



STA 4210 (Class Number: 17172)

Regression Analysis

Fall 2022

MWF 8:30-9:20 a.m. (Room: LAR 0310)

*The course is offered fully in person. Please feel free to wear a mask for your safety and the safety of others.*

*The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.*

**Instructor:** Juhyung Lee

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**Course Description:** The course is primarily on the linear regression model, for which the main techniques are rooted in the method of least squares. Procedures are motivated by applications. Mathematical results are stated, explained, and derived. After some review of basic statistics, the course proceeds systematically through the simple regression model, the multiple regression model, the matrix formulations of both these models, and a number of related tools such as model diagnostic measures, collinearity statistics, and variable selection procedures.

**Course Objectives:**

1. With two quantitative variables, be able to carry out simple regression analysis and to correctly interpret such an analysis.
2. Know the multiple linear regression model in its matrix form, including all the common variations on this model (e.g., continuous predictors, categorical predictors, square and interaction terms).
3. Be able to carry out and interpret inference procedures for the various types of multiple regression model, including the quadratic regression model.
4. Know what the purposes of diagnostic methods in simple and multiple regression are; be able to carry out several common diagnostic procedures and interpret them.

5. Know what multicollinearity is, why it is an issue in multiple regression, and how to analyze and deal with its presence.
6. Know several measures of model performance, how to compute and interpret them for a multiple regression model.

**Prerequisites:** STA 3100 and (STA 3024 or STA 3032 or STA 4321 or MAS 3114 or MAS 4105).

**Course Website:** [e-Learning](#). Check course website at least once a day for updates.

**Course Material:** Lecture notes (will be posted on course website) and in-class notes (will not be posted).

**Required Text:**

1. *Applied Linear Statistical Models (5th ed.)* by Kutner, Nachtsheim, Neter, and Li.

**Software:** R (free statistical software).

**Course Communication:** Office hours and email.

- Wear a mask during in-person office hours.
- Use GatorMail for email; otherwise, you may not hear back from me. I do not check Canvas inbox.
- Put 4210 in the subject line of your email; otherwise, you may not hear back from me. I teach multiple courses and use course numbers to search emails from students.
- Allow me 24 hours to reply to your email.
- Email is not ideal for content questions. Ask them in person (e.g., in class, office hours, etc.).

**Assignments and Grading:**

- Grades will be based on the following components.

Homework	25%	
Exam 1	25%	in-class, September 26
Exam 2	25%	in-class, October 31
Exam 3	25%	in-class, December 5
Total	100%	

- The following cutoffs will be applied strictly (i.e., no rounding up) for letter grades.

B+ 87 to < 90	A $\geq 92$	A- 90 to < 92
C+ 77 to < 80	B 82 to < 87	B- 80 to < 82
D+ 67 to < 70	C 72 to < 77	C- 70 to < 72
E < 60	D 62 to < 67	D- 60 to < 62

### Course Policies:

- Attendance is not mandatory. However, it is your responsibility if you miss any information provided in class.
- **You will be given sufficient time for each assignment and no late homework will be accepted. Note that a due date is the last day you can submit your assignment, not the day you should submit your assignment.** It is fine if you decide to submit your assignment at a later time on or before the due date, but that means you are taking more risks and it is your responsibility if you fail to meet the deadline. For example, it is your responsibility if you could not submit your assignment due to an outage (e.g., power, Internet, etc.) in the due date evening.
- The lowest homework score will be dropped at the end of the semester.
- Once graded and announced, your homework/exam can be reviewed by the grader only if a request is made within a week.
- All exams will be closed-book. However, you may bring one letter-size (8.5 by 11 inches) cheat sheet (i.e., two pages) to each exam. You may bring your old cheat sheet(s) in addition to the current one.
- Bring a scientific calculator (no cell phones!) to each exam.
- A make-up exam can only be given if you are seriously sick or injured, which must be appropriately documented (e.g., doctor's note) and submitted at least 24 hours before the original exam.
- I reserve the right to approve or reject a make-up request and you cannot be approved more than one make-up exam. If approved, you must visit me in person within a week of the original exam to take the make-up exam. You are responsible for scheduling.
- A make-up exam will be different (likely harder) from the original exam and the score is not eligible for an adjustment/curve.

### Academic Integrity:

You may discuss homework with each other, but you must write up your solutions independently. You may never discuss exams with each other. You are held accountable to the [UF Student Honor and Conduct Code](#).

### Students with Disabilities:

Students requesting accommodation for disabilities must first register with the [Disability Resource Center \(DRC\)](#). The DRC will provide documentation to the students who must then provide this documentation to the instructor when requesting information. You must submit this documentation prior to submitting any assignments for which you are requesting accommodation.

### Course Evaluations:

Students are expected to provide 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://gatorevals.aa.ufl.edu/students/>. 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/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.