



CS151-001: Introduction to Computing
Department of Physics and Computer Science

COURSE SYLLABUS

Instructor:	Dr. Danjie Zhu	Class Meeting Days:	M / W
Email:	Danjie.Zhu81@login.cuny.edu	Class Meeting Hours:	8:15 am – 9:55 am
Mailbox:	A1 / 506 (PECS Dept. Office)	Class/Lab Location:	A1 / C09
Websites:	Brightspace http://146.245.250.131/~dzhu/cs151	Office Hours:	After class
Term:	Spring, 2025		

I. Welcome!

Welcome to Introduction to Computing.

II. University Course Catalog Description

This course introduces the fundamental concepts of the discipline of computing, emphasizing elementary facts concerning computer architecture, programming languages, software methodology, and algorithms. Students learn how to solve problems using an appropriate block-structure high-level programming language. Programming topics include: basic data structures, control structures, data and procedure abstractions, functions and function parameters, recursion, pointers, classes and file processing.

III. Course Overview

This is a course in fundamental computing principles for students with little to no computing background. Students learn how to solve problems using a high-level programming language.

IV. Course Objectives / Student Learning Outcomes (SLOs)

By the end of this course, students will be able to:

1. Write computer programs using the three structured programming constructs (sequence, selection, and repetition) and the basic syntax and semantics of the C++ programming language to solve simple problems.
2. Be fluent in the use of selection statements such as if, if-else and switch.
3. Be fluent in the use of repetition statements such as while loops and for loops.
4. Identify functions for program modularization, and identify and classify the parameters for the functions.
5. Write programs using functions with parameters passed by value and by reference.

V. Course Prerequisites

MTH 151

VI. Course Credits

3 credits; 3 class hours and 1 lab hour.

VII. Required Texts and Materials

Starting Out with C++: From Control Structures through Objects, Tony Gaddis, Addison-Wesley.

VIII. Exams

There will be a midterm and a final. The final is cumulative and will be on **May 21**. All exam grades will be curved.

IX. Basis for Final Grade

The final grade will be determined based on exams, assignments, quizzes, and lab projects, as follows:

Assessment	Percent of Final Grade
Homework	30%
Labs	20%
Midterm	20%
Final Exam	30%
	100%

X. Grade Dissemination

Grades for programs, lab projects, midterm, and final exam will be posted on the course website.

XI. Course Policies: Grades

Late Work Policy: There are no make-ups for missed assignments, labs, quizzes, or exams. Late work submissions will be assessed a penalty for each day after the deadline (about 10 pts for each class late).

Grades of Incomplete (INC): INC grades are at the discretion of the instructor and only given in very specific circumstances. An “INC” grade is given when the student is doing passing work during a semester and who for some justifiable reason has not been able to complete a particular assignment or misses a final exam. Check the College catalog for further information regarding INC grades.

XII. Course Policies: Technology and Media

Computers and other electronic devices can only be used to access lecture materials. Students are not to work on other materials in class. Students are required to check emails and the course website with regularity to check for class information and announcements.

XIII. Course Policies: Student Expectations

Attendance Policy: All students have the responsibility to arrive on time, attend class regularly, and to participate fully in the work of the course. Students who miss class are responsible to find out what was discussed and learn the material that was covered on the missed day(s). The instructor is not responsible for teaching missed material under any circumstances.

Assigned readings, problems and programs should be completed before class. Several computer programs/projects will be assigned to reinforce the concepts presented in class. Unless you own or have access to equivalent hardware and software, plan on spending a lot of time on campus

Honor Code and Plagiarism (Cheating): Students are required to sign and adhere to the departmental honor pledge. Check with the department for a copy of the pledge.

EXAMS AND QUIZZES

Cell phones or any other electronic devices cannot be used during exams and quizzes. Any form of cheating during an exam or quiz will cause immediate removal from the exam and a grade of zero.

HOMEWORK ASSIGNMENTS

Unless otherwise specified, homework assignments are to be completed individually. Discussions with other people about how to solve the problem, strategies, or problems that might arise are permitted. However, each person should write his/her own programs independently.

Do not, under any circumstances, copy another person's code. Incorporating someone else's code into your program in any form will be considered plagiarism and therefore a violation of academic regulations. You must be prepared to explain any program code you submit. When a student is unable to explain the working of a piece of code that he/she submitted, no credit will be given for the homework. At the discretion of the professor, the action might be reported to the Department and the Office of Student Affairs.

Disability Access: Any student who may require accommodations due to a disability must be registered with the Office of Services for the Differently-Abled and notify the instructor at the start of the semester.

XIV. Important Dates to Remember

Check the official academic calendar from the Office of the Registrar for special dates such as last day to add/drop classes, withdrawal deadline, closings, breaks, and examinations. Notice that the exam dates can be changed at the discretion of the professor.

XV. Schedule

The schedule, together with assignments, is subject to change in the progress of the course. Some topics might take longer than one week. Announcements made in the class and on the website/email override the schedule in case of conflicts.

Course Outline

Chapter/Sections

Topics

Week 1

(1.2 to 1.7)

INTRODUCTION to COMPUTERS and PROGRAMMING

Computer Systems – Hardware and Software; Programs and Programming Languages; Common Programming Language Elements; Input, Processing, and Output; Designing and Creating a Program; Procedural and Object Oriented Programming.

Using the Microsoft Visual Studio IDE (Interactive Development Environment) to Create, Compile, and Execute Visual C++ Win 32 Console Program

Weeks 2 - 3

(2.1 to 2.15)

INTRODUCTION TO C++

Parts of a C++ Program; cout Object; include Directive; Variables, Literals, and Identifiers; Data Types, Assignment Statements and Variable Initialization; Scope; Arithmetic Operators; Comments and Programming Style.

Weeks 4 - 5

(3.1 to 3.3)

(3.5 to 3.9)

(3.11 to 3.12)

(3.14)

EXPRESSIONS AND INTERACTIVITY

cin Object; Mathematical Expressions; Type Conversions and Type Casting;

Constants; Multiple and Combined Assignments; Formatted Input and Output;

Mathematical Library Functions; Hand Tracing;

Introducing to File Input and Output.

Week 6 - 7

(4.1 to 4.16)

MAKING DECISIONS

Relational Operators; if/if-else Statements; Multiple if/else Statements; Nested if Statements;

Logical Operators and Validating User Input; Scope; Comparing Strings; Conditional Operators; Switch Statement.

Weeks 8 - 9

(5.1 to 5.13)

LOOPING

Increment and Decrement Operators; while/do..while Loops; for Loops; Running Totals; Sentinel Controlled while Loops; Reading Data from a File Using a while Loop; Nested Loops; Break and Continue Statements.

Weeks 10 - 11

(6.1 to 6.13)

FUNCTIONS

Defining and Calling Functions; Function Prototypes; Sending Data to a Function;

Passing Data by Value; Returning Values from a Function; Local and Global Variables;

Static Variables; Default Arguments; Reference Variables and Parameters.

Weeks 12 - 13

PROGRAMMING PROJECTS

REVIEW FOR THE FINAL EXAM