Fundamentals of Programming I (CPTR 141)

Spring Quarter, 2021

Time/Place:	MWRF 11:00-11:50 a.m. Microsoft Teams
Instructors:	Larry Aamodt (larry.aamodt@wallawalla.edu) Office: CSP-265 509-527-2058
Text:	*Programming in C++*, an interactive text from *Zybooks* To obtain access, purchase at the bookstore or through http://zybooks.com/ using code *WALLAWALLACPTR141AamodtSpring2021*
Webpage:	http://class.wallawalla.edu/

Introduction to computer programming in-the-small using the C++ language for students with little or no experience. Students will write, compile, debug, and execute programs utilizing variables, flow control (sequencing, selection, and repetition), file I/O, arrays, and functions. The deadline for withdrawing from the course is **Tuesday, 18 May**.

Course Objectives

In the context of the mission of Walla Walla University, the purpose of this course is to help students:

- **Excellence in Thought**

  1. learn elementary theory and concepts of computer science and programming.
  2. develop an ability to think critically and confidently in problem solving.

- **Generosity in Service**

  3. begin to learn the potential of application areas.
  4. contributed to the shared learning environment by working collaboratively on classroom activities.

- **Beauty in Expression**

  5. learn the syntax and grammar of a programming language.
  6. strengthen their ability to communicate program design and solutions.

- **Faith in God**

  7. begin to gain an awareness of ethical and moral issues of computing from a Christian worldview.
  8. understand that their work in computing can have an enormous potential impact on society.

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- analyze and explain the behavior of simple programs involving basic C++ programming concepts.

- modify and expand short programs that use branching statements, iteration, functions, and arrays.

- write, compile, debug, and execute programs using the following fundamental programming concepts:

  1. Arithmetic expressions
  2. Variables and type
  3. Boolean Expressions and Branching
  4. Loops
  5. Vectors
  6. Functions
  7. Arrays
  8. File Input/Output

Success in The Course

I want you to be successful in this course and promise to facilitate your success by creating and maintaining a challenging but supportive learning environment designed to help you accomplish the learning outcomes outlined above. However, I cannot succeed for you. In order for you to succeed you must actively engage in the course, interact with your classmates, and diligently complete the assigned work. In particular:

- prepare for each class by completing the assigned reading/activities from your textbook.
- attend each class and actively engage in the activities and lectures.

- be aware of class announcements and deadlines.
- be proactive in completing assignments and taking/retaking quizzes.
- take the initiative to seek out help when you are stuck or have a question.
- maintain a positive attitude about the class and what you are learning.

Defining Success

At the end of the quarter the grade earned will be based on concrete evidence that you have accomplished the student learning outcomes given above. Here is what each grades means:

To Earn	Achieve
A	Students earning an "A" have mastered all course concepts at a high level. They show this through consistent engagement in class activities, excellent homework assignments, and strong concept quizzes and projects. They are ready to move on to further coursework without reservations.
B	Students earning a "B" show evidence of strong understanding of the basic skills with evidence of mastery of most topics. They are consistently ready to work and actively engaged in class activities. They are ready to move on to further coursework.
C	Students earning a "C" have attained the baseline level of competency required in the course but do not show consistent evidence of mastery in several topics. They may take further coursework but with some caution.
D	Students earning a "D" have not attained the baseline level of competency required by the course, although there is some evidence of understanding. They are likely not ready to move on to further coursework.
F	Students earning an "F" have not shown evidence of minimal understanding of the course concepts.

Demonstrating Success

Your mastery of the course content will be measured using four types of assessment.

- **Pre-Class Readings**
  Before each lecture class sessions, you will be asked to complete an interactive reading assignment using your zyBook textbook. Please sign in to class having completed that assignment and ready to discuss and review it with your peers. Your participation will be graded **Satisfactory or Unsatisfactory**.

- **Participation in In-Class Activities**
  During class sessions, you will be asked to complete one of two types of activities. You must be present in our Microsoft Teams class during the scheduled class time to complete these activities. They will be graded **Satisfactory or Unsatisfactory** and cannot be made up.

  - *Process Oriented Guided Learning* (POGIL) activities will take place on Wednesdays and Fridays. These activities do not require pre-class preparation, but do require participation by all group members during class.

  - *Pairs Programming* activities will take place on Mondays and Thursdays. They will be proceeded by short professor-led lecture and coding demonstration.

- **Homework Assignments**
  You will practice the skills learned in your reading and in class on 18 homework assignments given throughout the quarter. Homework is due by 11:59 p.m. on the Sunday following the week in which it is assigned. Assignments will be graded using the E/M/R/N rubric shown on the next page.

- **Concept Quizzes**
  After covering each of the 8 fundamental programming concepts outlined earlier, you be asked to provide evidence of your understanding of that concept by completing a quiz. Each quiz will cover a single programming concept and will be graded using the E/M/R/N rubric. Quizzes will be given through our course management system. They are due by 5:00 p.m. on Friday of the week in which they are assigned.

- **Projects**
  Your ability to extend fundamental programming concepts and creatively solve more challenging problems will be measured using projects. These projects are take-home assignments that require multiple fundamental programming concepts. Doing well on a project requires both a correct and a well-written, professional-looking solution. Projects will be graded using the E/M/R/N rubric.

Measuring Success

Your performance on homework, quizzes, and projects in this course will be measured by how well you have mastered the given task instead of how many points you have accumulated. That way we can focus on whether your solution demonstrates mastery instead of how much partial credit it is worth. Your work will earn one of four marks – **E**, **M**, **R**, or **N** based on the rubric below.

E	Exceeds expectations	The solution is complete and clear with either no errors or only trivial ones. Clear comments or justification communicate all reasoning and make the solution easy to follow.
M	Meets expectations	The solution displays understanding of the relevant topics, but there may be easily correctable errors or minor gaps in understanding. Adequate explanations are provided, but they may be difficult to follow and/or contain minor omissions.
R	Requires review and reassessment	Partial understanding is evident, but there are significant gaps, omissions, or errors. These may be related to understanding, communication, justification, or an inability to solve the problem completely.
N	Not assessable	Major omissions or persistent and/or systemic errors make it impossible to assess understanding. It may also be the case that a solution was attempted using an inappropriate method, or no solution was given.

The Revision Process

One of the primary goals of our course structure is to allow you to revise your work and make improvements based on feedback you receive. That means that most grades you receive are not final–you have the opportunity to revise and resubmit your work to improve its quality and your grade. Your mark on each assessment will be the highest mark earned on any of your submissions.

While there is no limit to the number of times you can revise and resubmit your work on any one assessment, there are some overall limitations to help prevent you from procrastinating and to help your instructor keep up with grading. These restrictions are as follows.

- Reading assignments and in-class activities may not be resubmitted. If you miss any of these assignments due to illness, please contact your instructor.

- Homework assignments may be revised and resubmitted as needed. However, resubmission of any assignment on which you initially earned an "N" (Not Assessable) can earn at most an "M" (Meets expectation). This is to dissuade you from skipping homework assignments with the intention of completing them later and thus falling behind in the class. You may resubmit each individual assignment at most once per week.

- Concept quizzes must be taken in the week in which they are initially given. If you are not satisfied with your mark on this first attempt, you may retake the quiz during the next week, and once per week there after. Your mark on the quiz will always be the highest mark you've earned on any attempt. If you wish to continue to retake a quiz, you must attempt it every week. Once you skip a week, that quiz will no longer be available for you to retake.

- Projects may be revised and resubmitted to address any issues identified in the initial feedback. You may revise a project multiple times but no more than one project resubmission may be made per week. Any re-submission of a project that was originally marked as "N" (Not Assessable) can only receive a maximum mark of "M" (Meets Expectations). This restriction is to ensure that students wishing to excel in the course do not turn in substandard work to buy additional time to complete the project.

Final Grade

You might wonder how we will compute a final course grade if we aren't keeping track of points for each activity. Your grade will be based on the number of assessments on which you have met or exceeded expectations as well as on your level of participation in class activities.

Final Grade	Requires at least	Minimum Number of Marks			Participation +/−
		Homework (18)	Quizzes (8)	Projects (3)	
A	E	12	4	2	95%
	E + M	18	8	3	
B	E	8	2	1	85%
	E + M	16	7	3	
C	E + M	14	5	2	75%
D	E + M	10	4	1	65%

You may earn a "plus" grade (other than A+ which is not available) by participating above and beyond what is required for the base grade. To earn a plus grade, complete all of the requirements for the base grade "plus" participate at least at the level associated with the next highest grade. Similarly, you could earn a "minus" grade by meeting all requirements for a given grade "minus" the required participation level.

For example, suppose you have E's on all 18 homework assignments, M's on 6 concept quizzes, and 2 M's and an E on your projects. Then your base grade is a C and your final grade is determined as follows:

- if have satisfactory marks on less than 75% of the participation activities, you will earn a C-.

- if your participation score is between 75% and 85%, you will earn a C.

- if you have satisfactory marks on 85% or more of the participation activities, you will earn a C+.

Academic Integrity

All acts of dishonesty are unacceptable, including cheating, plagiarism, forgery, misrepresentation, falsification, and prohibited collaboration. Violation of academic integrity codes will result in disciplinary action.

You are encouraged to discuss general concepts with your classmates on homework and projects. However, you may not copy code from anyone for your solution. If you receive help on formulating a solution, you should cite the source of that help in your code. Using solutions found on the Internet or provided by other students is considered a violation of the academic integrity code.

Communication

While many course resources are available 24 hours a day, your instructor can not be. You can expect responses to emails and other messages within 24 hours during the week. Also, I often respond to email, Teams calls, or Teams chat in the evening until 10pm Sunday through Thursday. However, on Sabbath, sundown Friday to sundown Saturday I will not respond. I encourage you to take a break from studies then as well.

Disabilities

Appropriate accommodations are available for students with documented disabilities. To inquire about accommodations, please contact the Student Development Center at (509) 527-2664 or visit the web page https://wallawalla.edu/dss.