Python Coding for Public Policy - Fall 2022

NYU | WAGNER

Instructor Information

- Professor: [Aidan Feldman](), [alf9@nyu.edu]()
- Grader: Tara Merigan, [tsm6919@nyu.edu]()
- Office Hours: TBD on Zoom, and by appointment

Course Information

- Course Number: [PADM-GP 4506]()
- Class Meeting Times: Wednesdays, 10/26-12/14 6:45-8:25pm ET
  - No class 11/23 for [Fall Break]()
- Class Location: [NYU Global Center for Academic and Spiritual Life, 238 Thompson St](), room 288
- Prerequisites: None
- Students should bring a laptop to class
  - A tablet without a full keyboard will be hard to use for in-class exercises

Description

This 7-week mini course exposes the students to the application and use of Python for data analytics in public policy setting. The course teaches introductory technical programming skills that allow students to learn Python and apply code on pertinent public policy data. The majority of the class content will utilize the [New York City 311 Service Requests]() dataset. It's a rich dataset that can be explored from many angles relevant to real-world public policy and program management responsibilities.

Class will be split between:

- Lecture
- Demonstration
- Hands-on time to:
  - Play with the code from lectures
  - Start on the homework
  - Ask questions

This class is a prerequisite for [Advanced Data Analytics and Evidence Building](), which builds on the topics covered here.

Homework

Homework assignments will consist of two different formats:

1. Online tutorials: In advance of classes, online tutorials will be assigned as homework. These online tutorials will introduce students to critical Python concepts. The following lecture will then focus on applying those concepts to real public policy data questions.

2. Data exploration, analysis, and visualization: Students will complete Python coding exercises that apply new concepts they have learned in lecture. Coding assignments will build off of concepts covered in previous assignments.

Learning Objectives

Students will learn how to:

- Use [Jupyter](#)
- Have an understanding of Python fundamentals
    - Common data types
    - Functions
    - How to read documentation
    - How to troubleshoot
- Know how to use several Python packages for different kinds of data analysis, manipulation, and visualization

Schedule

Lecture	Date	Topics	Homework
[0](#)	10/26	Intro to coding	pre-class TODOs due, [HW0](#) assigned
[1](#)	11/2	Intro to Pandas	[HW0](#) due, [HW1](#) assigned
[2](#)	11/9	Manipulating and combining data	[HW1](#) due, [HW2](#) assigned
[3](#)	11/16	Data visualization	[HW2](#) due, [HW3](#) assigned
[4](#)	11/30	Working with dates and time series analysis	[HW3](#) due, [HW4](#) assigned
[5](#)	12/7	APIs	[HW4](#) due, [HW5](#) assigned
[6](#)	12/14	Guest lecture(s) and topic(s) of students' choice	[HW5](#) and [HW6 proposal](#) due, [HW6](#) assigned - due 5/15

Communications

- All announcements and assignments will be delivered through [the Brightspace site](#).
- Assignments, due dates, and other aspects of the course may be modified mid-course.
    - As much advance notice will be given as possible.
- Troubleshooting and other communications between class sessions will be through [the Discussions in Brightspace](#), so that other students can respond and/or benefit from the answers.
    - Email is also an option, though please only use for questions that aren't appropriate for others to see.
- We will try to respond within 24 hours, 48 hours max.
- The classes will be streamed and recorded via Zoom on a best-effort basis.
    - Find the recordings in Brightspace under the [Zoom tab](#), then `Cloud Recordings`.
    - The instructor won't interact with any Zoom participants.
    - Office hours will not be recorded.

Assignments and Evaluation

The Course Grade is based on the following:

- 7 [Assignments](): 95%
    - [HW0](): 13%
    - [HW1](): 13%
    - [HW2](): 13%
    - [HW3](): 13%
    - [HW4](): 13%
    - [HW5](): 6%
    - [HW6 proposal](): 6%
    - [HW6](): 18%
- [Between-Class Participation](): 5%

Assignments

In general, assignments are due Thursdays at 6:45pm (the start of class). Scoring:

- Late work: -0.5 points per day
- Syntax errors: -0.5 points
- Incomplete Steps / Steps with logic errors: -0.1 to -0.2 points
- Visualizations incomplete, e.g. missing meaningful title/labels: -0.1 points
- Unattempted Steps: -0.4 points

If the submission showed effort, feedback will be given through [annotations in Brightspace]().

For submissions that showed effort and were on time, the assignment can be resubmitted to improve the score. This will be due before the next class (the `End Date` on Assignments in Brightspace), and can be resubmitted through Brightspace.

Requests for extensions will only be considered if made before the deadline.

Participation

Participation means:

- Asking a question
- Answering a question
- Volunteering to demonstrate
- Posting a useful/interesting resource

in either:

- Office hours
- [The Discussions in Brightspace]()
    - When starting a new Conversation, please use a descriptive Title to make them easier to navigate
    - Suggest checking your [notifications settings]() to make sure you see conversations that come through

The following don't count towards the Between-Class Participation score:

- In-class participation, due to:
    - The difficuly of tracking participation live
    - Some students being more shy
- Homework revisions
- Communications about grades or other administrivia

A student's overall Between-Class Participation score is calculated based on some form of participation every week.

Letter Grades

Letter grades for the entire course will be assigned as follows:

Letter Grade	Points	Description	Criteria
A	4.0 points	Excellent	Exceptional work for a graduate student. Work at this level is unusually thorough, well-reasoned, creative, methodologically sophisticated, and well written. Work is of exceptional, professional quality.
A-	3.7 points	Very good	Very strong work for a graduate student. Work at this level shows signs of creativity, is thorough and well-reasoned, indicates strong understanding of appropriate methodological or analytical approaches, and meets professional standards.
B+	3.3 points	Good	Sound work for a graduate student; well-reasoned and thorough, methodologically sound. This is the graduate student grade that indicates the student has fully accomplished the basic objectives of the course.
B	3.0 points	Adequate	Competent work for a graduate student even though some weaknesses are evident. Demonstrates competency in the key course objectives but shows some indication that understanding of some important issues is less than complete. Methodological or analytical approaches used are adequate but student has not been thorough or has shown other weaknesses or limitations.
B-	2.7 points	Borderline	Weak work for a graduate student; meets the minimal expectations for a graduate student in the course. Understanding of salient issues is somewhat incomplete. Methodological or analytical work performed in the course is minimally adequate. Overall performance, if consistent in graduate courses, would not suffice to sustain graduate status in "good standing."
C+	2.3 points	Deficient	Inadequate work for a graduate student; does not meet the minimal expectations for a graduate student in the course. Work is inadequately developed or flawed by numerous errors and misunderstanding of important issues. Methodological or analytical work performed is weak and fails to demonstrate knowledge or technical competence expected of graduate students.
C	2.0 points	"	"
C-	1.7 points	"	"
F	0.0 points	Fail	Work fails to meet even minimal expectations for course credit for a graduate student. Performance has been consistently weak in methodology and understanding, with serious limits in many areas. Weaknesses or limits are pervasive.

Class Policies

A student may work with other students. However, solutions should not be identical to / copied-and-pasted from one another, and each student should submit their assignment separately. In addition, students need to indicate who they worked with with each submission.

All submissions must be made from a Jupyter notebook file, following [these instructions](#).

Attendance is mandatory but most importantly, important. Learning programming requires commitment from the part of the student and the skills are built out of practice.

Academic Integrity

Academic integrity is a vital component of Wagner and NYU. All students enrolled in this class are required to read and abide by Wagner's Academic Code. All Wagner students have already read and signed the Wagner Academic Oath. Plagiarism of any form will not be tolerated and students in this class are expected to report violations to me. If any student in this class is unsure about what is expected of you and how to abide by the academic code, you should consult with me.

NYU's Calendar Policy on Religious Holidays

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. Please notify me in advance of religious holidays that might coincide with exams to schedule mutually acceptable alternatives.

Accessibility

Academic accommodations are available for students with disabilities. Please visit the [Moses Center for Student Accessibility](#) website and click on the Reasonable Accommodations and How to Register tab or call or email CSD at (212-998-4980 or mosescsd@nyu.edu) for information. Students who are requesting academic accommodations are strongly advised to reach out to the Moses Center as early as possible in the semester for assistance.

Technology Support

You have 24/7 support via NYU's IT services. Explore the [NYU servicelink knowledgebase](#) for troubleshooting and student guides. Contact askIT@nyu.edu or 1-212-998-3333 (24/7) for technology assistance. Your peers are another source of support, so you could ask a friend or classmate for help or tips.

If you do not have the appropriate hardware technology nor financial resources to purchase the technology, consider applying for the NYU [Emergency Relief Grant](#).