

CSC 211?

• Introduction to Programming

- ✓ focus on **problem solving**

Language of choice: **C/C++**.
Prior programming experience is not strictly necessary.

• Computer Programming

- ✓ Basic CS constructs, OOP (classes, objects, **inheritance**, **polymorphism**, **encapsulation**)

• Review of elementary CS techniques, algorithms and **data structures**

- ✓ e.g. recursion, sorting, stack/heap

Prerequisites: **CSC 106** or major in Computer Engineering

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Tentative Schedule

Week	Topics	Resources	Lab / Assessment
Week 1	Lecture - Introduction to 211, Computer Systems, Programming Languages Lab - Hello 211, IDE Setup, Basic Shell Commands Reading - Savitch, Chapter 1	Lecture Slides Lab	Lab
Week 2	Lecture - Problems/Algorithms/Programs, History of C++, The Compiler Lecture - C++ Basics, Input/Output, Data Types, Expressions Lab - Algorithms, Problem Design, Pseudo-code Exercises Reading - Savitch, Chapter 2	Lecture Slides Lecture Slides Lab Assignment00	Lab
Week 3	Lecture - Number Systems, Further look into DataTypes Lecture - Expressions, Selection Statements Assignment - Assignment 0 Lab - Programming Exercises (branching) Reading - Savitch, Chapter 3	Lecture Slides Lecture Slides Lab	Lab
Week 4	Lecture - Introduction to Loops (for) Lecture - Loops (while, do while) and Nested Loops (examples) Assignment - Assignment 1 Lab - Programming Exercises (loops and nested loops) Reading - Savitch, Chapter 3	Lecture Slides Lecture Slides Lab Assignment01	Lab

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Tentative Schedule

Week 5	Lecture - Functions Lecture - Scope of Variables, Parameter Passing, Call Stack Lab - Using the Debugger, Programming Exercises (functions) Reading - Savitch, Chapters 4-5	Lecture Slides Lecture Slides Lab	Assessment
Week 6	Lecture - Arrays, Arrays and Functions Exam - Midterm Exam (weeks 1 to 5) Lab - Strings (C-style strings and string objects) Assignment - Assignment 2 Reading - Savitch, Chapters 7-8	Lecture Slides Lecture Slides Lab Assignment02	Lab
Week 7	Lecture - Basic Sorting Lab - Basic Sorting Algorithms	Lecture Slides Lecture Slides Lab	Assessment
Week 8	Lecture - Multidimensional Arrays Lecture - Pointers Lab - Programming Exercises (pointers) Reading - Savitch, Chapter 9	Lecture Slides Lecture Slides Lab	Lab

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Tentative Schedule

Week 9	Assignment - Assignment 3 Lecture - Recursion and Examples Lecture - Recursion (cont.) and Examples Lab - Programming Exercises (tracing recursion, recursion trees)	Lecture Slides Lecture Slides Lab	Assessment
Week 10	Lecture - Binary Search Lecture - Advanced Recursion (Backtracking), Structs Lab - Advanced Recursive Problems	Lecture Slides Lecture Slides Lab	Lab
Week 11	Assignment - Assignment 4 Lecture - Classes, Data Members and Methods (Encapsulation) Exam - Midterm Exam (weeks 6 to 10) Lab - Implementing Classes (source/headers), Arrays and Objects	Lecture Slides Lecture Slides Lab	Assessment
Week 12	Lecture - Constructors Lecture - Dynamic Memory Allocation, Destructors Lab - Developing a String Class (operators, copy constructors) Reading - Savitch, Chapter 14	Lecture Slides Lecture Slides Lab	Assessment
Week 13	Lecture - Class Inheritance Lecture - Singly Linked Lists Lab - STL Containers, File I/O, CLAs Reading - Savitch, Chapter 15	Lecture Slides Lecture Slides Lab	Assessment
Week 14	Exam - Final Exam (cumulative with focus on weeks 11 to 14)	None	None

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