

## Programming in Python

*Last updated: 9/21/2025*

TECH-GB 2135.30 | 2/4/2026 – 3/11/2026

Wednesday | 6:00 PM – 9:00 PM

Meeting location: KMEC 5-75

### Instructor

**Kristen Sosulski, Ed.D**

Clinical Professor of Information Systems | Executive Director, Learning Science Lab | Fubon Innovation Fellow

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Office: Tisch Hall, Room 515 | 212.998.0994

Instructor Office Hours: Available by appointment (email to set up a day and time) over Zoom: <https://nyu.zoom.us/my/sosulski>

### Teaching Fellow

TBA | [TBA@stern.nyu.edu](mailto:TBA@stern.nyu.edu)

### Course description

In this course, students will learn how to program in python and how to use python for effective data manipulation and visualization. The course begins with developing a basic understanding of the python working environment. Next, students will be introduced to the necessary arithmetic and logical operators, salient functions for manipulating data and getting help using python. Next, the common data structures, variables, and data types used in python will be demonstrated and applied. Students will write and build python notebooks.

They will utilize the various packages available in python for visualization, reporting, data manipulation, and statistical analysis such as matplotlib and pandas.

Students import data sets, and transform and manipulate those datasets for various analytical purposes. Students will learn how to create control structures, such as loops and conditional statements to traverse, sort, merge, and evaluate data.

This course is designed for those who have no experience in python or programming. This class give you skills in programming and introduce you to:

- A new way of thinking
- A new language for speaking and reading (Series, DataFrames, functions, objects, etc.
- A new syntax for writing , e.g. type() print(), for data analysis and presentation.

## Learning outcomes

By the end of the course, you will be confident and equipped with all the knowledge required to perform analytical activities in python. Specifically:

- **understand** the fundamental syntax of python through readings, practice exercises, demonstrations, and writing python code;
- **apply** critical programming language concepts such as data types, iteration, control structures, functions, and Boolean operators by writing python programs and through examples;
- **import** a variety of data formats in python notebooks;
- **prepare** and format data for analysis;
- **analyze** a data set in python and present findings using the appropriate libraries such as pandas, and
- **visualize** data attributes using pandas, matplotlib, and other python libraries.

## Requirements & grading

Grade breakdown

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<b>Assignments</b>	<b>45%</b>
<p>There will be 6 graded assignments using python. Please DO NOT move ahead on the assignments. They will likely change based on the content covered in the class meetings.</p>	
<b>Exercises</b>	<b>10%</b>
<p>You are expected to submit the assigned practice exercises to demonstrate your engagement with the course material. Please DO NOT move ahead on the exercises. They will likely change based on the content covered in the class meetings. Note: Some of the exercises will be more challenging than the assignments. This is intended to reinforce and apply larger concepts related to programming.</p>	
<b>Quizzes</b>	<b>10%</b>
<p>Each lesson will contain a quiz for you to take by a specific due date. Each quiz has a 10-minute time limit and can only be taken once.</p>	
<b>Final exam</b>	<b>35%</b>
<p>There will be a take-home final exam</p>	
<b>Total</b>	<b>100%</b>

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### **Attendance and class participation**

Attendance will be taken periodically. Missing more than two classes may adversely affect your final grade. Students are expected to attend all classes and regularly participate in class discussions.

## *Religious Observances and Other Absences*

NYU's Calendar Policy on Religious Holidays states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. You must notify me in advance of religious holidays or observances that might coincide with exams, assignments, or class times to schedule mutually acceptable alternatives. Students may also contact [religiousaccommodations@nyu.edu](mailto:religiousaccommodations@nyu.edu) for assistance. Except for religious observances or other absences that may be required in compliance with nondiscrimination law, this class otherwise requires attendance and participation and cannot accommodate conflicts. Please review all class dates at the start of the semester and review all course requirements to identify any foreseeable conflicts with exams, course assignments, projects, or other items required for participation and attendance. If you are aware of a potential conflict, it is strongly recommended that you do not take this class.

### **Incomplete and late assignments**

Late work will not be accepted. There are no resubmissions of assignments, quizzes, or exercises that have been previously submitted. Technical issues will not be accepted as an excuse for late or missed work.

### **Late course access due to drop / add**

If you registered late for the class and could not technically attend class 1 due since you were not registered at the time, please email me for instructions on how to handle incomplete work for the week 1 deliverables.

### **Laptops**

Please bring your laptop to all classes. The laptops, for the purpose of note-taking, accessing class resources, and in-class coding exercises, are permitted.

### **Class recordings**

Classes will be recorded using Media Site. You can access recordings by going to our Brightspace course site > Content > Mediasite. Classes will NOT be recorded using Zoom, with the exception of class TBA, which will be online via Zoom.

## **Resources**

### **Required textbook and software**

- Sosulski, K. (2025). [Python for Data](#). Bookdown: New York. Available for FREE. You will need a special username and password to access the website.
  - User Name: gdhost Password: gdhost!
- Class slides: Class slides will be provided in advance. They can be printed from Google Chrome.
- Google Colab: <https://colab.research.google.com/> (FREE)
- Severance, C. (2016). Python for everybody: [http://do1.dr-chuck.com/pythonlearn/EN\\_us/pythonlearn.pdf](http://do1.dr-chuck.com/pythonlearn/EN_us/pythonlearn.pdf)
  - Code examples: <https://www.py4e.com/code3/>

## Learning resources

- **The python language reference**  
This reference manual describes the syntax and “core semantics” of the language. It is terse but attempts to be exact and complete. The semantics of non-essential built-in object types and of the built-in functions and modules are described in The Python Standard Library.  
<https://docs.python.org/3/reference/index.html#reference-index>
- **The python standard library**  
This library reference manual describes the standard library that is distributed with Python. It also describes some of the optional components that are commonly included in Python distributions.  
<https://docs.python.org/3/library/index.html#library-index>
- **Large language models (such as ChatGPT):** If you include GenAI generated content in your assignments or exercises, cite it as you would any other reference material. Failure to acknowledge that content was AI generated will be considered a violation of academic integrity.

## Communication strategy

There are several resources and communication channels available to support you in your learning and to answer your questions.

- Questions about course content (concepts, assignment instructions, etc.): Please feel free to email me AND the Teaching Fellow, with any course content and grading-related questions. One of us will respond within 24–48 hours. If, for some reason, we do not respond, please resend your email.
- To schedule a time to meet with me during office hours, please schedule with me by email a few days in advance, if possible.

# Conduct

## Academic integrity

We take pride in our well-rounded education and approach our academics with honesty and integrity. Indeed, integrity is critical to all that we do here at NYU Stern. As members of our community, all students agree to abide by the NYU Academic Integrity Policies as well as the NYU Stern Student Code of Conduct, which includes a commitment to:

- Exercise integrity in all aspects of one's academic work including, but not limited to, the preparation and completion of exams, papers and all other course requirements by not engaging in any method or means that provides an unfair advantage.
- Clearly acknowledge the work and efforts of others when submitting written work as one's own. Ideas, data, direct quotations (which should be designated with quotation marks), paraphrasing, creative expression, or any other incorporation of the work of others should be fully referenced.
- Refrain from behaving in ways that knowingly support, assist, or in any way attempt to enable another person to engage in any violation of the Code of Conduct. Our support also includes reporting any observed violations of this Code of Conduct or other School and University policies that are deemed to adversely affect the NYU Stern community.
- **Large language models (LLMs)** may be used in this class, however, you must cite it as you would any other reference material. Failure to acknowledge that content was GenAI generated will be considered a violation of academic integrity.

Please cite your usage of AI tool using MLA format. Specifically, the full reference example is shown below along with an in-text citation.

MLA bibliographic  
reference

"Your Prompt" prompt. *ChatGPT, January 15*  
40 version, <https://chat.openai.com>

MLA in-text citation

<https://style.mla.org/citing-generative-ai/> ("Your Prompt")

For example, if you use ChatGPT to help you solve a problem for homework, you would cite it in your Python code as a comment each time you used it. See the in-code citation and the full reference. You need to provide a reference for each unique prompt that you make.

### **SAMPLE CODE**

```
import pandas as pd

customer_id = [101, 102, 103, 104, 105]
total_payment = [250.50, 320.75, 150.00, 450.25, 300.00]

customer_data = pd.DataFrame({
    'customer_id': customer_id,
    'total_payment': total_payment
})

print(customer_data)

# ("Can you help me create a data frame with two columns of data in
Python? The first column should be customer_id and the second column
should be total_payment")

# References

# "Can you help me create a data frame with two columns of data in R? The
first column should be customer_id and the second column should be
total_payment" prompt. ChatGPT, January 15 4o version,
https://chat.openai.com.
```

### **Stern Code of Conduct**

The Stern Code of Conduct and Judiciary Process applies to all students enrolled in Stern courses. For graduate students, information can be found here: <https://www.stern.nyu.edu/uc/codeofconduct>.

### **General Conduct and Behavior**

Students are also expected to maintain and abide by the highest standards of professional conduct and behavior. Please familiarize yourself with [Stern's Policy in Regard to In-Class Behavior & Expectations for Graduate students](#) and the [NYU Student Conduct Policy](#) .

## Equity & inclusion

New York University is committed to equal treatment and opportunity for its students and to maintaining an environment that is free of bias, prejudice, discrimination, and harassment ([details on policy and reporting](#)). Taking this further, a goal of this program is to support and cultivate diversity of thought, perspectives, and experiences. The intent is to present materials and activities that will challenge your current perspectives with the goal of understanding how others might see situations differently. We expect everyone in the program and this course to be committed to making this an inclusive learning environment for all.

## Accessibility

Our aim is for students to be as successful academically as they can, and to help them overcome any impediments to that. Any student who may be struggling and believes this may affect their performance in this course is urged to contact the Moses Center for Student Accessibility (see also the Student Accessibility section of this syllabus) at 212-998-4980 to discuss academic accommodations. If mental health assistance is needed, call the NYU's 24/7 Wellness Exchange hotline 212-443-9909. Furthermore, please approach me if you feel comfortable doing so. This will enable me to provide relevant resources or referrals. There are also drop in hours and appointments. Find out more at <http://www.nyu.edu/students/health-and-wellness/counseling-services.html>

Graduate students can also reach out to the Academic Advising team at [academicaffairs@stern.nyu.edu](mailto:academicaffairs@stern.nyu.edu) if you would like to receive more information or further support.

## Name Pronunciation and Pronouns

NYU Stern students now have the ability to include their pronouns and name pronunciation in Albert. I encourage you to share your name pronunciation and preferred pronouns this way. Please utilize this link for additional information: [Pronouns & Name Pronunciation](#)

## Wellness

School can be stressful. If you would like help, we encourage you to reach out to the NYU Wellness Exchange for mental health support. You can reach them 24/7 at 212-443-9999, or via their app. There are also drop-in hours and appointments. Learn more on [NYU's Counseling & Wellness Services](#) website.

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