Optimization

Course Instructor

Z. Su, 207 Griffin-Floyd Hall (352-273-2993)
email: zhihuasu@stat.ufl.edu
Office Hours: M, W: 10:30 - 11:30 AM, by Zoom meeting.

Lectures

M, W, F: 11:45 AM - 12:35 PM.

Text

Numerical Optimization by J. Nocedal and S. J. Wright.

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

Homework

Homework is a required part of the course. There will be homework assignments throughout the semester, portions of which will be graded.

Grading

A grade of "B" requires satisfactory completion of the homework problems and reading assignments, along with regular attendance and participation in classroom discussion. A grade of "A" requires completion of a class project involving detailed study of some aspect of the course material. Projects, which must be approved in advance, should be underway by mid-November. Potential projects are, but not limited to,

- Design a new optimization method for a problem of some importance in application.
- Compare a few existing optimization methods on a problem of some importance in application.
- Review a new optimization method (its application, algorithm, convergence, etc).

You should expect to spend about 1/4 of your time on the project.

Exam

None planned at present. Some project presentations might be scheduled during finals week.

Incompletes

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

Computing

R will be the primary computing platform for this course.

Coverage

This course aims to build a foundation for numerical optimization at both algorithmic and theoretical levels, such that students are prepared to read literatures on optimization. The lectures are largely based on the textbook *Numerical Optimization*, and includes topics such as gradient descent, Newton method, quasi-Newton methods, conjugate gradient methods, least squares problems, nonlinear equations, constrained optimization, simplex methods, interior-point methods, etc.

Reasonable Accommodations

To request classroom accommodation, please be certain that you have made all necessary arrangements with the Dean of Students Office, and obtain from them documentation to submit to the instructor at the time of your request. A request must be made to the instructor at least one week in advance of the date for which the accommodation is requested. This course information and policies sheet can be made available in alternative formats to accommodate print-related disabilities. Contact the instructor for more information.

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/sccr/honorcode.php.

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.