

This syllabus is provided as a general informational guide. Some of the information may vary depending on the specific course section and instructor. Different sections of the same course may require different textbooks. Verify the section specific textbook information in the CUNY's Academic Course Schedule Web Page. Modifications of the grading system presented here will be communicated by the instructors of the sections when they meet the class.

BOROUGH OF MANHATTAN COMMUNITY COLLEGE

City University of New York

Department of Science

Title of Course COMPUTER METHODS IN SCIENCE

SCI 120 Section _____

Class hours 3

Lab hours 2

Instructor Information

Name:

Office:

Room:

Email:

Credits 4

Course Description

This course teaches a programming and emphasizes application of programming methods for the sciences and engineering.

Numerical methods will be applied to examples gleaned from physics, chemistry and biology and engineering.

Prerequisites/Co-requisites

MAT 206

Student Learning Outcomes

1. Students will be able to acquaint the capabilities of computers and the types of problems that computers can solve.
2. Students will be able to learn the fundamentals of programming so that they can use the computer to solve problems that are encountered in both academic and nonacademic environments.
3. Students will be able to establish good problem-solving techniques that can applied to any problem, whether computer related or not.
4. Students will be able to use practical, real-word engineering and science problems while accomplishing the first three objectives.

Required Text & Readings

Author: Tony Gaddis

Title: *Brief Edition of Starting Out with C++, 4th Edition*

Publisher: Scott Jones Inc.

(BMCC Library Call #:)

Other Resources

Use of Technology (if applicable)

Evaluation & Requirements of Students

Written Examination 50%

Programming Projects (10-12) 50%

Outline of Topics

WEEK TOPIC

CHAPTER (S)

1	Introduction to computer architecture and languages; Flowcharting fundamentals; IPO Input, Processing, Output) sequence	1, 2
2	Linear programs; Variable, Arithmetic operations; Math functions, and Input/Output	2, 3

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3	File handling, keyboard input; Relational operators; Simple IF and IF-ELSE structure	3, 4
4	Looping structures (simple, nested)	5
5	Switch statement; Functions	6
6	Functions	6
7	Applications; Method of Least Squares; Numerical Integration, File Operations	6, 11
8	Numeric Arrays; Random Numbers	7
9	Multidimensional Arrays	7
10	Matrix Manipulations (Addition, Multiplication); Gaussian Elimination, Sorting; Monte Carlo Method	7
11	Pointers	8
12	Characters, Strings, and the string Class	9
13	Structured Data	10
14	Introduction to Classes	12
15	Final Examination	

College Attendance Policy

At BMCC, the maximum number of absences is limited to one more hour than the number of hours a class meets in one week. For example, you may be enrolled in a three-hour class. In that class, you would be allowed 4 hours of absence (not 4 days). In the case of excessive absences, the instructor has the option to lower the grade or assign an F or WU grade.

Academic Adjustments for Students with Disabilities

Students with disabilities who require reasonable accommodations or academic adjustments for this course must contact the Office of Services for Students with Disabilities. BMCC is committed to providing equal access to all programs and curricula to all students.

BMCC Policy on Plagiarism and Academic Integrity Statement

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism.

Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's web side, www.bmcc.cuny.edu. For further information on integrity and behavior, please consult the college bulletin (also available online).