STA 6329, Fall 2020

Matrix Algebra and Statistical Computing

Course Instructor

Z. Su, 207 Griffin-Floyd Hall
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Office Hours: M, W: 10:30 – 11:30 AM, by Zoom meeting.

Teaching Assistant

Maoran Xu
email: maoranxu@ufl.edu
Office Hours: T: 11:00 am – 1:00 pm, by Zoom meeting.

Lectures

M, W, F: 9:35 – 10:25 AM.

Text

"Matrix Algebra From A Statistician's Perspective" by D. A. Harville.

"A First Course in Statistical Programming with R, 2nd Edition" by W. J. Braun and D. J. Murdoch.

"Advanced R" by H. Wickham. http://adv-r.had.co.nz/

Course Website

Canvas

Please check this site regularly. Most course documents and important information, including suggested homework exercises and readings, course schedule, practice session schedules, and special announcements, will be posted there.

Course Description

This course covers matrix algebra and R, the most popular computational language in statistics. It serves as a foundation for other statistics classes. Topics in matrix algebra include but not limited to basic operation in matrices, linear independence and rank, inverse and general inverse, idempotent matrix and projections, determinant, eigenvalue and eigenvectors, quadratic forms, matrix differentiation, Kronecker products. Topics in R include but not limited to basic operations, R graphics, computational linear algebra, simulation, parallel computing and development of R package.

Homework

There will be approximately eleven homeworks. Late homework without legitimate documented reason will not be accepted. If you cannot hand in your homework during the lecture, please talk to the Teaching Assistant. All homework must be readable. R codes should be included in computing problems. Working together in groups on homework is permitted, but each student must do his/her own write-up of the solutions in his/her own words. Directly copying is not acceptable. Answers to selected exercises can be found on the course website.

Reading Assignments

Due to the limited schedule and the broadness of the topics we need to cover, some of the topics appear in the reading assignments. You are fully responsible for all the reading assignments. Materials in reading assignments, including proofs, can appear in exams.

Grading

The homework scores will count for a total of 50%. Two in-class exams are tentatively scheduled on **October 23** and **December 7**, and they will count 25% each.

The usual 10 point scale (90% and above for an A, 87% – 90% for an A-, 83% – 87% for a B+, 80% for a B, ...) is used.

Attendance

The course is challenging and requires steady effort throughout the semester. I expect you to attend all lectures and hand in your assignments on time. You are responsible for making up for any missed lectures.

Incompletes

Grades of "I" will be given only in extraordinary circumstances, and then only by written agreement between the instructor and the student.

Academic Integrity

Please familiarize yourself with the Student Honor Code and Academic Honesty Guidelines outlined in your University of Florida Student Guide and at
http://www.dso.ufl.edu/studentguide/studentrights.php.

Disability access statement

This material is available in alternative formats upon request.

Virtual Class Statement

Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate verbally are agreeing to have their voices recorded.

If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared.

As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.