

CSC 212: Data Structures and Abstractions

01: Introduction

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CSC 212

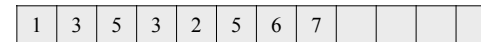
Learn to model and solve complex
problems with computers.

Course description

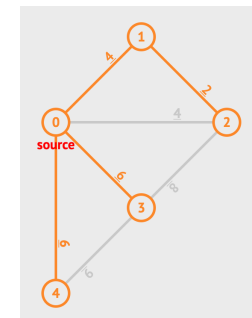
- Introduction to fundamental data structures and their algorithms
 - ✓ arrays, lists, stacks, queues, trees, hash tables, graphs (most popular topics for job interview questions)
 - ✓ survey of classic algorithms for sorting and searching
- Basic principles of analysis of algorithms
 - ✓ improve your foundation of CS theory
- Writing code that runs efficiently
 - ✓ choosing good algorithms and data structures

Presumes a strong foundation in C++ programming, including:

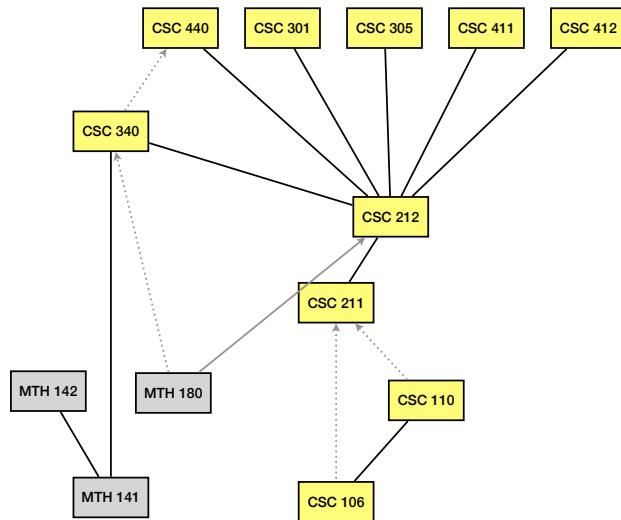
- Pointers
- Classes and objects
- Recursion



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212 in the (current) curriculum



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Course organization

Course information

• Lectures

✓ TR 11:00 - 12:15p

• Labs

✓ W 8 - 9:45a

✓ W 10 - 11:45a

✓ W 12 - 1:45p

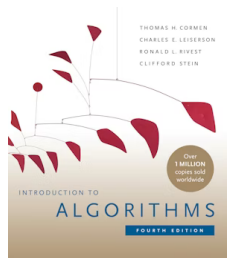
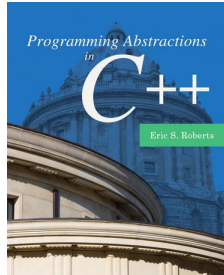
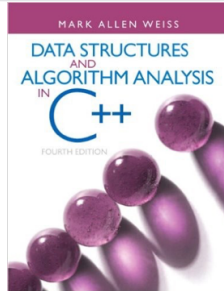
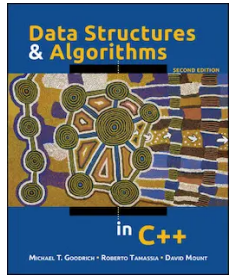
✓ W 2 - 3:45p

• Course Website

✓ <https://homepage.cs.uri.edu/~malvarez/teaching/csc-212/>

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Recommended textbooks



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Support tools



Academic discussion, polls, quizzes.



Assignment submission and grading.



Virtual meetings and office hours.

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Grading (subject to change)

▸ Assignments (30%)

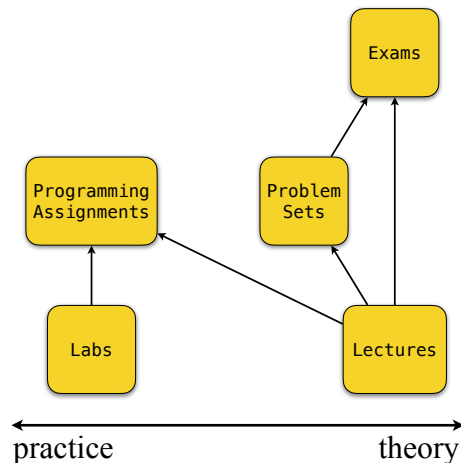
- ✓ programming
- ✓ problem sets

▸ Exams

- ✓ midterm 1 (20%)
- ✓ midterm 2 (25%)
- ✓ final exam (25%)

▸ Lab/Lecture/Ed

- ✓ participation bonus (5%)



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Coursework

▸ Homework assignments

- ✓ individual work, however discussions and collaboration are allowed
 - **you must write your own code** and solutions to problem sets
- ✓ late submissions NOT accepted
 - ample time given to complete (6-8 days)
 - start early and use office hours for guidance and feedback

▸ Exams

- ✓ in-person and open-book (printed materials only)
- ✓ **no electronic devices allowed**
- ✓ mix of multiple-choice, and short-answer questions designed to test understanding

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What is expected from you?

- Attend lectures/labs
 - ✓ students are expected to attend all lectures and labs
 - ✓ regular attendance is linked to higher grades and better comprehension of course material
- Participate and think critically
 - ✓ ask questions (lectures, labs, office hours, Ed, ...)
- Start working on assignments early
 - ✓ refrain from simply copying and pasting answers generated by LLMs
- Laptops and cellphones are **NOT permitted** unless being used for taking notes

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Academic integrity

- Assignments
 - ✓ each student/team must submit their own **unique** solutions, sharing/copying solutions from peers is **prohibited**
- AI and LLMs
 - ✓ AI tools (e.g., ChatGPT, Gemini, Claude, GitHub Copilot) can be used to enhance learning through brainstorming, concept exploration, and strategy development
 - students must critically evaluate and fully understand any AI-generated content used in their work
 - all AI-assisted work **must be cited in submissions**
 - ✓ AI tools are designed to support students' learning, NOT to replace independent problem-solving and critical thinking

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Resources

Need a refresher on C++ programming?

- Pick a textbook (learn syntax)
- Solve Challenges



Kattis



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Warming up

▸ Adjacent elements sum

- ✓ find the **maximum sum** of any pair of adjacent elements in an array of integers

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first pair