Department of Computer Science

CPTG 121
Introduction to Computer Science I (4 units)
Fall Quarter, 2024

Time and Location
Lecture: 9/23/2024 – 12/12/2024, MTR 9:00 A.M. – 9:50 A.M., PSC 145.
Lab: W 8:00 A.M. – 10:50 A.M., PSC 145.

Textbook (Required): Tony Gaddis, *Starting Out With C++ From Control Structures through Objects*, Pearson, 9th Edition.

Instructor
Dr. Hwang. Office PSC 255. E-mail: ehwang@lasierra.edu. Office hours: Email me anytime to make an appointment or if you have any questions. Appointments can be either in person in my office or virtual on Zoom.

Course Description
Bulletin Course Description: Solving problems through structured programming of algorithms on computers, using the C++ object-oriented language. Topics include variables, expressions, input/output, branches loops, functions, parameters, arrays, and strings. Also covers software design, testing and debugging.

This is the course where you will learn how to write computer programs, i.e., develop apps. In the process of developing apps, you will learn the basic building blocks for computer programming which include topics such as variables, expressions, input/output, branches, loops, functions, parameters, arrays, and strings. To be a proficient computer programmer, you will also need to know how to solve problems through structured programming of algorithms and using logical reasoning, i.e., to be able to think logically. Being able to think logically is the most important aspect of computer programming. We will be using the C++ object-oriented language to write our programs. We will start from the very basics of computer programming, so you do not need to have any prior programming knowledge.

Prerequisite: Math 121 – College Algebra (may be co-registered).

Student Learning Outcomes
The computer science curriculum at La Sierra University provides opportunities to reach various goals under the broad mission statement: "To Seek, To Know, To Serve." This first computer science course introduces students to the skills necessary for problem solving and

logical thinking. This course meets the major criteria of a first course in computer science as outlined within the ACM/IEEE Computing Curricula.

Achievement at this introductory level will be specifically demonstrated through the following:

- Students will develop logical thinking skills by learning how to write computer programs using a high-level language. (SLO 1)

- Students will be able to correctly analyze problems, develop computer algorithms for solving the problems, and implement the solution by writing computer programs in a high-level language. (SLO 1)

- Students will communicate effectively by completing weekly programming assignments and through class discussions. (SLO 2)

Topics (Numbers in parenthesis are chapter/section numbers in the textbook.**)**

1. Week 1: Intro to Computers, Programming, and C++ (1, 2).
2. Week 1: Outputs (2.2, 2.3).
3. Week 1: Constants, variables and data types (2.4 to 2.12). Scope rules for variables (2.13).
4. Week 2: Inputs (3.1)
5. Week 2: Arithmetic operators (2.14).
6. Week 2: Mathematical expressions. (3.2).
7. Week 2: Assignments
8. Week 3,4: Making Decisions. The if, switch, and break statements (4).
9. Week 4,5,6: Program looping: For loop, While loop, Do loop (5). The break and continue statements. (5.12)
10. Week 7,8: Functions (6)
11. Debugging, and problem solving.
12. Week 9: Arrays. (7)
13. Week 10: Searching and Sorting. (8)
14. Characters and Strings. (10) (if time permits)

Requirements and Evaluation

Tests: 2 Midterms: Monday October 14 and Tuesday November 5. Final: Wednesday December 11, 2024, 8:00 A.M. – 10:00 A.M.

Quizzes: There will be pop quizzes where you will be asked to write short programs on materials that have just been covered in class.

Homework assignments: There will be approximately one homework assignment with several computer programming problems each week. These assignments must be turned in at the beginning of the class period on the given due date. Late assignments are not accepted unless

you have a medical or emergency excuse. Unless otherwise noted, all programming assignments must be executable on the computer.

Labs: Weekly lab exercises to be done during the lab period.

Final Project: A final programming project due on the day of the final exam.

Attendance and Class Participation
This course will include much computer programming and discussion on how to write logical programming constructs. Students are expected to be on-time for class and ready to actively engage the material. Proper class preparation, active participation in class, and thoughtful conversation on the topic being discussed are expected. Since so much of what we learn takes place in dialogue with each other, the presence of each student is valued and necessary at every class period. To be excused from a class, you must provide an official note documenting the reason(s) for your absence. It is still your responsibility to catch up on any material that you have missed.

Grading
Homeworks 10%
Labs 10%
Quizzes 10%
Project 10%
Problem solving speed subjective observation 10%
Midterms 2 @ 15% each
Final 20%

Grading Scale
After the grades for the above requirements and their percentages have been calculated for each student, the final grades will be based on the following scale:

95 – 100%	A
90 – 94.9%	A-
87 – 89.9%	B+
83 – 86.9%	B
80 – 82.9%	B-
77 – 79.9%	C+
73 – 76.9%	C
70 – 72.9%	C-
67 – 69.9%	D+
60 – 66.9%	D
0 – 59.9%	F

"Incomplete" grades are given only in extremely unusual circumstances. See *La Sierra University Undergraduate Bulletin* for the University's policy concerning required procedures and course completion.

Additional Information

A. Discrimination and Harassment Policy

Faculty members are committed to supporting students and upholding the University's Title IX policy. Under Title IX discrimination based upon sex and/or gender is prohibited. This includes any act of sexual misconduct or sexual assault. In addition, our Title IX policy prohibits dating violence, domestic violence, stalking and sexual exploitation.

If you experience an incident of sex or gender based discrimination, sexual assault or sexual misconduct, we encourage you to report it to our Title IX Office.

You may talk to a faculty member, but understand that faculty members MUST report to the Title IX Coordinator what you share.

If you would like to speak with someone who may be able to afford you confidentiality, you may contact our Counseling Services located in the Student Wellness Services facility.

You may also want to visit our Wellness Center. Please know that all services at our Wellness Center are subject to confidentiality.

B. Academic Honesty

Because scholars communicate, consider ideas, and contrast understandings in writing, it is important to be able to rely on each other in an atmosphere of openness, trust, and clarity. The proper use of citations allows colleagues to double-check one's interpretation of someone else's work, or to follow-up in greater depth if interested in a particular idea. For this reason, academic honesty is of critical importance. It is important to use quotation marks where needed and to cite the source of all significant ideas, concepts, paraphrases, and quotations.

Because we need to be able to rely on each other's work with confidence, please make sure that you provide proper attribution of all ideas, paraphrases, and quotations inserted into your papers **and programs**. A purposeful or careless breach of academic integrity will result in penalties.

To be sure that you have no misunderstandings about the definitions of academic honesty or academic dishonesty, refer to your La Sierra University Student Handbook. The University has significant penalties for academic dishonesty, so please take this suggestion seriously. La Sierra University's policy and other important information regarding academic honesty can be found at https://lasierra.edu/academic-integrity/ .

C. Special Assistance:

It is the policy of La Sierra University to accommodate students with disabilities. Any student with a documented disability who requires reasonable accommodations should contact Office of Accessibility Services in Sierra Vista Hall at (951) 785-2452 or https://lasierra.edu/accessibility-services/

Important Dates
10/4 (Last day to withdraw with no record on transcript), 11/15 (Last day to withdraw with a "W"), 11/25 – 11/29 (Thanksgiving holiday).

Resources

- repl.it – online C++ compiler.