Course Syllabus

Course Information

Course Number/Section	STAT 4355.001
Course Title	*Applied Linear Models*
Term	Spring 2021
Dates/Times	T/Th 10:00am – 11:15am on MS Teams

Professor Contact Information

Professor	Sunyoung Shin
Office Phone	972-883-6459
Email Address	sunyoung.shin@utdallas.edu
Office Location	FO 3.608
Online Office Hours	T/Th 11:15 am - 12:15pm on Blackboard Collaborate
Preferred Method of Contact	The best way to contact me is email with the course number STAT4355 in the subject line. I will respond to your emails within 24 hours under normal circumstances.
Teaching Assistant	Huimin Li
Contact Information	*Huimin.Li@UTDallas.edu*
Online Office Hours	M 10am -11am on MS Teams Monday Meeting Room W 2:30pm-3:30pm on MS Teams Wednesday Meeting Room

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Course Modality and Expectations

Instructional Mode	Remote Mode. Read this page for the description: Spring 2021 Registration Information webpage.
Course Platform	***Lectures will be delivered during the class times*** on *Microsoft Teams*. The lectures will be recorded, and ***the recordings will be available*** on *Microsoft Stream* through the semester. The course website is https://elearning.utdallas.edu/. ***Lecture slides*** will be on eLearning course website the night before. ***Homework*** is submitted on eLearning course website. ***Exams*** will be held on eLearning course website with add-on proctoring service *HonorLock*. The service will require to use a ***Chrome browser*** and to have a ***webcam***.
Expectations	A high level of diligence, responsibility and academic honesty are expected. Keep a schedule in order to be on track. Attend lectures, take notes, read textbook and complete all assignments.
Asynchronous Learning Guidelines	The course accommodates both asynchronous and synchronous students for lectures. Students who select asynchronous instruction will need to notify me of their choice through their UT Dallas email accounts, on the first class date or as soon as the choice is made. The lectures will be recorded and the *lecture videos* will be available shortly after on *Microsoft Stream*. Read the webpage: Asynchronous Access for Spring 2021 FAQ webpage.

COVID-19 Guidelines and Resources

The information contained in the following link lists the University's COVID-19 resources for students and instructors of record. Please see http://go.utdallas.edu/syllabus-policies.

Class Participation
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. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Recordings
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. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

The instructor may record meetings of this course. 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. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Materials

The Instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. 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.

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Course Pre-requisites, Co-requisites, and/or Other Restrictions
STAT 3355

Course Description
The course will introduce linear statistical models and demonstrate their application to empirical data using the statistical programming language *R*.
Topics include

- Linear regression models
- Multiple linear regression models
- Model fitting and validation
- Diagnostic measures
- Detection of outliers and influential observations
- Variable selection

Student Learning Objectives/Outcomes

1. Students will be able to understand relevant background theory for linear statistical models.
2. Students will be able to perform analysis of linear regression models and ANOVA models using statistical software *R*.
3. Students will be able to analyze data with linear statistical models and give an effective oral/written presentation about the results.

Required Textbooks and Materials
Montgomery, D.C., Peck, E.A., and Vining, G.G. (2012). Introduction to Linear Regression Analysis (5th ed.). Hoboken, NJ: John Wiley & Sons. (Available online at UTD Library)

Suggested Course Materials
Weisberg, S. (2005). Applied Linear Regression (3rd ed.). Hoboken, NJ: John Wiley & Sons. (Available online at UTD Library)

Textbooks can be ordered online or purchased at the UT Dallas Bookstore.

Technical Requirements
A laptop or computer with microphone and web cam, and internet connection.
In addition to confident level of computer and Internet literacy, certain minimum technical requirements must be met to enable a successful learning experience. Please review the important technical requirements on the Getting Started with eLearning webpage.

Course Access and Navigation
This course can be accessed using your UT Dallas NetID account on the eLearning website. Please see the course access and navigation section of the Getting Started with eLearning webpage for more information. To become familiar with the eLearning tool, please see the Student eLearning Tutorials webpage. UT Dallas provides eLearning technical support 24 hours a day, 7 days a week. The eLearning Support Center includes a toll-free telephone number for immediate assistance (1-866-588-3192), email request service, and an online chat service.

Communication
This course utilizes online tools for interaction and communication. Some external communication tools such as regular email and a web conferencing tool may also be used during the semester. For more details, please visit the Student eLearning Tutorials webpage for video

demonstrations on eLearning tools. Student emails will be answered within 1 working day under normal circumstances.

Distance Learning Student Resources
Online students have access to resources including the McDermott Library, Academic Advising, The Office of Student AccessAbility, and many others. Please see the eLearning Current Students webpage for more information.

Server Unavailability or Other Technical Difficulties
The University is committed to providing a reliable learning management system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing a time sensitive assessment activity, the instructor will provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the online eLearning Help Desk. The instructor and the eLearning Help Desk will work with the student to resolve any issues at the earliest possible time.

Academic Calendar

Weeks	Topics	Activity Due
1	Chapter 2. Simple Linear Regression	
2	(Continued)	HW 1
3	(Continued)	HW 2
4	(Continued)	HW 3
5	Chapter 3. Multiple Linear Regression	Exam 1
6	(Continued)	HW 4
7	(Continued)	HW 5
8	(Continued)	HW 6
9	Chapter 4. Model Adequacy Checking	Exam 2
10	(Continued)	
11	Chapter 6. Diagnostics for Leverage and Influence	Outline
12	Chapter 5. Transformations to Correct Model Inadequacies	HW 7
13	Chapter 8. Indicator Variables	
14	Chapter 10. Variable Selection and Model Building	HW 8
15	Project Week	Presentation
16	Final Week	Report

Attention
All the due dates and times are based on Central Time (CT) in the United States of America, and set up to be aligned with the due dates and times of students on campus at UT Dallas. If you are in a different time zone, it is your responsibility to account for the time-difference.

Homework
There will be 8 homework assignments. Homework will be posted on eLearning course website. Students must turn in a scanned or electronic copy of assignment in a **single PDF** for grading. One lowest scores (including missed ones) will be dropped.

Exams
There will be ***two 75-minute closed-book tests*** on Feb 18, Thursday and Mar 25, Thursday. Depth and scope of understanding of concepts and methods will be tested. The tests will be based on a specified range of course content. The instructor will inform students of the exact coverage of each test when it approaches. If deemed necessary, students are allowed to bring a cheat sheet.

The exam will be conducted online on **eLearning** with add-on proctoring service *HonorLock*. Students must turn in a scanned or electronic copy of exam in a **single PDF**.

Project
A team of 3-4 students will find interesting data, perform regression analysis, and discuss novel discovery from the analysis. Each team will have a 5-minute talk about their project in class and write a project report. Tentative dates for the presentation are on *May 4th* and *May 6th*. Additional details will be provided later.

Grading Policy
- 50% HW
- 10% Exam 1
- 10% Exam 2
- 30% Project

The course grade is based on the overall course score, as follows:

A+ [96, ∞); A [93, 96); A- [90-93);
B+ [86, 90); B [83, 86); B- [80-83);
C+ [75, 80); C [70, 75); C- [65-70);
D+ [60, 65); D [55, 60); D- [50-55); F [0,50)

In the interest of equitable treatment of all students, **no individual requests for special projects, extra assignments, extra tests, etc., will be granted.**

Course & Instructor Policies

Make-up exams and quizzes	***If absence is not excused based on documentation, eg. Doctor's Note, missed test or quiz receives the grade of zero.*** Absences due to forgetfulness, etc., will not be excused. If the absence is excused based on documentation, then the average of the non-missed exams will be used for the missing grade.
Late Work	Late submission of HW or test results in a grade of zero.
Special Assignments	No individual requests for special projects, extra assignments, extra exams, etc., will be granted.

Classroom Citizenship	Any action that disturbs your classmates or interrupts the lecture is unacceptable. Examples of such actions are using inappropriate language in chats and displaying inappropriate pictures/videos.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students. Please go to Academic Support Resources webpage for these policies.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please go to UT Dallas Syllabus Policies webpage for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.