

# STA 4273

Fall 2025

Statistical Computing in R

Credits: 3

**Instructor:** Georgia Papadogeorgou, 221 Griffin Floyd Hall, email: [gpapadogeorgou@ufl.edu](mailto:gpapadogeorgou@ufl.edu)

Office hours: Tuesday 1-1:45pm ([zoom](#)) & Friday 9:30-10:15am ([zoom](#))

**TA:** Dipshi Roychowdhury, 117D Griffin Floyd Hall, email: [droychowdhury@ufl.edu](mailto:droychowdhury@ufl.edu)

Office hours: Monday 1-2pm and Wednesday 2-3pm

The TA is your first point of contact for questions. You must CC me in all communications with the TA.

## Course Description

The goal of the course is to introduce various important topics related to modern statistical computing, as an essential requirement for data science. We will focus on both learning the mathematical foundation underpinning the computing methods and the program implementation using R.

Prereq: STA 3100 and STA 4210 and STA 4322 and MAS 4115.

## Class format and materials

- **Class Materials:** Notes will be posted periodically on the course website.
- **Required Textbooks:**
  - Statistical Computing With R by Rizzo, Maria 2nd Edition
  - Convex Optimization by Boyd and Vandenberghe (open access version: [here](#))

A tentative plan is

1. Introduction (Week 1)
2. Generating Random Variables (Weeks 2-5)
3. Monte Carlo Integration (Week 6)
4. Optimization (Weeks 7-11)
5. Monte Carlo Methods in Inference (Week 12)
6. Markov Chain Monte Carlo (Weeks 13-14)

At the end of the course, students should be able to derive the mathematical formulations for the topics covered and independently compose R code to implement the approaches.

## Student responsibilities

- **Homework** (40% of grade)

There will be **3 homework assignments** during the semester. Homework will be due at the **beginning of class** uploaded through e-Learning. Homework deadlines are strict. Students that do not return their homework by the due time without having received an **approved** extension will receive a grade of zero for the given assignment. For extensions, you need to email me no later than 48 hours before the due time. I will only consider requests for which there is a reasonable reason why the assignment cannot be completed at the allotted time.

You are allowed to collaborate on homework. However, your final homework submission has to reflect your own work, and identical submissions are not accepted.

- **Exams** (total 60% of grade)

There will be **2 exams** during the semester (30% of grade each). All exams will be held in person. You are required to bring your UF ID for the exams. Students **are not allowed** to collaborate during exams, and are not allowed to use any material not provided by the instructor for completing the exam.

In case of conflict or illness, if a student is unable to take an exam at the scheduled time, they must get in touch with the instructor at least 48 hours **prior** to the exam time for any arrangements to be made for a makeup. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite under such extenuating circumstances. Academic dishonesty on any exam will result in a *minimum* penalty of a grade of zero on that exam.

## Important Dates

These dates are **subject to change** during the semester. Any changes will be announced.

Homework #1. . . . . Due on September 16<sup>th</sup> at 8.30am

Homework #2. . . . . Due on October 21<sup>st</sup> at 8.30am

Homework #3. . . . . Due on November 13<sup>th</sup> at 8.30am

Exam #1 . . . . . October 9<sup>th</sup> at 8:30am

Exam #2 . . . . . November 20<sup>th</sup> at 8:30am

## Grading

These are tentative and subject to change, however, they will only change in the direction that is good for you. There is a chance that the requirements for getting any particular grade level will be lower than what you see here. If your grade falls above a given threshold below, then you are guaranteed to get at least that grade for the course.

		A	90 to 100	A-	88 to < 90
B+	86 to < 88	B	80 to < 86	B-	78 to < 80
C+	76 to < 78	C	70 to < 76	C-	68 to < 70
D+	66 to < 68	D	60 to < 66	D-	55 to < 60
		E	< 55		

The numeric scores will be rounded to the nearest tenth.

Grades will be changed only when an error has been made; negotiation is not appropriate.

I will not discuss individual grades during the semester.

## Other

- This course complies with all UF policies. For information on those policies and for a list of campus resources, please see this page: <https://go.ufl.edu/syllabuspolices>.

- Materials and Supplies Fee: N/A