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

MAC101 Introduction to Computer Science
(Last update December 29, 2020)

4 hours (3 lecture, 1 lab), 3 credits
Prerequisites: CSE099 and MAT200
Pre/Corequisites: ENG/ESA099/ENC101, ENA099

CATALOG DESCRIPTION:
In this first course in the computer science program, emphasis will be placed on algorithmic design. Basic concepts such as selection statements, loops, character strings, arrays, pointers and file processing will be taught. Students will be required to write several programs in an appropriate language.

Instructional Objectives:
1. Introduce students to the technical vocabulary of computer science. Discuss current developments of computer science and its global implications.
2. Enable students to design programs (algorithms) to solve computer science problems.
3. Familiarize students with number systems and the representation of data in computer memory.
4. Familiarize students with basic control structures such as selection and iteration.
5. Introduce students to arrays and strings.
6. Introduce students to functions, parameters and overloading
7. Introduce students to basic object-oriented features of C++.
8. Familiarize students with basic sorting algorithms.

Performance Objectives:
1. Use appropriate technical vocabulary in writing assignments and projects. Explain global implications of computer science advancements via oral presentation.
2. Design programs (algorithms) to solve problems.
3. Convert numbers from one base to another and describe computer memory structures.
4. Write programs using the basic control structures of iteration, and selection.
5. Use arrays and strings to store and process information.
6. Write programs containing functions.
7. Write programs using C++ structures and classes
8. Code basic sorting algorithms in an appropriate higher-level language.

TEXTBOOK: Walter Savitch, **Absolute C++, 6th edition,** 2016, ISBN: 978-0-13-397078-4
Note: Other books and online resources can also be used in this class.
Note: You will continue to use this book if you take MAC125 at LaGuardia

GRADING STANDARDS:

Grading Standards:

Quizzes (2 @ 5%)	10%
Homework	10%
Labs (4 @5%)	20%
Tests (2 @ 15%)	30%
Final Exam	30%
Total	100%

ACADEMIC INTEGRITY: This class will be conducted in compliance with LaGuardia Community College's academic integrity policy.

Sanctions for Academic Integrity Violations: Sanctions or penalties for violations of academic integrity are imposed by the faculty member teaching the course upon discovery of a violation. All cases of academic dishonesty are filed with the College Adjudicator, who maintains a record of academic integrity violations.

The occurrence of a second or third offense of academic dishonesty may involve the imposition of a disciplinary sanction in addition to the academic sanction imposed by the instructor. Sanctions for violations of academic integrity include, but are not limited to, the following:

– failure of an exam
– a grade of F on an essay or research paper
– failure of a course project
– failure of the course
– suspension from the College
– dismissal from the College

Attendance: 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.

Core Competencies e-Portfolio Depositing: Student enrolled in this course are required to deposit two assignments on the assessment section of e-portfolio, addressing the global learning competency and oral communication ability.

Weeks	Topic	Chapter(s)
Week 1	Introduction First C++ Program	1.1
	Numbers at Different Basis	Handout
Week 2	Data Types and Variables	1.2, 1.3
Week 3	Flow of Control: Branching	2.1, 2.2
Week 4	Flow of Control: Loops	2.3
Week 5	Test 1	
	Functions	3.1
Week 6	Functions	3.2
	Variable Scope	3.3
Week 7	Parameters and Overloading	4.1, 4.2
	Arrays	5.1
Week 8	Arrays (continued)	5.2, 5.4
	Pointers (basic definitions)	10.1
Week 9	Test 2	
	Structures	6.1
Week 10	Classes	6.2
Week 11	C-Strings and Strings	9.1, 9.2, 9.3
Week 12	Searching and Sorting Basics	5.3
	Final Review	
Week 13	Final Exam	