New York University Tandon School of Engineering
Department of Computer Science and Engineering
Course Outline CS-UY 1113
Problem Solving and Programming I
Spring 2021
Professor Peter DePasquale

Section	Class # / Days	Times	Location
A			
ALAB			
BLAB			
CLAB			

To contact the professor:

	Email address	Office	Phone
DePasquale	peter.depasquale@nyu.edu	Online for Spring 2021	646-997-3357

Office hours:

	Office Hours
Dr. DePasquale	The link to Zoom meetings for appointments is part of the calendar appointment page.

Course Prerequisites (none)

Course Anti-requisites CS-UY 1114

Course Description This course introduces problem solving and computer programming and is for undergraduate engineering students who do not have prior experience in programming in any language. The course covers fundamentals of computer programming and its underlying principles using the Python programming language. Concepts and methods introduced in the course are illustrated by examples from engineering and other disciplines. ABET competencies: 1, 7

In addition to the lectures, you must be registered for one of the mandatory lab sections that correspond to your lecture.

Course Objectives - By successfully completing this course, you will be able to

- solve problems computationally by designing, implementing, and testing programs using the Python language, and
- apply fundamental programming concepts (conditionals, iteration), types (integers, floating point, booleans, and strings), and data structures (lists, tuples) in developing functional-based programming solutions.

Course Structure

This course includes 2 weekly lecture sections (herein known as "classroom meetings" due to the "flipped" nature of the class) and a mandatory weekly lab section.

Readings

The required text for the course is: The Practice of Computing Using Python, 3rd Edition, 2016, by Punch and Enbody, Pearson Inc, ISBN 0-13-437976-4

The location of books and readings - NYU bookstore

Required software for this course: You will need a Python editor (Thonny, Idle, PyCharm, etc.) and compiler (Python 3). Please see the editor's installation instructions to determine if you need a compiler (many editors include the compiler) or how to install a compiler if you need one.

Required hardware for this course: You will need a computer. Generally speaking, most modern laptops work well for classroom meeting work. Some students choose to use a desktop computer, but of course, it's not possible to bring that to classroom meetings and labs. Programming work performed during classroom meetings is not graded, but is much easier if you have a computer. Tablet computers and Chromebooks are strongly discouraged for the course, though if you must, speak with the instructor about how to complete your programs (and save them) via a browser-based environment.

Course requirements - For the Spring 2021 semester, the class will be flipped. I strongly recommend reading about it here: https://en.wikipedia.org/wiki/Flipped_classroom. Of particular note is the following quote.

> "In a flipped classroom, students watch online lectures, collaborate in online discussions, or carry out research at home while engaging in concepts in the classroom with the guidance of a mentor."

You are expected to attend the classroom meetings having watched the lecture online before the meeting. There are required quizzes at the end of many recorded lectures, which are due before the classroom meetings. During the classroom meetings we will focus on working problems (writing programs) related to the concepts presented in the lecture videos. It will not be a traditional lecture. It is expected that if you have questions resulting from watching the videos, you will raise them during the meetings. Please come prepared to do so.

Active participation in classroom meetings discussion is strongly encouraged. This is the best time for students to ask questions or clarify any confusing concepts. Classroom meetings will also be used to remind you of due dates, answer questions about logistics (test), and clarify homework issues. If you miss classroom meetings, you should contact a classmate to determine if there were any missed items you need to review.

Course Assessments

Post-Video Quizzes: 5% - Almost every recorded lecture video will be followed by a quiz. Quizzes (taken through Gradescope) must be completed before the classroom meetings commences. Late quizzes will only be accepted in accordance with our excused absence policy (see below). The list of which quiz(zes) must be completed prior to each classroom meetings will be provided.

Lab: 15% of final grade- Weekly lab assignments are given in a supervised in-person or online environment. You may discuss your work with other students and with teaching assistants. You may work in pairs. Your grade is based on completing a reasonable attempt for each problem. Extra credit opportunities may be offered in lab work. All lab grade disputes must be addressed no later than two weeks following the lab in question or the date of the final exam, whichever comes first.

Homework: 20% of final grade - Assigned throughout the semester, homeworks are to be completed independently, outside of class time. Your grade reflects to what extent your solution is correct. Grade disputes here are handled within the Gradescope platform. Regrade requests are usually within a 1 week window. Anyone caught plagiarizing or collaborating on homework assignments will be dealt with in accordance with the Tandon Student Code of Conduct (discussed below). The penalty for plagiarism or collaborating on homework assignments is a 0 grade for the assignment.

Highest exam: 25% of final grade - Note that your most successful exam (highest grade) carries more weight toward your overall grade than the other exams.

Second highest exam: 20% of final grade

Third highest exam: 15% of final grade

Exam dates are as follows (3/9/21, 4/13/21, and the final exam is TBD). We will be using the common exam time for introductory Computer Science and Engineering courses (12:30pm-1:50pm on those dates). If you are a remote student (as reflected in Albert) we will discuss alternative test times.

Collaboration and plagiarism on exams is strictly prohibited. Anyone caught plagiarizing or collaborating on exams will be dealt with in accordance with the Tandon Student Code of Conduct (discussed below). The penalty for plagiarism or collaborating on

either of the first two exams is a 0 (zero) grade for the exam. The penalty for plagiarism or collaboration on the final exam is a "F" grade for the course.

Grading Schema

The following schema will be used in assigning overall course letter grades:

Grade	Minimum %
A	95.0
A-	90.0
B+	87.0
B	83.0
B-	80.0
C+	77.0

Grade	Minimum %
C	73.0
C-	70.0
D+	67.0
D	63.0
F	0.0

Course Schedule

Week	Day	Date	Meeting Activity Topic	Lab Topic(s) This Week (Thurs/Fri)
0	Fri	29-Jan	None	Lab 1: Getting started, simple programs, uploading to Gradescope
1	Mon	1-Feb	Syllabus overview / Introduction (Chapter 0)	Lab 2: Basic user I/O, variables and data types
	Wed	3-Feb	Introductions / Parts of a program, Variables (1.1 - 1.5), Basic Data Types (1.6)	
2	Mon	8-Feb	Basic Operators and Expressions (with Booleans) (1.7, 1.9, 1.11, 2.1.2, 2.2.1 - 2.2.4)	Lab 3: User IO, types, expressions, operators, binary / dec / hex conversions
	Wed	10-Feb	Binary representation and other number system (0.8)	
3	Mon	15-Feb	**NO CLASSES**, RELIEF DAY, MONDAY CLASSES MOVED TO THURSDAY	Lab 4: Using math and random modules **[SEE NOTE 1]**
	Wed	17-Feb	Using modules: math (1.8 - 1.10, 2.3)	
	Thur	18-Feb	Using modules: random	
4	Mon	22-Feb	Selection statements: if (2.1.1-2.1.3), Booleans and advanced expressions (2.2.4 - 2.2.7)	Lab 5: Selection statements: if (no else, elif!) with logic operators (and/or)

	Wed	24-Feb	Selection statements: if-else (2.1.3-2.1.4, 2.2.8)	
5	Mon	1-Mar	Selection statements: if-elif	Lab 6: Review for Exam (9-Mar)
	Wed	3-Mar	Selection statements: if-elif	
6	Mon	8-Mar	Iterative statements: While loops (2.1, 2.2.10 - 2.2.15, 2.2.5)	Lab 7: Selection statements (if/else/elif) / While Loops
	Tues	9-Mar	**MIDTERM #1 (through week 4, inclusive)**	
	Wed	10-Mar	Iterative Statements - While loops	
7	Mon	15-Mar	Iterative Statements - For loops	**NO LAB THIS WEEK**, RELIEF DAY **[SEE NOTE 2]**
	Wed	17-Mar	Iterative Statements - For loops	
8	Mon	22-Mar	Nested Loops	Lab 9: For Loops / Nested Loops
	Wed	24-Mar	Strings (4)	
9	Mon	29-Mar	Strings	Lab 10: Strings
	Wed	31-Mar	Functions (5, 8)	
10	Mon	5-Apr	Functions	Lab 11: Review for Exam (13-Apr)
	Wed	7-Apr	Functions	
11	Mon	12-Apr	Lists and Tuples (7)	Lab 12: Functions
	Tues	13-Apr	**MIDTERM #2 (through week 9, inclusive)**	
	Wed	14-Apr	Lists	
12	Mon	19-Apr	**NO CLASSES**, RELIEF DAY	Lab 13: Lists and Tuples
	Wed	21-Apr	Tuples	
13	Mon	26-Apr	List comprehension	Lab 14: List comprehension
	Wed	28-Apr	Larger examples / challenge problems	
14	Mon	3-May	Larger examples / challenge problems	Lab 15: Review for Final Exam
	Wed	5-May	Larger examples / challenge problems	
15	Mon	10-May	Larger examples / challenge problems	**NO LAB THIS WEEK, CLASSES END on 10-May**

Schedule Notes

[1] Due to the campus schedule change for the week of 15-Feb, the Thursday evening lab will attempt to be held (pending TA support) as usual. Online lab participants can also choose to attend one of the Friday morning labs, or complete the lab individually. The lab will continue to be due on Saturday, February 20th, at noon.

[2] Due to the campus schedule change for 19-Mar, there will be no lab held this week. This includes both of the Friday morning labs and the Thursday night online lab.

Moses Center Statement of Disability

If you are a student with a disability who is requesting accommodations, please contact New York University's Moses Center for Students with Disabilities (CSD) at 212-998-4980 or mosescsd@nyu.edu. You must be registered with CSD to receive accommodations. Information about the Moses Center can be found at www.nyu.edu/csd. The Moses Center is located at 726 Broadway on the 3rd floor.

NYU School of Engineering Policies and Procedures on Academic Misconduct – complete Student Code of Conduct here.

A. Introduction: The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.

B. Definition: Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:

    1. Cheating: intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam

for someone else; violating other rules governing the administration of examinations.

2. Fabrication: including but not limited to, falsifying experimental data and/or citations.
3. Plagiarism: intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.
4. Unauthorized collaboration: working together on work meant to be done individually.
5. Duplicating work: presenting for grading the same work for more than one project or in more than one class, unless express and prior permission has been received from the course instructor(s) or research adviser involved.
6. Forgery: altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.

NYU School of Engineering Policies and Procedures on Excused Absences – complete policy here**.**

A. Introduction: An absence can be excused if you have missed no more than **10 days of school**. If an illness or special circumstances cause you to miss more than two weeks of school, please refer to the section labeled Medical Leave of Absence.

B. Students may request special accommodations for an absence to be excused in the following cases:

   1. Medical reasons
   2. Death in immediate family
   3. Personal qualified emergencies (documentation must be provided)
   4. Religious expression or practice

Deanna Rayment, deanna.rayment@nyu.edu, is the Coordinator of Student Advocacy, Compliance and Student Affairs and handles excused absences. She is located in 5 MTC, LC240C and can assist you should it become necessary.

NYU School of Engineering Academic Calendar – complete list here**.**
The last day of the final exam period is May 18th, 2021. Final exam dates for undergraduate courses will not be determined until later in the semester. If you have two final exams at the same time, report the conflict to your professors as soon as possible. Do not make any travel plans until the exam schedule is finalized.

Also, please pay attention to notable dates such as Add/Drop, Withdrawal, etc. For confirmation of dates or further information, please contact Susana: sgarcia@nyu.edu

Additional Policies

Fully OnLine Policy

In the event that the university goes to all on-line instruction (either for the remainder of the semester or for a shorter period of time), the only change to this class will be that the Friday morning (in-person) labs will be moved online to a Zoom room at the same time. The other lab (normally online) and the class meetings are and will remain completely online for the entire semester.

Communication

We use email to make class announcements. It is your responsibility to check your NYU email account regularly. Assignments will typically be posted on NYU Classes, and submitted through Gradescope. It is your responsibility to check NYU Classes for assignments, and to submit your work in a timely manner.

Exam Policy

Exams this semester will be 100% online. If you are a NYC-local student, are within 6 hours of NYC timezone, or choose to take it during the class meeting time, you will take the exam (midterm) during the scheduled exam time (12:30pm-1:50pm Tuesday as listed above). For those more than 6 hours away (in terms of time zones in either direction), we will discuss arrangements for your test separately.

If you have a question during an exam, you will reach the professor via email. All electronic devices (phones, laptops, etc.) are banned from use in all tests. If you are caught with one in your possession; a violation of this policy will result in failure. Midterm exams will be 1 hour, 20 minutes in length. The final exam will be the standard 2 hour length.

Final Exam

Final exams will be held during the week of May 12th-18th. Exact times will be announced by NYU at a later date. We are unable to provide earlier final exams. Please do not make any travel plans that could potentially conflict with final exams. If you have another final exam that conflicts with this exam, please notify your instructor ASAP.

Late Policy

In general, we do not accept late assignments and do not offer substitute times for exams. If you have extenuating circumstances, please contact Deanna Rayment (see above) for accommodations.

Attendance

Students are expected to arrive at every class promptly (including when the class is online). You should be actively engaged in the learning process during the duration of the class time. Class attendance is mandatory. Constructive class participation may result in a boost to your grade *(e.g. from B+ to A-). Whether or not there is a boost will

depend on how far you are from the next cut-off and my perception of the value of your participation.

Please disable or silence any device which may audibly disrupt the class. This includes phones, beepers, and tablets. Please do not eat or drink during class.