Statistics 5301 Autumn 2022: Intermediate Data Analytics (I)

Instructor: Yuan Zhang (yzhanghf@stat.osu.edu)

Office hours: Tuesday 10am – noon (right after class) in my office Cockins Hall 229. I may remain in the classroom for a short period of time after class to answer questions.

Grader: Xiangni Peng (peng.773@osu.edu)

Grader tutoring hours: **To be updated**

- (To be updated)

Lectures: Tuesday and Thursday, 8–9:50am Cockins Hall 240. You may consider brining your calculator or other electronic devices for quick in-class exercises.

Facial masks are not required in classroom. However, please be considerate of others in this classroom. Please do consider wearing a facial mask especially if you develop symptoms of COVID-19.

Class materials: Lecture notes along with data sets (for your own practice of R coding) will be posted on Carmen.

Description: STAT 5301 is a first course in a two-semester pre-calculus sequence in data analysis covering exploratory data analysis, regression, design of experiments, probability, and one/two sample statistical inferences. This course satisfies the General Education (GE) requirement in Data Analysis.

Expected Learning Outcomes: Students understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas.

Prerequisites: Open to students with at most 5 credit hours in Statistics. The course is pre-calculus and designed for students with limited mathematics background.

Textbooks: The required text are the lecture notes that you can obtain for free on Carmen. The following textbooks are strongly recommended but not absolute requirements; although I will provide "recommended reading" at the end of my lecture notes that point to these textbooks. Homework assignments will be self-contained (not a must to buy the textbooks in order to see the homework question texts).

1. First half: *Introduction to the Practice of Statistics* (5th Edition onwards), by D. S. Moore and G. P. McCabe
2. Second half: *The Statistical Sleuth: A Course in Methods of Data Analysis*, 3rd Edition, by F. Ramsey and D. Schafer, 2012

Homework: Homeworks will be posted on the Carmen site. The **lowest two** homework score will be dropped. **No late homework accepted.** In view of the current pandemic situation, to better protect the health of you all and the TA, please submit all homework answers online through Carmen. No on-paper homework submission is accepted. You may type up or write-and-photo/scan your homework answers.

All homework assignments are due on Thursdays, at 7:59am (right before lecture starts). Please only submit answers to "graded" questions. However, ungraded questions (except R programming questions) may be equally important for exam preparation. Submit the problems in order, making sure that the computer output and discussion are placed together (do not put the computer output at the end of homework). Raw computer output is not acceptable. Make it clear what parts of the output are relevant and show how they answer the questions posed in the homework.

You are encouraged to work together and discuss homework questions, but your own answer must be written independently. Plagiarism is strictly prohibited.

To argue the grading of a homework, please contact the grader (see the "Grader" section for contact information). The grader grades your homework assignments, I do not. If you cannot reach agreement with the grader, talk to me.

R programming: Throughout this course we will intensively use the R programming language for illustrations and data analysis. We will introduce some basics of R along with the progresses of the course, and R programming may be required for some homework assignments. **Exams do not test on R programming.**

Exams:

- Midterm 1: Tuesday, September 20, in class
- Midterm 2: Thursday, November 3, in class
- Final: Tuesday, December 13, 8:00–9:45am, in the regular classroom

All exams are closed book except for cheat sheets (1 piece of double-sided US-letter size cheat sheet allowed for midterm 1; 2 pieces for midterm 2 and 3 pieces for final). Please remember to bring your calculator to all three exams. Cellphones, laptops and personal digital assistants are not allowed (calculator must be "just a calculator"). Exams are cumulative, but will focus on new contents since last exam.

Exams are on-paper. I will grade all exams. To argue an exam grading, talk to me no later than the next exam or the final grading deadline.

Alternative exam offering: **Midterm exams:** No alternative exam will be offered for midterms. Requests to skip any midterm exam must be accompanied by sound reason(s) and proof, and should such request be accepted, the corresponding weight of the skipped midterm exam will be dropped into the final exam. **Final exam:** If necessary, an alternative final exam will be offered on the next day of the regular final exam, that is, on Tuesday, December 11, at a time to be determined. No early final exam will be offered. **Acceptable reasons for exam excuses:** include: illness, family emergency, presenting at a conference, job interview. Remember to present relevant proof whenever applicable. You must bring up the request as soon as possible and **before the day of the exam you request to excuse**.

Grading: homework: 15%, midterm 1: 25%, midterm 2: 25%, final: 35%. Final grades **may possibly** be curved based on the overall performance of the class, but such curving may only fairly apply to the entire class, not individually.

Academic misconduct:

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/.

Disability statement:

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292- 0901; http://www.ods.ohio-state.edu/.