

STA 4210: Regression Analysis

Spring — 2026

Instructor Information

Name: Lingxiao Zhou
Office: FLO 218
Office Hours: T 9:30–11:30 AM

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Class Information

Credit Hours: 3
Time: T 8:30–9:20 AM
R 8:30–10:25 AM
Classroom: FLO 100 (T), AND 0134 (R)

TA Information

Name: Shuaihang Zhou
Email: zhou.sh@ufl.edu
Office: FLO 117A

Office Hours:
T 1:00–2:00 PM (in person)
R 2:00–3:00 PM ([Zoom](#))
in-person by request

Course Description

This course is about the theory and application of linear regression. After some review of basic statistics, we will discuss the simple linear regression model and its matrix formulation, the multiple regression model, and a number of related tools such as model diagnostic measures, collinearity statistics, and variable selection procedures. Computations will be carried out in the R programming language.

Course Objective

Students will be able to investigate the purposes, methods and applications of regression.

Recommended Textbooks

The following textbook is NOT REQUIRED but recommended: Applied Linear Statistical Models by M. Kutner, C. Nachtsheim, J. Neter and W. Li, 5th edition.

Materials and Supplies Fee

N/A

Course Website

Canvas course page. Please check the canvas site regularly. Course documents and important information, including lecture notes, exam topics and special announcements, will be posted in canvas.

Homework

There will be about eight Homework assignments. **Late assignments will not be accepted.** For extensions, students need to email the instructor with a valid reason at least 24 hours prior to the due time. Students may drop their two lowest homework scores at the end of the semester.

Exams

There will be three exams given **in class**. The exams are scheduled for 8:30 – 9:20 AM on **February 17, March 24 and April 21**.

Make-up exams are available only in extreme situations. They may be more challenging than regular exams and may have a different format. To request a make-up exam, students should contact the instructor as soon as possible.

Quizzes

There will be five in-class **pop quizzes** throughout the semester. Each quiz will take place during the final 5–10 minutes of class. No books, notes, calculators, or other references may be used during a quiz. Each quiz is worth 2 points: 1 point for completion and 1 point for correctness. The total quiz score (up to 10 points) will be treated as **extra credit** and added to the student's lowest exam score at the end of the semester.

Make-up quizzes are permitted only for students who miss a quiz due to a valid reason (e.g., illness or conference travel), with appropriate supporting documentation. To take a make-up quiz, students must complete it during the instructor's or TA's in-person office hours no later than one week after the original quiz date. Days during Spring Break do not count toward this one-week window. Students must email the instructor or TA at least 24 hours in advance of the office hour in which they plan to take the make-up quiz.

Grading

The course grade is determined by the following components:

Exam1	25%
Exam2	25%
Exam3	25%
Homework	25%

Grade Scale

Final grades will be assigned according to the following scale:

A	93 – 100	C+	77 – 79
A–	90 – 92	C	67 – 76
B+	87 – 89	D	60 – 66
B	83 – 86	E	0 – 59
B–	80 – 82		

Lecture Attendance

Attendance is expected and will be essential for performing well in the class. If you miss class for any reason, it is your responsibility to get any information you might have missed from another student. See university attendance policies: <https://go.ufl.edu/syllabuspolices>

UF Grading Policy

<https://go.ufl.edu/syllabuspolices>

Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://go.ufl.edu/syllabuspolices>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>.

Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. See “Get Started With the DRC” Disability Resource Center webpage (<https://go.ufl.edu/syllabuspolices>). It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester

Lecture Format

This class is 100% in-person. Lectures will not be recorded.

Academic Misconduct

UF students are bound by The Honor Pledge which states We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither

given nor received unauthorized aid in doing this assignment.” The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. See the UF Conduct Code website (<https://go.ufl.edu/syllabuspolicies>) for more information. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Tentative Schedule

The following is a *tentative* schedule for the course.

Week 1

- Introduction
- Review key concepts

Week 2

- Review key concepts
- Simple linear regression

Week 3

- Inference in SLR model
- Confidence interval, Prediction interval, Sum of Squares

Week 4

- Checking model assumptions by plots
- Checking model assumptions by tests

Week 5

- Remedial measures
- control error rate, Review for Exam 1

Week 6

- Exam 1 on Tuesday Feb 17
- Matrices and operators, Linear dependency, rank, inverse

Week 7

- Random Vectors and Matrices
- Matrix form for SLR, Multiple regression

Week 8

- Qualitative variables
- Multiple regression in matrix form, Extra sum of squares

Week 9

- General linear test
- standardized regression, Review for Exam 2

Week 10

- Spring break

Week 11

- Exam 2 on Tuesday Mar 24
- VIF, multicollinearity, Model Selection

Week 12

- Model Selection
- Model validation

Week 13

- Diagnostics
- Weighted Least Square, IRLS

Week 14

- Penalized regression
- Review for Exam 3

Week 15

- Exam 3 on Tuesday April 21