

**LAGUARDIA COMMUNITY COLLEGE  
CITY UNIVERSITY OF NEW YORK  
DEPARTMENT OF MATHEMATICS, ENGINEERING, AND COMPUTER SCIENCE**

**MAC 108– Introduction to Programming with Python**

**4 hours (3h lecture, 1h lab), 3 credits**

**Prerequisite: MAT120 or MAT115**

**Instructor:**

**Contact:**

**Office:**

**Office hours:**

**Description**

This course is an introduction to programming using the Python language. An emphasis will be placed on algorithmic design; basic concepts such as variables, assignments and flow control (conditionals, loops, iterators and functions) will be introduced. More advanced topics such as strings, tuples, lists, dictionaries, files and classes will also be covered. Students will be required to write multiple programs in Python, and give an oral presentation of research paper, which can be uploaded as video to ePortfolio.

**Instructional Objectives:**

1. Enable students to utilize appropriate technical vocabulary.
2. Provide students with the skills to design computer programs to solve problems.
3. Familiarize students with basic control structures such as iteration and conditionals.
4. Introduce the concepts of functions and recursive methods.
5. Introduce students to text, strings, lists, tuples, dictionaries and files.
6. Introduce students to the notions of classes and objects.
7. Introduce students to research on global trends in computer science.

**Performance Objectives:**

1. Use appropriate technical vocabulary when discussing course topics.
2. Write programs (algorithms) to solve problems.
3. Write programs using the basic control structures of iteration and conditionals.
4. Write programs using functions and utilize recursive methods in solving problems.
5. Solve problems involving text, lists, and more complex data structures involving dictionaries and files.
6. Design and code a simple class and create and use objects from that class.
7. Read a research paper and prepare an oral presentation on computer science trends world-wide.

## Required Textbook :

Downey, Allen B. Think Python: How to Think Like a Computer Scientist

O'Reilly Media, 2nd Edition, December 28, 2015

ISBN: 1491939362

## Grading Standards:

Oral Presentation	10%
Homework (5 @ 2% each)	10%
Laboratory (10 @2% each)	20%
In-class Tests (2 @ 15% each)	30%
Final Exam	30%
Total	100%

## Comments:

The grading standards listed above and the suggested homework problems listed in the course outline are both subject to modification by the instructor.

Note: Your programs/labs will be graded according to the following rubric:

1	2	3	4	5
The student has entered a code that does not solve the problem and may or may not run. The code has no relation at all to the solution of the problem.	The program has a sense of the solution but is lacking some key logic.	The structure of the program is good but there is one small logic or syntax error.	The program solves the problem but it is not documented and written concisely and lacks good programming style.	The program solves the problem correctly, is documented, and tested for all cases.

## Letter Grade Assignment

Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

Letter Grade	Percentage	Performance
A	91-100%	Excellent Work
A-	87-90%	Nearly Excellent Work
B+	84-86%	Very Good Work
B	81-83%	Good Work

<b>Letter Grade</b>	<b>Percentage</b>	<b>Performance</b>
B-	78-82%	Mostly Good Work
C+	75-77%	Above Average Work
C	72-74%	Average Work
C-	69-71%	Mostly Average Work
D+	66-68%	Below Average Work
D	60-65%	Poor Work
F	0-59%	Failing Work

## **Course Policies**

### **Attendance**

Students are expected to attend all class sessions as listed on the course calendar. The maximum number of unexcused absences allowed is 15% of the total class meetings (about 7 hours). Unexcused absences beyond this maximum will result in a grade of WU or F.

### **Late Work Policy**

Be sure to pay close attention to deadlines—there will be no makeup assignments or quizzes, or late work accepted without a serious and compelling reason and instructor approval.

Most online activities will have an automated deadline. Past the due date the activities will not be visible on Blackboard.

For handed on assignments, there will be 20% reduction of the grade for every three days late. The assignment won't be accepted after one week late.

### **Understand When You May Drop This Course**

It is the student's responsibility to understand when they need to consider drop from a course. Refer to the official calendar at LaGuardia's website.

### **Incomplete Policy**

The INC (incomplete) grade will be given to **ONLY** students who pass both midterm and final exams and did not complete lab work, or special emergency cases with a prior agreement of the instructor. All incomplete course assignments must be completed within one semester otherwise the grade will turn into F.

### **Inform Your Instructor of Any Accommodations Needed**

If you have a documented disability, and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to the office for Students with Disabilities (OSD) at LaGuardia Community College. For more information visit: [www.lagcc.cuny.edu/osd](http://www.lagcc.cuny.edu/osd)

## **Commit to Integrity**

As a student in this course (and at this college) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

## **LaGuardia Community College Academic Honesty Policy & Procedures**

**Cheating** and plagiarism are extremely serious offenses in all academic areas (consult the College's Catalog for the **definition** of Academic Dishonesty). **Any form of academic dishonesty, including cheating and plagiarism, may be reported to the office of student affairs**

## **Course Outline**

### **Week 1**

Introduction

What is a computer program? Introduction to basic arithmetic operators, values and types.

Lab1: Downloading and using the Python interpreter. Creating and executing the first program.

### **Week 2**

Variables, expressions and statements.

HW1

Lab2: Assignments, writing a basic input/output program.

### **Week 3**

Introduction to functions.

Lab 3: Writing and testing a program containing functions.

### **Week 4**

Conditionals and recursion. Recursive functions.

HW2

Test 1

Lab 4: Using selection statements.

### **Week 5**

Iteration

Lab 5: Using simple iteration and loops.

### **Week 6**

Characters, strings and handling text.

HW3

Lab 6: Write computer programs to use and manipulate text.

### **Week 7**

Lists

Lab 7: Strings, lists,

### **Week 8**

Dictionaries

HW4

Lab 8: Using dictionaries.

**Week 9**

Tuples

Test 2

Lab 9: Tuples

**Week 10**

File manipulation.

Discussion of research papers for oral presentations.

HW5

Lab 10: File processing.

**Week 11**

Introduction to classes and objects.

Oral presentations.

**Week 12:**

Classes and methods (continued)

Review for Final Exam

**Week 13**

Final Exam