# HUDSON COUNTY COMMUNITY COLLEGE

## COURSE SYLLABUS

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**TITLE OF COURSE**: **CSC 101 Scientific programming 3 CR**

**TERM:**

PREREQUSITE(S):

**INSTRUCTOR:**
**OFFICE HOURS: TBD** **LOCATION**

**EMAIL ADDRESS**: **PHONE**:

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## COURSE DESCRIPTION:

This is an introductory course in scientific programming using C++ or Java programming language to solve science and engineering problems. Emphasis will be on the implementation of numerical schemes and to the formulation of a computer program leading to the solution of the engineering, math and science practical problems
Two hours lecture and two hours lab
Prerequisite: CSC 100 or equivalent knowledge of computing and exit CPT in Algebra.

## STUDENT OUTCOMES/OBJECTIVES:

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

- **Describe and distinguish among different types of:**
  - Early computing devices.
  - Electronic computers.
  - System software.
  - Computing systems.
- Discuss and understand memory usage and organization.
- Use the C++ or Java programming language to solve different types of Mathematical, Scientific and engineering problems.
- Discuss and distinguish among the Compiler, the liker, the assembler and the Editor
- Understand and use different types of DATA types (**Integers, Real, complex and logical),**
- **Understand and Implement C++ or java Coding statements and techniques, I/O operations and Formatting**

- Understand and debug a C++ or Java program from logical errors, syntax errors and runtime errors
- Write a short C++ program.
- Write short functions

**EVALUATION CRITERIA:**

Student will be graded based on:

- Test one 15%.
- Midterm 25%.
- Test two 15%.
- Final 25%.
- 20% laboratory projects and homework assignments.

***There will be no makeup for missing tests.***

***Late Homework assignments will not be accepted.***

***Any student misses a class for any reason is responsible for the notes and the assignments that are given on the day he/she missed.***

The schedule for the tests and the laboratory assignments depends on the covered material.

***Excess of absence will result in a failing grade (3 absences maximum).***

**** 20 minutes of lateness is considered one absence.**

**Grading policy:**

| | |
|---|---|
| 95 - 100 | A |
| 90 – 94 | A- |
| 85 – 89 | B+ |
| 80 – 84 | B |
| 75 – 79 | C+ |
| 70 - 74 | C |
| 65 – 69 | D |
| 0 - 64 | F |

**Academic Integrity Standards:**

Academic integrity is central to the pursuit of education. For students at HCCC this means maintaining the highest ethical standards in completing their academic work.

**Violations of the principle of academic integrity include:**

- Cheating on exams.
- Reporting false research data or experimental results.
- Allowing other students to copy one's work to submit to instructor.
- Communicating the content of an exam to other students who will be taking the same test.
- Submitting the same project in more than one course, without discussing this first with the instructor.
- Submitting plagiarized work. ***Plagiarism*** is the use on another writer's words or ideas without properly crediting that person. This

unacknowledged use may be from published books or articles, or another student's work.

**Disability Support Services**:
Students with disabilities who believe that they might need accommodations in the class are encouraged to contact their **Counselors or the disability Support services.**

**Required Text books:**

C++ For Engineers and Scientists
Fourth Edition
ISBN-13:978-1-133-18784-4
USB-10: 1-33-18784-6

Student Classroom Recording Policy

- Hudson County Community College prohibits the audio-visual recording, transmission, and distribution of classroom sessions. Classes may only be recorded with the advance written permission of the instructor. The Hudson County Community College classroom recording policy must be listed in all syllabi.
- All classroom recordings can only be used for academic purposes by students enrolled in that class. Recordings may not be shared, reproduced, or uploaded to public websites or other mediums, and these recordings may contain copyrighted material and are prohibited from any form of commercial use.
- All students and guests must be informed that the class may be recorded. Due to issues related to privacy and the possible inhibition of student participation, instructors should be mindful of the effects of permitting classroom recording.
- Instructors should retain electronic or paper copies of their written consent to grant classroom recordings.
- Students must destroy their recordings at the end of the semester.
- Students who are granted permission to record their class by the office of Disability Support Services should inform the instructor beforehand and are subject to the policies outlined in this document.
- Violation of this policy is subject to disciplinary action listed under the code of conduct as included in the Student Handbook.

E-mail:

| week | Schedule CSC-101 | | |
|---|---|---|---|
| 1 | Ch1, introduction | | hands on, how to use the compiler |
| 2 | Into to C++ programming components of the program Program design, edit, test, implemnet | select a program from the end of chapter 1 program 3 | Hw and Lab:<br>1) Find the Avareage of three numbers<br>2) Calculate the volume of a sphare prg 3 page 40<br>3) Modify program 6 |
| 3 | Chapter 2 | Chapter 2. Problem Solving Using C++ | |
| 4 | Chapter 3 | **Assignment, Formatting, and Interactive Input** | formatting (setw(), set precision … (hw a program to calculate the slope) |
| 5-Jan | Chapter 4 | Selection Structures<br><br>If, if else, trailing if, nested if<br><br>**Test 1** | test 1 (ch1-ch3), HW (program to calc the area of Circle, triangle, square, rectangle, besed on a selection from the if elase statmnet) |
| 6 | ch4 | Selection Structures<br><br>Switch satatmment, logical AND and Logigal OR | |
| 7 | Ch 5 | Repetition Statements<br><br>While, do while loop | lab (write a program to calc the speed or the time or the distance) using a switch statmnet and do loop and Do while loop, input validation, no negative input |
| 8 | **Mid Term** | | |

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|---|---|---|---|
| 9 | Ch 5 | Repetition Statements for loop, incerment, decrement, counters and accumulators | |
| 10-Jan | Ch 7 | Arrays | |
| 11 | | **Test 2 (either written test or writting a program)** | |
| 12 | Ch 6 | functions (pass by Value) | Functions lab ( use the Areas program, convert to functions for home work) |
| 13 | Ch 6 | functions (pass by reference) | same programs as pass by value to be converted to by ref |
| 14 | Ch8 | I/O Streams and Data Files | |
| 15 | Ch6, ch12 | (arrays, functions and files) | Arrays project |
| 16 | | **Final Exam** | |