Course	Numerical and statistical computing
Class number	Stat 4354.001
Professor	Sy Han (Steven) Chiou
Term	Fall 2022
Schedule	Tuesday, Thursday, 1:00 pm-2:15 pm

Professor's Contact Information

Office Phone	972.883.6362
Office Location	FO 2.610D
Email address	schiou@utdallas.edu
Office Hours	Tuesday, Thursday, 2:30 pm - 3:30 pm or by appointment. In-person or virtual office hours are both welcome.

Course Modality and Expectations

Instructional mode	Traditional (in person).
Course website	All course related materials, including lecture notes, will be posted on eLearning.
Expectations	Students should attend the lectures, take notes, and complete all assignments at the designated time. Students are not allowed to collaborate with classmates or people outside of this class (including on-line forum) on assignments.
Asynchronous learning guidelines	Does not apply.
Required Text	*Statistical Computing with* `R`, second edition by Maria L. Rizzo. ISBN-13: 978-1466553323.
Optional Text	*Hands-On Programming with R* `https://rstudio-education.github.io/hopr/` *R for Data Science* `https://r4ds.had.co.nz/`

COVID-19 Guidelines and Resources

Class participation	Class participation is mandatory and will be measured using the in-lecture activities. *Regular class participation is expected regardless of course modality. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus.*
Class recordings	All lectures will be recorded and be made available on eLearning. *Any recordings will be available to all students registered for this class as they are intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation.*
Class materials	All class materials will be made available to all students registered for the class . *These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation.*
Failure to comply with these University requirements is a violation of the Student Code of Conduct.	
Useful links	UTD's COVID-19 FAQ: `https://covid.utdallas.edu/response/faq/` Technical support: `https://ets.utdallas.edu/elearning/helpdesk`

General Course Information

Prerequisite	Math 2451 (Multivariate calculus with applications) and Stat 4351 (Probability).
Course Coverage	Solving linear and nonlinear equations; numerical differentiation and integration; optimization; Newton-Raphson algorithms; random number generation; Monte Carlo methods; Markov chain Monte Carlo methods; bootstrap and jackknife; and use of the statistical software R.
Learning outcomes	1. Use software and simulation to do statistics . 2. Understand basic principles of statistical inference. 3. Understand how to express basic mathematical and statistical problems in R.

Course Policies

Grading criteria	**Homework (30%)**: There will be 6 homework assignments throughout the semester, the lowest homework grade will be dropped. The assignments should be submitted via email within the designated submission window using the provided template. Late assignments will be counted as 0. **Project (30%)**: The project is going to be based on a real life application with a goal to demonstrate how statistical computing can be used in practice. Detailed instructions will be announced in early October and the due date is November 18. **Presentation (40%)**: A short presentation ($\sim$15 minutes) on relevant topics is expected during the last week of class. Students are required to attend classes when someone is giving a presentation. Students are welcome to come up with presentation ideas, but please work with me to finalize the topic.
Letter grade	The letter grade will be assigned based on the overall course score with the cutoffs: $\mathbf{A}^+$: [97, 100]; **A**: [93, 97); $\mathbf{A}^-$ [90, 93); $\mathbf{B}^+$ [87, 90); **B** [83, 87); $\mathbf{B}^-$ [80, 83); $\mathbf{C}^+$ [77, 80); **C** [73, 77); $\mathbf{C}^-$ [70, 73); $\mathbf{D}^+$ [67, 70); **D** [63, 67); $\mathbf{D}^-$ [60, 63); **F** [0, 60).
Student conduct and discipline	The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of university business. See the UTD publication, A to Z Guide, issued to each registered student.
Academic integrity	The faculty expects from students a high level of responsibility and academic honesty. Scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, and falsifying of records. Violators face disciplinary proceedings.
Withdrawal	Deadlines for withdrawal from courses are published in each semester's course catalog. A faculty member cannot drop or withdraw a student. It is the student's responsibility to handle withdrawal procedures from any class to avoid receiving a grade of "F".

More Policies

Incomplete grades	As per university policy, incomplete grades are granted only in the case of work unavoidably missed (and excused) and not already covered by the professor's policy on missed work or activities, and only if at least 70% of the course work has been completed. An incomplete grade must be resolved within eight weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade becomes changed automatically to F.
Disability services	Disability Services seeks to provide students with disabilities educational opportunities equivalent to those of their non-disabled peers. The Office of Disability Services is located in room 1.610 in the Student Union, and its hours are Monday-Thursday 8:30 a.m. to 6:30 p.m. and Friday 8:30 a.m. to 5:00 p.m. Essentially, the law requires colleges and universities to make reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind. Occasionally, an assignment requirement may be modified (for example, a research paper versus an oral presentation for a student who is hearing impaired).Classes including students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance. The student should notify the professor of the need for such accommodations. Disability Services provides students with letters to present to faculty members.
Syllabus policies	he information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to http://go.utdallas.edu/syllabus-policies for these policies.