QTM 151: Introduction to Statistical Computing II

Spring 2025
Instructor: Jiwon Kim

Contact	Canvas DM	**Time**	Tu & Thu 1:00-1:50 PM
Office Hours	W 4-6PM (Use This Link) Tu & Thu 1:50-2:20PM (WH206) W is virtual and by booking only; Tu & Thu is walk-in	**Place**	WH 206
Class Pages	`canvas.emory.edu` Office Hours Booking Page		

Course Overview
What is the best way to learn Python without any programming experience? This course is designed to guide your start as a coder. It covers the fundamentals of Python and SQL, equipping you with the skills to collect, prepare, and store data according to best practices for effective data analysis. The course emphasizes a proactive mindset and collaboration as important assets for the rest of your coding career. Upon successful completion, you will be prepared to take upper-level electives, independently explore the Python landscape, and be a responsible member of the global coding community.

Learning goals:

Non-coding coder skills

- Handling installations
- Programming environment
- Version control with Github

Coding ABC's

- Basic syntax
- Data types
- Control flow
- Functions
- File handling

Analysis related

- Pseudo code
- Data manipulation
- Popular libraries
- Visualizations
- Regression

Undergraduate TA Office Hours
*These are walk-in. Please observe good business practices and secure good network connection and quiet surroundings before the meeting starts.

Joyce Zhang	`joyce.zhang3@emory.edu`	Thu 4-5PM	Link
Heyi Yang	`heyi.yang@emory.edu`	W 9:30-10:30AM	Atwood 320
Nicole Chen	`yiyun.chen@emory.edu`	Tu 4-5pm	Link
Evelyn Shi	`evelyn.shi2@emory.edu`	F 11am-noon	Link

Prerequisites There is no prerequisites for this class.

Grading

Quizzes 30%
Assignments 50%
Final project 20%

A: [93,100]	A-: [90,93)	B+: [87,90)	B: [83,87)
B-: [80,83)	C+: [77,80)	C: [73,77)	C-: [70,73)
D+: [67,70)	D: [60,67)	F: [0,60)	

Course Policy

Course policies will be enforced consistently. Students are responsible for understanding and seeking clarification on any part they do not understand.

Classroom

- In our conversations inside and outside the classroom, please be appreciative of your peers as members of the classroom community and value our diversity in levels of learning speed, background, and identities.
- Electronic devices are allowed in the classroom for learning purposes only.
- I ask you to do your best to be on time for class, to minimize distraction for other students and the instructor. Please turn off phone notifications.
- Lectures are held in-person (except for 3/4). You are responsible for making up for your absence through class materials provided on Canvas, instructor and TA office hours, and peer help.

Communications Please regularly check Canvas announcements as well as announcements in class meetings. To contact the instructor, please use Canvas messages. Please do not email me (otherwise noted). Please do not email me the same message you sent via Canvas. I receive a lot of emails and using Canvas messages helps prevent messages going missing (or to a wrong Jiwon Kim).

Office Hours Booking Office hours are held in-person (walk-in base) before class (WH 206) and virtually. Virtual one is by appointment only. Please make an appointment using the Office Hours Booking Page [Link] to book a 20-minute meeting slot. If you need more than 20 minutes, simply book two slots. If none of these times work, please DM me via Canvas. Online office hours is still a meeting. I kindly ask you to find a quiet space for online office hours. You are welcome to come with a classmate if you have the same question (you should share the link with the friend in advance, so they can join). You are welcome even when you don't feel you are "prepared enough" to sit down with me, but preparing specific questions is helpful for your learning and the meeting.

AI Use Policy You are technically allowed to use Generative AI, but they are not recommended for your learning. Trying to understand the Python syntax and famous libraries (like Panda's) structure will go a long way in your coding career.

Canvas All of our class materials, assignments, and quizzes will be posted on Canvas and you are responsible for familiarizing yourself with how it works (Canvas inabilities are not legitimate excuses for anything). For help with how to use Canvas, please consult Jennifer Elder, our QTM Librarian.

Access and Disability Resources Students with medical/health conditions that might impact academic success should visit the Department of Accessibility Services (DAS) to determine eligibility for appropriate accommodations. Once you have the DAS-approved accommodations, you must do the following to receive your accommodations in QTM 151:

1. Check if your accommodation letter is available in the DAS with portal. You do not need to notify me personally as I receive automatic notification.
2. Wait for my Canvas message confirming with specific accommodations granted to you in QTM 151.
3. Respond to my message by accepting your accommodations for QTM 151. Once you confirm, your accommodation letter will be signed by me.

Academic Honesty The Emory Undergraduate Academic Honor Code is in effect throughout the semester. The Honor Code applies to any action or inaction that fails to meet the communal expectations of academic integrity. Students should strive to excel in their academic pursuits in a just way with honesty and fairness in mind and avoid all instances of cheating, lying, plagiarizing, or engaging in other acts that violate the Honor Code. Such violations undermine both the individual pursuit of knowledge and the collective trust of the Emory community. Students who violate the Honor Code may be subject to failure of the course, a reportable record, suspension, permanent expulsion, or a combination of these and other sanctions. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. The Honor Code may be reviewed at: http://catalog.college.emory.edu/policies/honor-code.html.

Stress management and mental health As a student, you may find that personal and academic stressors in your life, including those related to economic instability, and/or racial injustice, are creating barriers to learning this semester. Many students face personal and environmental challenges that can interfere with their academic success and overall wellbeing. If you are struggling with this class, please visit me during office hours or contact me. If you are feeling overwhelmed and think you might benefit from additional support, please know that there are people who care and offices to support you at Emory. These services – including confidential resources – are provided by staff who are respectful of students' diverse backgrounds. For an extensive list of well-being resources on campus, please go to: http://campuslife.emory.edu/support/index.html. And keep in mind that Emory offers free, 24/7 emotional, mental health, and medical support resources via TimelyCare: https://timelycare.com/emory.

Student & Instructor Responsibilities for the Best Learning Outcome

For fairness of grading, guideline for assignment, quiz, and exam submission will be enforced consistently. Students are responsible for understanding and seeking clarification on any part they do not understand.

I. Class Attendance, Preparation, and Bonus Points

You are expected to attend all classes and participate proactively. Any lecture materials used will be posted on Canvas. Download and have it open on your IDE. We have three undergraduate TAs that will be in the classroom during the lecture that will help you during the lecture.

If you follow the course materials diligently, you will not have to revisit these foundations while you take upper-level courses. You slack now, then you will have to re-do this study on your own at some point in your coding career. The class will be entirely based on lectures provided by the instructor for each class. You are welcome to explore the parts that are marked as additional resources, but they are not mandatory.

II. Assignments

There are ten sets of Assignments throughout the semester. Assignments extend on the lecture and may contain writing new codes that have not appeared in the lecture (by the help of the HINTs mentioned in the assignment prompt). Refer to the Canvas assignment pages' for specific requirements and deadlines for each assignment. Your lowest grade will be dropped. Late submissions will be automatically penalized by 10% for each hour past the deadline. For instance, whether your submission is 15 minutes late or 45 minutes late, a 10% penalty will be applied to your score. Your grade will be posted within 1 week of the close of submission windows for the whole class. No excuses or extensions are granted under any circumstances, except for when you have a doctor's letter that shows that you were under serious illness for three days or more (DAS accommodations are applicable only to quizzes). Any dispute regarding your grade on a specific assignment must be discussed with the instructor within seven days (including weekends) from the date the assignment grade is posted in Canvas.

III. Quizzes

There will be five quizzes (dates are in **Course Schedule** section at the end of the syllabus) published on Canvas. You will answer questions similar to in-class exercises and assignments. You are allowed to use resources such as lecture slides, past assignments, google, and Github copilot, just as you would use these resources in your everyday coding (except for help from other humans). While these resources are available, the quiz will be designed in a way such that students can finish on time only if they practiced coding/using these resources enough times. For example, if you have only a few times of experience reading `csv` files into python, you would not know how to effectively search that from Stack Overflow with the right keyword (e.g. should I search "read" or "upload"), need time for processing the information you found (e.g. Is this R code or Python?), and spend more time for trial and error (e.g. Is it `pd.read_csv` or `pd.read.csv`? Where did that `pd` come from? What package do I have to load first?) So do not settle for just knowing how to do things with an infinite amount of time. You are not prepared for high scores until you practice enough times so you know how to make a dish on time when a slightly different recipe is given. You will submit your answers on Canvas, and there is a late penalty of 10%. Uploading the wrong file, wifi connection errors, etc. are not legitimate reasons for excuses. To address our lowest score will be dropped. During some lectures, we will have Kahoot pop quiz. If you end up in a "podium" for these quizzes, you get an extra credit of 0.5 points added to your next quiz.

IV. Final Project

The final term project is group-based, in teams of three or four students (no two, no five). Groups are random assignment based, mostly within seating groups. Details of the final project will be explained during the lectures. The deadline for submission will be published on Canvas mid-semester.

Course Schedule

*Any changes to the schedule will be posted on Canvas.

Date	Topic(s) Covered	Due Dates
1/14 (Tu)	Introduction to QTM 151	
1/16 (Th)	Importing packages and using Jupyter notebooks	
1/17 (F)		Assignment 1 due
1/21 (Tu)	Variables and Lists	
1/23 (Th)	Mathematical operations, arrays, random numbers	
1/24 (F)		Assignment 2 due
1/28 (Tu)	Boolean variables and if/else statements	
1/30 (Th)	Loops - while, for, break, continue	
1/31 (F)		Assignment 3 due

2/4 (Tu)	User defined functions, lambda, apply	
2/6 (Th)	Local/global variables	
2/7 (F)		Assignment 4 due
2/11 (Tu)	Quiz 1	
2/13 (Th)	Data Manipulation	
2/18 (Tu)	Random assignment	
2/20 (Th)	Aggregating data	
2/21 (F)		Assignment 5 due
2/25 (Tu)	Quiz 2	
2/27 (Th)	Merging data	
2/28 (F)		Assignment 6 due
3/4 (Tu)	Github and Final Project I (Recording)	
3/6 (Th)	Introduction to SQL Notebooks	
3/7 (F)		Assignment 7 due
3/11 (Tu)	No Class (Spring Break)	
3/13 (Th)	No Class (Spring Break)	
3/18 (Tu)	Chaining and Merging Tables in SQL	
3/20 (Th)	Importing SQL Data into Python	
3/21 (F)		Assignment 8 due
3/25 (Tu)	Quiz 3	
3/27 (Th)	Time Data	
4/1 (Tu)	Practicing Time and Panel Data	
4/3 (Th)	Pivot Table	
4/4 (F)		Assignment 9 due
4/8 (Tu)	Quiz 4	
4/10 (Th)	Manipulating Text Data	
4/11 (F)		Assignment 10 due

4/15 (Tu)	Advanced Plots I
4/17 (Th)	Advanced Plots II
4/22 (Tu)	Github and Final Project II
4/24 (Th)	Quiz 5