UT|D	**Course** Numerical Linear Algebra and Statistical Computing
	Class number Stat 6341.001
	Professor Sy Han (Steven) Chiou
	Schedule Tuesday, Thursday, 10:00 am–11:15 am, Fall 2022
	Location CB3 1.314

Professor's Contact Information

Office phone	972.883.6362
Office location	FO 2.610D
Email address	schiou@utdallas.edu (I don't read eLearning mails)
Office hours	Tuesday, Thursday, 2:30 pm - 3:30 pm or by appointment.
	In-person or virtual office hours are both welcome.

General Course Information

Instructional mode	Traditional (in person).
Course website	All course related materials, including lecture notes, will be posted on eLearning.
Asynchronous learning guidelines	Does not apply.
Prerequisite	Prerequisite: STAT 5352 or STAT 6337. Basic knowledge in R.
Course description	A study of computational methods used in statistics. Topics to be covered include the simulation of stochastic processes, numerical linear algebra, QR decomposition and least squares regression, singular value decomposition and multivariate data, statistical programming languages, and graphical methods.
Learning outcomes	1. A working understanding of numerical, statistical, and computational issues associated with major matrix decompositions including the lower-upper (LU) decomposition, QR decomposition, and the singular value decomposition (SVD).
	2. Understand how to express basic mathematical and statistical problems in R.
	3. Have a working knowledge in Rcpp.
	4. Become familiar with developing and performing simulation studies in R.
Required text	*Modern Applied Statistics with S*, 4th edition by W.N. Venables and B.D. Ripley. ISBN: 978-0387954578
Supplementary text	1. *Numerical Linear Algebra for Applications in Statistics* by James E. Gentle. ISBN: 0-387-98542-5
	2. *Basic Elements of Computational Statistics* by Wolfgang Karl Härdle, Ostap Okhrin, and Yarema Okhrin. ISBN: 978-3-319-55335-1

Course Policies

Grading criteria	The course letter grade will be determined based on homework assignments and two in-class exams. The breakdown of the grade distribution is as follows.
	Homework (50%):
	• There will be 6 homework assignments.
	• The lowest homework grade will be dropped.
	Exams (25% × 2):
	• There will be two in-class exams..
	• R will be required complete the exams.
	• The exam will be open book and open note but students are not allowed to collaborate with classmates or people outside of class.
Submission guidelines	Here are some general policies:
	• All reports should be submitted via eLearning within the designated submission window.
	• All reports should be prepared with the provided R Markdown templates and knitted to pdf.
	• A .Rmd file and a .pdf file (generated by R Markdown are required in submission.
	• Late submissions will not be graded and will be counted as 0.
	• Submissions a .Rmd that won't compile will not be graded.
Letter grade	The letter grade will be assigned based on the overall course score with the cutoffs:
	A: [93, 100]; **A**$^-$ [90, 93); **B**$^+$ [87, 90); **B** [83, 87); **B**$^-$ [80, 83); **C**$^+$ [77, 80); **C** [60, 77); **F** [0, 60).

COVID-19 Guidelines and Other General Policy

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`
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.