

STAT 8060 – Statistical Computing I

University of Georgia – Fall 2021

Monday, Wednesday, Friday 10:20 – 11:10 am, Sanford Hall 0312

Instructor: Jialei Chen, Email: jialei.chen@uga.edu

Office hours: Wednesday 11:30 am to 12:00 noon or by appointment

Liang Liu, Email: lliu@uga.edu

Office hours: By appointment

TA: Subham Das, Email: subham.das@uga.edu

Office hours: TBD

Website: <https://sites.google.com/view/jialei/teaching>

Software: R / Python / MATLAB / Minitab

Catalog Course Description

A PhD-level course in Statistics with some flavor of Computational Science and Machine Learning, which covers a variety of topics including numerical linear algebra, Monte Carlo simulation, numerical differentiation / integration, and numerical optimization.

Grading policy

Homework	25%
Exam 1 (the week of 09/27)	20%
Exam 2 (the week of 11/15)	20%
Project Presentation	35%
Bonus points	up to 10%

Tentative Lectures Schedule

The topics covered and the dates they are to be covered are subject to change.

Week	Topics
08/18	Course overview + Introduction (WF)
08/23	Numerical Linear Algebra (<i>will be delivered by Prof. Liu</i>)
08/30	Numerical Linear Algebra (<i>will be delivered by Prof. Liu</i>)
09/06	Regression Analysis (WF)
09/13	Numerical Optimization
09/20	Numerical Optimization
09/27	Exam I
10/04	Numerical Optimization / Numerical Integration
10/11	Numerical Integration
10/18	Numerical Integration / Sampling and MCMC
10/25	Sampling and MCMC (MW)
11/01	Sampling and MCMC (WF)
11/08	Exam II
11/15	Advanced Topics
11/22	Thanksgiving – No class
11/29	Project Presentation
12/06	No class
12/13	No exam

Course policy

- I will use the *flipped classroom* strategy to teach this course, i.e., I record videos for 2 hours/week. You are asked to review the video ahead, and we will use the course meeting periods for Q&A.
- Attendance is NOT mandatory.
- There are approximately bi-weekly homework assignments. NO late submission is acceptable.
- You are encouraged to discuss homework problems with your fellow classmates. But your final answers should be based on your own understanding. Copying others' work is NOT acceptable and violates the University's academic honesty policy.
- Exams are comprehensive and take-home. Students are allowed to finish the exam in a 48-hour period. There is no exam in the final exam period.
- Requests for re-grading HW/exams should be made within a week of returning HW/exams.
- An important part of this course is the final project. You are asked to do a project related to the course material. If you choose to form a group of 2 students, we are expecting more work done. There will be a final presentation in the week of 11/29. Details will be provided later.

Academic Honesty

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty", and the Student Honor Code. All academic work must meet the standards contained in "A Culture of Honesty" found at <http://honesty.uga.edu>. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to me.

Pandemic Protocols

Please follow the COVID protocol from the university (<https://coronavirus.uga.edu>) and the state of Georgia (<https://georgia.gov/covid-19-coronavirus-georgia>).

Attendance is NOT mandatory. Most courses will be recorded and available at the course website.

Mental Health and Wellness Resources

If you or someone you know needs assistance, you are encouraged to contact Student Care and Outreach in the Division of Student Affairs at 706-542-7774 or visit <https://sco.uga.edu>. They will help you navigate any difficult circumstances you may be facing by connecting you with the appropriate resources or services.

UGA has several resources for a student seeking mental health services (<https://www.uhs.uga.edu/bewelluga/bewelluga>) or crisis support (<https://www.uhs.uga.edu/info/emergencies>).

If you need help managing stress anxiety, relationships, etc., please visit BeWellUGA (<https://www.uhs.uga.edu/bewelluga/bewelluga>) for a list of FREE workshops, classes, mentoring, and health coaching led by licensed clinicians and health educators in the University Health Center. Additional resources can be accessed through the UGA App.