## Syllabus for Computer Science 141

***Introduction to Computer Programming***

**Instructor:** Dr. Randy L. Ribler

**Tutors:** TBD

**Office:** 103 Hobbs, **Phone:** 544-8529

**Class Web Page:** <http://faculty.lynchburg.edu/ribler_r/cs141>

**Email:** ribler@lynchburg.edu

**Class Meetings:** MWF 1:00pm to 1:50pm (Hobbs 113)

 Tuesday 2:30 pm-4:30 pm (Hobbs 113)

**Office Hours:** TBA.

**Objective**: This course is the first in a two part series that will provide the student with basic competency in the C++ programming language. Although no previous computer programming experience is required, previous experience is extremely helpful. Students who have never programmed before should consider taking CS131 (Fundamentals of Programming in Basic) prior to enrolling in CS141.

**Text:** C++ Primer, by Stanley B. Lippman, Josée Lajoie, and Barbara E. Moo

**Software:** Students taking computer science classes at Lynchburg College may download Microsoft Visual Studio, via the Visual Studio <https://visualstudio.microsoft.com/>. Please download the Enterprise version. Other Microsoft development tools are available through the Azure for education <https://azureforeducation.microsoft.com/devtools>.

**Principal Topics:**

Introduction to Computers and Programming

Structured Programming/Top-down development

Data Representation and Abstraction

Control Structures

Functions

Input/Output

Arrays

Pointers

Classes

Object-Oriented Programming

**\*\*\*\* To continue to CS142, you must receive a B- or better in this class. \*\*\*\***

**Grading:**

Computer Programs/Labs (weekly) (40%)

Exam 1 (20%)

Exam 2 (20%)

Final Exam (20%)

**Computation of Final Grade:**

A z-score will be computed for each assignment. The final grade will be determined from the weighted average of the grades from all assignments. (see [Virginia](http://ericae.net/digests/tm9505.htm) Tech Testing Memos) . However, no student who fails the final exam or completes less than 2/3 of the labs will receive a grade higher than D.

**Late Policy:** Assignments should be submitted by 11:59pm on the day that they are due. Late assignments will be penalized 5 points per weekday up to a maximum of 25 points. I will not accept assignments that are more than one week late, unless there are documented extenuating circumstances. Completing labs on time is the best way to succeed in this class.

**Plagiarism:** All work must be your own. While it is fine to ask each other questions concerning general concepts, you may not show each other your programs or exchange any program fragments -- not one line of code. Taking code from the Internet or generating programs using tools such as ChatGPT is also strictly prohibited. Violations of this policy will result in referrals to the Honor Court and probably failure of the class. If you are having problems completing your assignments, you are encouraged to meet with the instructor. In addition, the computer science department employs tutors who can be consulted for help with class assignments. Student tutoring is provided at no charge to the student.

**Attendance:** Classes will start promptly at the start of the hour. Students are expected to attend all classes, and are responsible for all the material covered. Attendance will be recorded using Microsoft Teams, so it is important for you to always join the Teams meeting when you come to class.

**Class Conduct:** Students are expected to pay attention in class and treat their peers with courtesy. You will be expected to arrive on time and to stay until the completion of the class. Computers should be used for relevant class work only. Texting, emailing, web surfing, playing computer games, and other similar activities are prohibited.

**Center for Accessibility and Disability Resources**

University of Lynchburg is committed to providing all students equal access to learning opportunities. The Center for Accessibility and Disability Resources(CADR) works with students who have documented medical, physical, mental health and cognitive diagnoses to make arrangements for appropriate, reasonable accommodations. Accommodations are available as applicable in both live and virtual classroom settings for all terms (Fall, Winter, Spring and Summer).  Students registered with CADR who receive approved accommodations are ***required to provide letters of accommodation each semester to each professor if they wish to use their accommodations. A meeting to discuss accommodations the student wishes to implement in individual courses is strongly suggested.*** *Accommodations are not retroactive and begin when the accommodation letter is provided to faculty.*For information about requesting accommodations, please visit <https://www.lynchburg.edu/academics/center-for-accessibility-and-disability-resources/intake-and-accommodations/>  or use the contact information below. (Effective: 7/26/22)

**Contact Information**

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Center for Accessibility and Disability Resources

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**Commitment to Diversity, Equity, Inclusion, Justice, Respect & Belonging :**

The University of Lynchburg is committed to ensuring that diversity, equity, and inclusion are apparent through a campus community climate where all students, faculty, and staff feel welcomed and are treated equitably and with respect. All campus community members are expected to conduct themselves in ways that exemplify respect for people of all groups and identities adhering to personal values without unduly imposing them on others. Furthermore, campus community members should take responsibility to serve as leaders in promoting compassion for everyone and in challenging prejudices, biases, and discrimination against all individuals and groups whether due to national origin, gender identity, gender expression, age, marital status, religion, race, socioeconomic status, parental status, political beliefs, diversity of thought, sexual orientation identity, physical/mental ability, genetic information or any other self-identifiers. We must treat everyone with respect and at no time should they harass, assault, or violate the privacy of other persons. Victims of human rights-related incidents or witnesses to them are encouraged to report such incidents. Reports are secure, confidential, and only certain designated University officials have access to the information reported.

To report a bias incident [click here](https://www.lynchburg.edu/about/office-of-equity-and-inclusion/bias-education-response-team-bert/), or call the Campus Conduct Hotline toll-free at 866.943.5787, or contact Dr. Robert L. Canida, II, Vice President for Inclusive Excellence at canida\_rl@lynchburg.edu.

**Course Objectives:**

Students will be able to write programs in C++ using the following programming constructs:

 Assignment statements

 If-statements

 Switch-statements

 For loops

 While loops

 Functions

 Arrays

 Pointers

 References

 Casting

 Classes and structures

 Integer, floating point, character and enumeration data types

 Bit manipulation operators

Students will understand basic stream input and output.

Students will be able to incorporate basic string processing into their programs.

Students will be able to utilize a top-down development approach to construct well-structured programs.

Students will understand the basic goals of object-oriented software development.

Students will understand how to employ coding standards to make their programs easy to modify and maintain.

Students will understand basic data representations for integers and characters.

Students will understand the binary, octal, and hexadecimal number systems.

Students will demonstrate these abilities through the completion of programming assignments, in-class examinations, and quizzes.

Students will understand how to use pointers to indirectly reference memory locations.

Students will:

* **Inquire**: frame questions that address issues and uncertainties across a range of disciplines.

The student will

* + recognize precise and complete statements of problems.
	+ recognize what information is necessary in order to solve given problems.
	+ ask questions for further study regarding problems and reading assignments.
	+ develop an approach for investigating program requirements.
* **Explore:** investigate issues in depth and detail.
The student will
	+ think creatively about possible solutions to problems.
	+ use data debugging techniques to understand how their programs are performing
	+ comprehend given problems, reading assignments, and the arguments of others.
* **Conclude**: develop informed responses to issues.
The student will
	+ Identify program defects/bugs and determine their causes and solutions.
	+ articulate the cause of the defect
* **Persuade**: convince others of the validity and value of conclusions.
The student will
	+ Show how one approach to a program/problem is better than another
	+ construct effective arguments based in evidence, reason and understanding.
* **Engage:** use knowledge and abilities for the good of self and society.
The student will
	+ work effectively with other members of a group to solve problems and present their solutions.