

CS 120 – Computer Science I / Introduction to C++

Course Syllabus Fall 2018

Instructor: Bruce Bolden JEB 232 bruceb@uidaho.edu
 Marshall Ma JEB 337 max@uidaho.edu
 Jia Song JEB 340 jsong@uidaho.edu

Text: *A Project Based Introduction to C++*, Terence Soule, Kendall/Hunt.
 (recommended) *The C Programming Language*, Kernighan & Ritchie, Prentice-Hall, 1988

Schedule (lectures may change)

Week	Day	Topic	Text
1	August 20	M Introduction / Overview	Chap 1
		W Identifiers, keywords, and constants	
		F I/O using <code>cin</code> and <code>cout</code>	
2	27	M Unix	
		W Numeric data types	
		F Arithmetic Operations, Operator precedence	
3	September 3	M ** Labor Day – NO Classes **	
		W Standard functions: Intro	
		F Logic / Conditionals	
4	10	M Control Structures: <code>if</code> , <code>if--else</code>	
		W Control Structures: nested <code>if</code> , <code>switch</code>	
		F Formatted output	
5	17	M Loop Structures: <code>for</code>	
		W Loop Structures: <code>while</code>	
		F Review for Test 1	
6	24	M Loop Structures: <code>do-while</code>	
		W *** Test 1 ***	
		F Output files	
7	October 1	W Functions	
		W Functions: parameters	
		F Order Analysis	
8	8	W Arrays	
		W I/O of Arrays	
		F Strings (character arrays)	
9	15	M Local vs. Global storage	
		W Searching/Manipulating Arrays	
		F Software Engineering	
10	22	M Structures	
		W Enumerated Types	
		1 F Objects /Classes	

11		29	M	Dynamic Memory
			W	Pointers
	November	2	F	Review for Test 2
12		5	M	Induction
			W	*** Test 2 ***
			F	Base conversion
13		12	M	Recursion
			W	Linked Lists
			F	Linked Lists
14		19 - 23	** Thanksgiving Break – NO Classes **	
15		26	M	Linked Lists – Review
			W	
			F	
16	December	3	M	
			W	
			F	Review for Final Exam

Final: xxxday, December xx, 7:00 – 9:00 PM *** Verify with Registrar ***

Grading

The letter grade you receive from the course will be determined as follows:

A	90%	–	100%
B	89.9%	–	80%
C	79.9%	–	70%
D	69.9%	–	60%
F	59.9%	–	0%

The instructor reserves the right to adjust these percentages up or down a maximum of five (5) percent if deemed necessary.

Typical Point Distribution

	Points
Attendance/Participation	20
Two Hour Tests	200
Final Exam	100
Quizzes (8–10, one throwout)	80
Labs	120
Programming Projects	100
Total	620

Programs

All programming assignments must be submitted as specified. Class time will not be spent on homework. No late homework/lab assignments will be accepted.

Quizzes

Quizzes will normally be given every Friday on the material covered since the last quiz. Knowledge of material in this class is cumulative. Your lowest quiz grade will be dropped. No makeup quizzes will be given.

Exams/Final Exam

The midterm and final exam are cumulative. No makeup exams will be given.

Major Topics Covered

- Program Design
- C++ basics (Names, simple I/O)
- Conditional statements
- Loop statements
- File I/O
- Functions
- Arrays
- Base conversion
- Dynamic Memory
- Linked Lists
- Introduction to Sorting/Searching

Course Outcomes

- Make a description of a problem that has a straight forward computing solution, design, construct, and test a complete program that solves the problem. (c)
- Work in a small group to solve a relatively simple computing problem. (d)
- Understand the potential consequences of program failure. (e)
- Understand the expectations for academic integrity as they apply to software development. (e)
- Students will be able to document computer solutions with well written reports in a standard format that emphasizes insight into the problem solving, not just the presentation of the output. (f)
- Use a C++ compiler. (i)

- Use basic system tools (e.g., top and time) to analyze a program's behavior with respect to the use of computer memory and CPU time. (i)
- Use code libraries. (i)
- Define C++ constants and variables of type char, int, float, and double. They will know the different characteristics of these data types and when each type should be used. (j)
- Understand how to use type casting and how the compiler converts between types in mathematical/logical expressions. (j)
- Create correctly formatted C++ expressions using the following operators: +, -, #, %, (), and []. (j)
- Build program units consisting of the sequence, selection, and repetition programming structures of C++. More specifically they will be able to determine under what conditions each of the following structures should be used: Sequence: assignment statement; Selection: if, if-else, if-else if-else if-else, and switch structures; Repetition: for, while, and do-while structures. (j)
- Read/Write information to/from files. (j)
- Create and call functions having arguments and return values. They will know when arguments should be passed by value or reference. (j)
- Use and manipulate one and two dimensional arrays. (j)
- Use and understand the use of recursion. (j)
- Understand how to allocate memory dynamically using arrays and pointers. (j)
- Use and manipulate singly-linked lists using pointers. (j)
- Create simple classes having data members and member functions. They will be able to read class header files and be able to call object member functions defined in the header files. (j)

Center for Disability Access and Resources (CDAR) Reasonable Accommodations Statement Reasonable accommodations are available for students who have documented temporary or permanent disabilities. All accommodations must be approved through the Center for Disability Access and Resources located in the Bruce M. Pitman Center, Suite 127 in order to notify your instructor(s) as soon as possible regarding accommodation(s) needed for the course.

Phone: 208-885-6307

Email: cdar@uidaho.edu

Website: www.uidaho.edu/current-students/cdar

University of Idaho Classroom Learning Civility Clause

In any environment in which people gather to learn, it is essential that all members feel as free and safe as possible in their participation. To this end, it is expected that everyone in this course will be treated with mutual respect and civility, with an understanding that all of us (students, instructors, professors, guests, and teaching assistants) will be respectful and civil to one another in discussion, in action, in teaching, and in learning.

Should you feel our classroom interactions do not reflect an environment of civility and respect, you are encouraged to meet with your instructor during office hours to discuss your concern. Additional resources for expression of concern or requesting support include the Dean of Students office and staff (5-6757), the UI Counseling & Testing Center's confidential services (5-6716), or the UI Office of Human Rights, Access, & Inclusion (5-4285).

Academic Dishonesty

Academic dishonesty in any form will not be tolerated. Academic dishonesty includes, but is not limited to:

Cheating Using or attempting to use unauthorized materials, information, or study aids in any academic exercise. The term "academic exercise" includes all forms of work submitted for a grade earned in a course that generates credit hours.

Fabrication Falsification or invention of any information or the source of any information in an academic exercise.

Collusion Intentionally or knowingly helping or attempting to help another to commit an act of academic dishonesty.

Plagiarism Copying or imitating the language, ideas, and/or thoughts of another author and passing off the same as one's original work.

If academic dishonesty is suspected, I will withhold a grade until we have discussed the circumstances. Any work that I determine is dishonest will receive an automatic F and you may receive an F for the course. I will also forward a report of the incident to the Dean of Student for prosecution in accordance with the University of Idaho Student Code of Conduct: <https://www.uidaho.edu/student-affairs/dean-of-students/student-conduct/student-code-of-conduct>

Do your assignments on your own—unless it is a group assignment. Consulting with friends is permitted. However, blatant copying will not be tolerated and will be dealt with according to the guidelines in the University of Idaho Academic Integrity: <https://www.uidaho.edu/student-affairs/dean-of-students/student-conduct/academic-integrity>