description in Stata		Assignment 1 (Description)
September 18	Data Description: Graphs	Salkind Ch. 4	
September 20	Introduction to Inferential Statistics		
September 25	Sampling Distributions	Salkind Ch.8	
September 27	Central Limit Theorem	Chapter 8 from: Naked Statistics, by Charles Wheelan. (e-reserve)	Assignment 2 (Stata)
October 2	Confidence Intervals	Chapter 9 from: Naked Statistics, by Charles Wheelan. (e-reserve)	
October 4	Error Bars & Margin of Error		Assignment 3 (Normal curve)
October 9	No class: Fall Break		
October 11	Understanding Polls	Chapter 10 from: Naked Statistics, by Charles Wheelan. (e-reserve)	Assignment 4 (Confidence intervals)
October 16	Review session		
October 18	Midterm		In-class exam
October 23	Introduction to Hypothesis Testing	Salkind Ch. 7	
October 25	Statistical Significance	Salkind Ch. 9	
October 30	Hypothesis Testing for Single Means	Salkind Ch. 10	
November 1	Hypothesis Testing for Mean Differences: Independent and Paired Samples	Salkind Ch.11, 12	Assignment 5 (Single means)
November 6	ANOVA	Salkind Ch.13	
November 8	ANOVA (continued)		Assignment 6 (Mean differences)
November 13	Correlation	Salkind Ch. 5	

November 15	Correlation (continued)	Salkind Ch. 15	Assignment 7 (ANOVA)
November 20	Regression	Salkind Ch.16	Assignment 8 (Correlation)
November 22	No class: Thanksgiving break		
November 27	Regression (continued)		Proposal & data management draft is due for SOCY7702 students
November 29	Chi-Square Test	Salkind Ch.17	Assignment 9 (Regression)
December 4	Chi-Square Test (continued)		
December 6	Overview of Statistical Testing		Assignment 10 (Chi-square)
December 11	Review session		
December 17	Final Exam at 12:30pm		Final exam
December 19	No class		Final paper due for SOCY7702 students