DATASCI 151: Introduction to Statistical Computing II, Spring 2026

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Communications:

Please use the "Discussions" feature to ask questions about course content outside of class time and office hours. This will be monitored by myself and the TA's, and you have the option of asking questions anonymously. I prefer this, because multiple students often have the same question, and private emailing limits the number of people helped by an answer. Emails to me should be limited to topics pertaining only to you (accomadations, grading questions, etc.)

I will make course announcements through the course Canvas page. Either turn on Announcement notifications in Canvas, or check it on a regular basis.

Overview

This course is an introduction to the Python programming language for students without prior programming experience. The purpose of this course is to prepare students for upper-level electives in data analysis related courses. It will cover the programming basics of Python which include understanding data types, controlling flow using loops and conditional statements, and writing functions. In addition to these basics, this course will put emphasis on skills that are relevant for data analysis which include 1) data manipulation such as merging, appending, and reshaping using Python, 2) making various plots for descriptive analysis using Python, and 3) using cloud-based services such as version control and cloud computing.

Learning objectives

1. Understand the version control workflow using GitHub
2. Understand Python data types such as integers, floating point numbers, strings, lists, dictionaries, NumPy arrays and Pandas data frames
3. Control flow with if statements and loops (for loop, while loop)
4. Write custom functions
5. Design and write programs to solve problems
6. Data manipulation such as merging, appending, and reshaping using Python pandas
7. Plot various graphs for descriptive analysis using matplotlib

Materials

The class will be entirely based off lectures provided by the instructor for each class and stored in the following Github repository:

https://github.com/sentz2/datasci151spring2026

Optional Materials

The following readings are not required, but are suggested for students interested in further readings:

- Elements of Data Science: https://allendowney.github.io/ElementsOfDataScience/README.html
- Think Python: https://greenteapress.com/thinkpython/html/index.html

Course Schedule

The following table outlines the proposed schedule for the semester. While I intend to follow this, it is subject to change. Check Canvas regularly for updates to deadlines and any changes to the assigned material. If changed, homework due dates and quiz dates will **only** be moved to a later time and will never be moved to earlier in the semester.

Week	Date	Title	Lecture	Percentage
Module 1: Introduction to GitHub, Python and Jupyter Notebooks				
Week 1	13-Jan	Syllabus, Intro to Computing Environment	0	
	15-Jan	GitHub, VS Code, and Local Files	1	
Week 2	20-Jan	Jupyter Notebooks, Part 1	2	
	22-Jan	Assignment 1 due (8 a.m.)		5%
	22-Jan	Jupyter Notebooks, Part 2	3	
Module 2: Python data types and control flows				
Week 3	27-Jan	Objects, Variables, and Lists	4	
	27-Jan	Schedule Change Ends		
	29-Jan	Lists and Arrays. Mathematical Operations	5	
Week 4	3-Feb	Assignment 2 due (8 a.m.)		5%
	3-Feb	Boolean variables and if/elif/else statements	6	
	5-Feb	Loops – while, for, break, continue	7	
Week 5	10-Feb	Assignment 3 due (8 a.m.)		5%
	10-Feb	Application: Simulating Random Variables	8	
Module 3: Writing and Running Functions				
	12-Feb	User defined functions	9	
Week 6	17-Feb	**Quiz 1**: Loops, if/elif/else statements, plots	10	*6%*
	19-Feb	Assignment 4 due (8 a.m.)		5%
	19-Feb	User defined functions, part 2	11	
Module 4: Data Manipulation with Pandas				
Week 7	24-Feb	Subsetting Data	12	
	26-Feb	**Quiz 2**: Custom functions, subsetting data	13	*6%*
Week 8	3-Mar	Assignment 5 due (8 a.m.)		5%
	3-Mar	Application: Linear Regression in Python	14	
	5-Mar	Creating and replacing variables	15	

	5-Mar	Instructions for Final Project Released		
Spring Break	10-Mar	No Class		
	12-Mar	No Class		
Week 9	17-Mar	Aggregating Data	16	
	19-Mar	**Quiz 3:** Data Manipulation with Pandas	17	*6%*
	20-Mar	Partial Withdrawal/Grading Change Deadline		
	21-Mar	Finalize Groups for Final Project		
Week 10	24-Mar	Assignment 6 due (8 a.m.)		5%
	24-Mar	Merging Data	18	
	24-Mar	Mid-semester Student Survey		*0.50%*
		Module 6: Time Data		
	26-Mar	Time Series Data	19	
Week 11	31-Mar	Assignment 7 due (8 a.m.)		5%
	31-Mar	Date Formatting and Grouping Time Data	20	
	2-Apr	Long and Wide Data Formatting	21	
		Module 7: Advanced Plots and Text Data		
Week 12	7-Apr	Assignment 8 due (8 a.m.)		5%
	7-Apr	Advanced Plots	22	
	9-Apr	**Quiz 4**: Time Series Data	23	*6%*
Week 13	14-Apr	Manipulating Text Data	24	
	16-Apr	Assignment 9 due (8 a.m.)		5%
	16-Apr	Trigram Language Models	25	
Week 14	21-Apr	**Quiz 5:** Text Data	26	6%
	23-Apr	Assignment 10 due (8 a.m.)		5%
	23-Apr	Creating movies with Matplotlib	27	
Week 15	27-Apr	Final Project Due (11 p.m.)		20%

Course Assignments

Your grade consists of homework (50%), in-class quizzes (30%), and the final group project (20%). The assignments correspond to the structure outlined in the schedule above.

Course Assignments Description

Homework Assignments

Working together on the homework assignments is encouraged, but you must write your own solutions. It is highly recommended that you make your solo effort on all the problems before consulting others. Each assignment has its due date indicated in this Syllabus and on Canvas. **Any assignment submitted after the due date/time will automatically be graded for half points**. To accommodate unexpected circumstances, **your lowest homework grade will be automatically dropped at the end of the semester.**

Homework extensions may be given in the following circumstances:

- Students who are approved for flexibility with assignment due dates through the Office of Accessibility services may be given extensions in cases dictated by The Flexibility with Assignment Due Dates Agreement form.
- In the following cases, where students have contacted the Office for Undergraduate Education in accordance with Emory policies:
    - Bereavement
    - Illness causing a four calendar-day absence (or longer) that is supported by medical documentation
    - Situations where students are working with campus officials to resolve ongoing circumstances beyond their control
    - Student is representing the University at an officially sanctioned event.

Homework will be submitted on Canvas through the Gradescope tool. In case students have connection issues with Gradescope, they should be prepared to contact me through email before the deadline and with their homework submission attached.

Submission policies: It is your responsibility to submit homework in the correct format and to ensure you have submitted the correct file.

- If the homework file has the wrong format, but your solution is visible after downloading the file, your score will be reduced by 10%
- If you submit an unrelated file, or a blank or corrupted file, you will be given another chance to submit with a 25% reduction. You will only be given this chance the first time this mistake is made. Any additional instances will receive a zero.

In-class quizzes

Five in-class quizzes will be given throughout the semester. They will be given on the dates listed in the schedule above, except for times when the instructor announces a change in advance. Quizzes will never be moved to an earlier date.

The quizzes will last the entire 50 minute period, and students should not collaborate with others. The quizzes will be open note, but students cannot use internet resources outside the course Canvas page and the course GitHub repo. No AI/LLM use is allowed during quizzes.

Students *must* submit their quiz to Canvas while they are present in the classroom. Submitting a quiz after leaving the classroom is a violation of Emory's Undergraduate Academic Honor Code and will be reported to the Honor Council.

Rescheduling Quizzes: To discourage students coming to class sick, I will allow students to take the quiz at another time if they notify me before the quiz begins at 8:30am. This is up to my discretion, however. Keep in mind that intentionally giving false information to an instructor is a violation of Emory's Academic Honor Code and will be reported to the Honor Council.

Your lowest quiz grade will be automatically dropped at the end of the semester.

Submission policies: The submission policies for quizzes are identical to the submission policies for homework given above.

Final Project

The final term project is group-based, in teams of 3-4 students. The details of the project will be discussed in class.

Participation (extra credit) + 1%

- Your participation will consist of a midsemester in-class survey. This will include teaching feedback and knowledge assessment questions that I will use for up to 0.5% extra credit.
- You will also be granted 0.5% if you fill out the final course evaluations.

Grading Scale

Your final grade will be assigned based on the grading scale below:

A	A-	B+	B	B-	C+	C	C-	D	F
93+	87-92	83-86	80-82	75-79	70-74	65-69	60-64	55-59	0-54

Grades will be rounded to the nearest integer (a 92.5 will be rounded to a 93, while a 92.4 will be rounded to a 92). Throughout the semester, I will keep the Canvas gradebook up to date so that you have an ongoing understanding of where your grades fall in this scale.

Policies

General: Students are expected to adhere to the Emory College Honor Code as well as its Conduct Code, see https://catalog.college.emory.edu/policies/honor-code.html. Specifically, the honor code is in effect throughout the semester. By taking this course, you affirm that it is a violation of the code to cheat on assignments, end-of-chapter assessments, to plagiarize, to deviate from the teacher's instructions about collaboration on work that is submitted for grades, to give false information to a faculty member, and to undertake any other form of academic misconduct. You also affirm that if you witness others violating the code you have a duty to report them to the honor council.

AI Policy: In the strongest possible terms, I encourage you to NOT use ChatGPT/Co-pilot or any other LLM tools when working on assignments. Working through problems and correcting errors yourself will pay off in the long run. However, I will not forbid using these tools for general informative purposes such as documentation for programming interfaces, language syntax, broad conceptual questions, and exploration of topics.

According to Emory Undergraduate Academic Honor Code, the use of AI to generate any content for an assignment constitutes plagiarism unless the student appropriately acknowledges in the assignment the extent to which an artificial intelligence program contributed to the work.

It is considered an academic integrity violation to submit any part of a homework problem as a prompt to LLMs.

Special circumstances: Students requiring any type of special classroom/testing accommodation for a disability, religious belief, scheduling conflict, or other impairment that might affect his or her successful completion of this course must personally present the requested remedy or other adjustment in written form (signed and dated) to the instructor, i.e., supporting memorandum of accommodation from the Department of Accessibility Services, https://accessibility.emory.edu/index.html. Requests for accommodations must be received and authorized by the instructor in written form no less than two weeks in advance of need. No accommodation should be assumed unless so authorized. In the event of needs identified later in the course, or for which an adjustment cannot be made on a timely basis, a grade of "I" Incomplete for the course, will be given to accommodate the unanticipated request.

Attendance:

- There is no separate grade for attendance. However, attendance will be monitored through quizzes which will take place during class.
- The OUE student self-service absence form must be submitted if you would like to have your absence excused due to the reasons recognized by the university (See the top of the form). Be sure to complete this form in advance, and you must include all classes you are currently enrolled at the time of completing the form so that all your instructors will be notified all at once. If you wish to explain your situation further, you may also email your instructor in advance, and if necessary, submit official documentations.
- Check our Canvas page regularly! All course materials including lecture materials, quizzes, assignments, due dates, and important announcements will be posted on Canvas throughout the semester.

In/Out of classroom conduct: Students are expected to adhere to the Emory University Code of Conduct, see https://conduct.emory.edu/policies/codes.html