

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

MAC109 Introduction to Visual Programming

4 hours (2 lecture, 2 lab), 3 credits

Prerequisites: MAC101 or MAC108

Catalog Description:

This course introduces Windows and GUI concepts and applications through objects and programming. Students will learn to develop real-world Windows applications through an event-driven language, such as Visual Basic. Additionally, students will learn basic programming concepts such as arithmetic operations, logical operations, and interactive structures.

Instructional Objectives:

1. To familiarize the students with the following terms: microprocessor, variable, constant, string data, numerical data, and program.
2. To enable the students to write modules that include program with decisions and loops.
3. To introduce the students to programs that accept data from the keyboard or from a data file.
4. To enable the students to utilize arrays in a program.
5. To enable the students to perform complex calculations and format the output.
6. To introduce algorithms that use nested loops and process two dimensional arrays.
7. To introduce the concept of character strings.
8. To enable students to write object-oriented and event driven programs.
9. To introduce the students to sequential and random access file.
10. To enable the students to use random-numbers to do simulations, and to create graphics on the screen.

Student Learning Outcomes:

1. To define: microprocessor, variable, constant, string data, numerical data, and program.
2. To develop program modules that include decisions and loops.
3. To write a program that accepts data from the keyboard or from a data file.
4. To utilize arrays in a program.
5. To perform complex calculations and format the output.
6. To develop an algorithm and write a program that uses nested loops to process two-dimensional arrays.
7. To utilize character strings within their programs.
8. To write structured programming subroutines.
9. To utilize sequential and random access files.
10. To use random-numbers to do simulation, create graphics on the screen.

Textbook:

Barbara Doyle, C# Programming: From Problem Analysis to Program Design, 5th edition, Cengage, 2016, ISBN:9781285856872

Grading Standards:

Quizzes(4@5%)	20%
Assignments: Writing and Debugging (4-8 Programs)	30%
Class Participation and Homework	10%
Midterm	15%
Final	25%
Total	100%

Grading Chart:

Grade	F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A
Cut Point	0	60	63	66	70	73	76	80	83	86	90	93

Note: Your labs will be graded according 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 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.

Academic Integrity:

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

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 grade of WU or F.

Comments:

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

COURSE OUTLINE

Weeks	Topic	Chapter	Suggested Homework
Week 1	Introduction to Computers and Application Development.	Chapter 1	Programming Exercises: 1, 2, 5, 6, and 9. (Pgs. 66 – 70)
Week 2	Data Types and Expressions. -Variable, Constants, and Calculations.	Chapter 2	Programming Exercises: 1, 2, 4, 6, and 10. (Pgs. 134 – 136)
Week 3	Methods and Behaviors.	Chapter 3	Programming Exercises: 1, 3, 4, 5, 7 and 10. (Pgs. 195 – 196)
Week 4	Creating Your own Class.	Chapter 4	Programming Exercises: 1, 3, 4, 6, 8 and 10. (Pgs. 253 – 256)
Week 5	Making Decisions: -Decisions and Conditions -If Statements and Conditions - The case Structure.	Chapter 5	Programming Exercises: 1, 3, 5, 6, 8 and 9. (Pgs. 322 – 324)
Week 6	Repeating Instructions: - Do/Loops and For/Next Loops	Chapter 6	Programming Exercises: 1, 2, 3, 4, 6, 7, 9 and 10. (Pgs. 394 – 397)
Week 7	Arrays	Chapter 7	Programming Exercises: 1, 2, 3, 4, 6, 7, 8 and 10. (Pgs. 455 – 457)
Week 8	Advanced Collections.	Chapter 8	Programming Exercises: 1, 2, 4, 6, 8 and 9.

			(Pgs. 509 – 512)
Week 9	Introduction to Windows Programming.	Chapter 9	Programming Exercises: 1, 2, 3, 5, 6, 7, 9 and 10. (Pgs. 588 – 591)
Week 10	Programming Based on Events.	Chapter 10	Programming Exercises: 1, 2, 4, 5, 7, 9 and 10. (Pgs. 695 – 698)
Week 11	Database programming.	Chapter 14	
Week 12	Final Project: Building Windows Applications with C#. -Windows Programming and Database programming.		
Week 13	Final Exam	Covers 1-10	