

Course Title: Computer Science I

Course Prefix: COMP

Course No.: 1213

Section No.: P01

Department of | Computer Science

College of | Engineering

Instructor Name:

Office Location:

TBA

Office Phone:

Fax:

Email Address:

U.S. Postal Service Address:

Prairie View A&M University

P.O. Box

Mail

2515

Stop

Prairie View, TX 77446

Office Hours: | TBA

Virtual Office

Email / Phone

Hours:

Course Location: | TBA

Class Meeting Days & Times: | TBA

Catalog Description: COMP 1213. Computer Science I. (3-0) Credit 3 semester hours. Introduction to modern problem solving and programming methods. Special emphasis is placed on using critical thinking, effective communication, and empirical and quantitative skills to design and implement robust and easily maintainable programs in a high-level, object-oriented language such as C++ to include external files, control structures, loops, scope, functions, output formatting, inline functions and function templates, enumerated data types, arrays, structures, exception handling.

Prerequisites:

Co-requisites: (MATH 1115 or MATH 1123) AND COMP 1211

Required

Text:

Title: Programming and Problem Solving with C++

Author: Nell Dale

Edition: 5th

Publisher: Johns and Bartlett

Recommended Text/Readings:

None

Access to Learning Resources:

PVAMU Library:

phone: (936) 261-1500;

web: <http://www.tamu.edu/pvamu/library/>

University Bookstore:

phone: (936) 261-1990;

web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>

College of Engineering Supplemental Instruction System: schedule will be announced upon available

Course Goals or Overview

- Learn basic computer organization concepts: digital logic, binary, Boolean, hardware components, and software
- Learn computer programming concepts and problem solving approaches. Use critical thinking skills to develop algorithms for the given problem.
- Learn syntax and semantics of the C++ programming language (first half of C++ language), and how to write C++ program to solve problem
- Learn fundamental principles of program specification, design, testing, and system documentation. Use professional communication skills to write program user manual, system testing report, and present system development description.
- Learn C++ programming development environment: code editing, debugging, compiling, linking, and executing. Use empirical and quantitative skills to manipulate, analyze, and process numerical data.

Course Outcomes

Outcome a: *Critical Thinking.* Students learn how to analyze a problem, creatively develop algorithms to solve the problem, test the implemented software and evaluate the results. Students will have the ability to apply critical thinking skills to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.

This outcome is measured through student's presentation, homework assignments and examinations in two aspects, "Problem-solving" and "Evidence" in the scale of 0-to-4 as described in the attached Rubric Measurement Table.

Outcome b: *Communication skills.* Students learn how to document system design, write system testing report, submit well-written user manual, and orally and visually present algorithms (ideas). Students will have the ability to apply effective communication and technical writing skills in computer software development.

This outcome is measured through student's presentation, homework assignments, and written project reports in several aspects, including "Problem-solving", "Evidence," and "Format / Delivery" in the scale of 0-to-4 as described in the attached Rubric Measurement Table.

Outcome c: *Empirical and quantitative skills.* Students learn how to apply knowledge of computing and mathematics appropriate to process, analyze, and manipulate numerical data and observe change patterns and facts behind the data. Students will have the ability to apply knowledge of computing and mathematics appropriate to the discipline.

This outcome is measured through student's presentation, homework assignments and examinations in two aspects, "Interpretation" and "Application / Analysis" in the scale of 0-to-4 scale as described in the attached Rubric Measurement Table.

Outcome Evaluation Method

Each individual assignment will be weighted and aligned accordingly to the three core objectives/outcomes and evaluated at grading. For instance, a question may carry 25% weight of outcome one (empirical and quantitative skills), 50% of outcome two (CT), and 15% of outcome three (Communication), and a student scores 80 points of this question, then quantitatively this student receives 20 points for outcome one, 40 points for outcome two, and 20 points for outcome three, respectively. The final outcome for a student will be calculated comprehensively based on this student's entire semester performance. Each outcome points earned by a student in the whole semester will be converted into an outcome grade with a 0-to-4 scale.

Grading Matrix (points will vary according to instructor's grading system)

Assignments & Lab (Critical Thinking, Empirical and Quantitative)	15
Quizzes (Critical Thinking, Empirical and Quantitative)	15
Major Exam 1 – Mandatory (Critical Thinking, Empirical and Quantitative)	25
Major Exam 2 – Mandatory (Critical Thinking, Empirical and Quantitative)	30
Class Participation/ Discussion/ Written projects / Presentation (Comm. skills)	15
Total:	100

Grade Determination:

A = 100 – 90pts; B = 89 – 80pts; C = 79 – 70pts; D = 69 – 60pts; F = 59pts or below

16 WEEK CALENDAR

Week One: Topic	Overview of programming and problem solving; Binary; Computer organization; Boolean; Computer hardware; Software
Chapter (s):	Chapter 1 & handout: Overview of Programming and Problem Solving
Assignment (s):	Assignment 1: apply critical thinking skills to develop algorithms for a given computing problem.
Week Two: Topic	C++ Syntax and Semantics, and the Program Development Process
Chapter (s):	Chapter 2 C++ Syntax and Semantics, and the Program Development Process
Assignment (s):	Assignment 2: apply technical writing skills to document alg. Design.
Week Three and Four: Topic	Numeric Types, Expressions, and Output
Chapter (s):	Chapter 3 Numeric Types, Expressions, and Output
Assignment (s):	Quiz 1; Assignment 3: numerical and quantitative analysis
Week Five: Topic	Program Input and the Software Design Process
Chapter (s):	Chapter 4 Program Input and the Software Design Process
Assignment (s):	Quiz 2; Assignment 4: written report and programming testing report
Week Five: Topic	Program Input and the Software Design Process
Chapter (s):	Continue Chapter 4
Assignment (s):	Assignment 4
Week Six and Seven: Topic	Conditions, Logical Expressions, and Selection Control Structures
Chapter (s):	Chapter 5 Conditions, Logical Expressions, and Selection Control Structures
Assignment (s):	Assignment 5: apply logical and critical thinking to conduct branch control calculation.
Week Eight: Topic	Looping (while statement)
Chapter (s):	Chapter 6 Looping
Mid-Term Exam	
Week Nine: Topic	Looping (for statement)
Chapter (s):	Continue Chapter 6
Assignment (s):	Assignment 6, Quiz 3
Week Ten and Eleven: Topic	Additional Control Structures
Chapter (s):	Chapter 7 Additional Control Structures
Assignment (s):	Assignment 7
Week Twelve and Thirteen: Topic	Functions
Chapter (s):	Chapter 8 Functions
Assignment (s):	Assignment 8, Quiz 4
Week Fourteen Fifteen: Topic	Scope, Lifetime, and More on Functions
Chapter (s):	Chapter 9 Scope, Lifetime, and More on Functions
Assignment (s):	Assignment 9: User manual report; algorithm presentation.
Final Exam	

University Rules and Procedures

Instructor's cell phone policy: Cell phone use in class is absolutely not acceptable (including texting). In case of an emergency, you should get prior permission from the instructor about its use.

Disability statement (See Student Handbook):

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
3. Fabrication: use of invented information or falsified research.
4. Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Academic honesty is expected from all students. *Academic dishonesty will not be tolerated and violations will be dealt with severely!* You may discuss assignments in general terms, but you are not allowed to share any details of actual algorithms or of program code. *All work submitted for a grade must be your own work.*

Nonacademic misconduct (See Student Handbook)

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

Late arrival to classes and missing classes **WILL** adversely affect your grades. Attendance for each class will be taken in the first five minutes of the beginning of the class. For students arriving late, it is the responsibility of the student to meet with the instructor to ensure that she/he is not marked as absent. Each class (unless it is a university excused absence) absence will result in a loss of one points of the five points for attendance. Being absent for three

or more classes will be sufficient cause for receiving a failing grade for the course (see university attendance policy in the current university catalog). If you are absent for a class where a quiz is given, the loss of grade for the quiz will be in addition to the loss of class absence grade. Being absent for an exam will result in a grade of zero for that exam and a fail grade in the course.

Students should not go in and out of the class once the class starts because it disturbs the class, except in the case of an emergency and informing the instructor about it.

Students should not bring any food or drink items to class/Lab.

Students are expected to take notes during the class. All material covered in the class by the instructor and by the TA in the lab is valid material for class quizzes and exams.

Student Academic Appeals Process

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.