SOC 812 Analytic Methods in Sociology

Fall 2022, Class# 19467
Monday 2:00-4:50, Fraser 730

Instructor:
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Office Hours W 1:00–3:00 or by Appointment

Course Objectives: This course introduces you to basic statistics concepts and data analysis techniques which sociologists and other social scientists use to summarize and analyze numeric data obtained from censuses, surveys, and experiments. The topics include descriptive statistics, probability distributions, central limit theorem, statistical inferences, hypothesis test, multiple regression, and models for categorical variables. This course necessitates knowledge of basic mathematical operations (addition and subtraction, multiplication and division, squares and squares roots, and log transformation/exponentiation) as well as understanding of basic rules of algebra.

Textbook: There are a required textbook, a supplementary textbook, and additional readings.

- Main Textbook:
  Agresti, Alan and Barbara Finlay. 2017. *Statistical Methods for the Social Science*, 5th Edition. Prentice Hall. (4th or 3rd edition is fine)
- Supplementary Textbook:
  Alan C. Acock. 2018. *A Gentle Introduction to Stata, 6th Edition*. Stata Corp.

Course Website: http://people.ku.edu/~chkim/soc812/
(An ID and a password [they are different from your KU-ID] are required to open the restricted materials on the course website. Contact the instructor to acquire them.)

Other Requirements:
(1) Calculator with a square root, natural log, and exponential function keys.
(2) Access to the Canvas. Grades will be posted on the Canvas.
(3) Access to a computer equipped with Stata. If you are already familiar with other statistical packages and will continue to use the other program, that is perfectly fine. In class, I will discuss only Stata (and R if necessary). There are several ways to access to Stata: ① two computers in Fraser 754 is equipped with Stata; ② you can assess to Stata at Summerfield Hall 413; or ③ you can order your own perpetual/annual/six-month licensed Stata program. Check https://technology.ku.edu/software/stata#top.

Exams: There will be a quiz every week (total 300 points) and a final exam (150 points). The total number of quizzes will be 11, but the lowest quiz score will be dropped for the final grade. The final exam will be cumulative in its content. It will be based entirely on topics covered in lectures. The final exam will be taken on December 14th (T). All quizzes and the final exam are

"often-note-exams." You can consult your own note, lecture handouts, and textbook, but you cannot use a carbon copy of someone else's notes. Computers, tablets, cell-phones, or any other electronic devices are prohibited for the final exam. All students must take the final exam. I do not give any make-up exam/quizzes except for valid and documented medical, religious or very serious personal conflicts. Note that I do not discuss grades via email.

Homeworks: There will be 2 homework assignments and each homework assignment is worth 50 points. Assignments must be received in class no later than the dates indicated. Late assignments will lower the grade by 5 points for each day late. The maximum allowed late submission is one week (with a 25 point penalty). Students who miss assignments will not be able to make up the work.

Evaluation: A total of 550 points is possible for the course. Final course grades will be determined according to the following scale:

Item	Points	Total	Grade
Quizzes	300	495 - 550	A
Final Exam	150	440 - 494	B
Homework	100	385 - 439	C
		<= 384	F
Total	550		

Class Attendance: Those who miss classes three or more times for whatever reasons will get F. If you expect to be absent from the classes three or more times, drop this course.

Course Policies

Religious Holidays: While I have attempted to construct the course schedule around religious holidays, I may have overlooked some. If you are unable to attend a class due to a religious holiday, please let me know in advance, and we can make other arrangements.

Accommodations: I am available to discuss appropriate academic accommodations that you may require as a student with a disability. I will need documentation from the appropriate college office before making any changes. You will need to let me know as soon as possible, so that I can make arrangements.

Academic Dishonesty: I would like to believe that all students are in graduate school because of a passion for learning and that they take courses - even general education requirements - for their own enlightenment. While this may describe many students in the class, I also understand that sometimes students may be tempted to engage in plagiarism, cheating, etc. Academic dishonesty will not be tolerated. It is okay to discuss with your colleagues to do homeworks, but the mid-term take-home exam should be done independently.

Copy Rights: Lectures, class handouts, and web materials are belong to the lecturer. Any commercial use, dissemination, or publication without authorization is strictly prohibited.

Other Policies: Please note that the University of Kansas has many policies regarding how classes will be conducted and expected behaviors of students. Even though these may not be explicitly listed here, this class will be run in accordance with KU policies.

Tentative Course Schedule

- Week 1: Introduction to the Course and Descriptive Statistics
  - Chapters 1, 2, and 3
  - How to use Stata 1
- Week 2: Central Limit Theorem
  - Chapter 4
  - How to use Stata 2
- Week 3: September 5th, Labor Day: No Class
- Week 4: Statistical inferences and Tests of Significance
  - Chapters 5 and 6
- Week 5: Comparison of Two Groups
  - Chapter 7
- Week 6: Categorical Variables
  - Chapter 8
- Week 7: Simple Correlation and Simple Regression
  - Chapter 9
- Week 8: Oct 10, Fall Break
- Week 9: Multiple regression
  - Chapters 10 and 11
- Week 10: Statistical Inference for Multiple Regression
  - Chapter 11
- Week 11: Dummy Variable Regression
  - Chapter 12
- Week 12: Interaction Effects
  - Chapter 13
- Week 13: Transforming Data and the Interpretation of Regression Results
  - Chapters 14

- Week 14: Linear Model Diagnostics
  - Chapters 15
- Weeks 15 & 16: No class – Reading Weeks
- Final Exam: December 12th (Monday) 2:00 – 4:50 pm