Fall 2024 Syllabus

CS 4080 – Concepts of Programming Languages

Instructor Information

Name: Lan Yang
Office Location: bldg. 8, room 12
Office Hours: TuTh 11:30am – 12 noon & 3:50 – 4:10pm (in room 8-12)
F 1 – 2:50pm (via zoom 9098694052)
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Course Information

Catalog Description

CS 4080 – Concepts of Programming Languages (3)

Concepts in programming languages. Virtual machines and abstraction. Syntax and semantics. Declarations and types. Scoping and binding. Data abstraction. Control and abstraction. Subprograms and implementations. Exception handling. Programming paradigms.
Prerequisite(s): CS major; C or better in CS 311 or CS 3110; and CS 264 or CS 2640.

Lecture meetings

CS4080-01: TuTh 10 – 11:15am

Course Learning Objectives

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

1. Have knowledge of the important concepts of abstraction, information hiding, parameterization, and binding;
2. Compare and contrast design of major language constructs including data types, expressions, control structures, and encapsulation units.
3. Appreciate the major programming paradigms, and issues such as concurrency, exception handling;
4. Understand the run-time representations of programs and data structures and their relation to programming language and computer architecture.

Course Materials

Required Materials

Robert W. Sebesta, "Concepts of Programming Languages, 12/e, Pearson ©2019 Print ISBN: 9780134997186, eText ISBN: 9780135102251, 0135102251 (or newer version)

Optional Materials

Any supplement materials needed will be available on Canvas.

Students' Obligations

Minimum Technical Skills

You are expected to have basic computer knowledge including, but not limited to:

- Taking tests, using discussion board, and/or submitting assignments on Canvas
- Downloading and installing software
- Using compilers/interpreters for various languages including but not limited to Java and C++.

Getting Help

If you are having trouble understanding concepts, it is your responsibility to seek help by contacting the instructor. If you are having difficulties with using Canvas-specific tools or features, or having trouble with your personal computers, please contact IT Service Desk.

Grading

Activities (team-based activities, 5 x 20 points)	100 points
Homework (write-up, small programs etc. 5 x 20 points)	100 points
Capstone project	50 points
Quizzes (5 x 10 points)	50 points
Exams (2 x 100 points)	200 points
Total:	500 points

Grade	Points range
A	[467, 500]
A-	[450, 467)
B+	[432, 450)
B	[415, 432)
B-	[400, 415)
C+	[375, 400)
C	[350, 375)
D	[300, 350)
F	[0, 300)

Assignment Submission and Test Make-up Policy

All assignments are due on the specified due date/time. Assignments must be submitted on Canvas. No email submissions. You may submit multiple times prior to due time, however we only grade the last submission (any submission made after due time will be ignored unless approved by the instructor.) No late assignment or test scheduling will be allowed unless for documented illness with prior approval by the instructor or immediate notification to instructor in the case of serious unforeseen situations like sudden illness or emergencies (supporting documentation needed.) Make-ups and late work accommodations for serious unforeseen situations will be case-by-case. Please note that technology may fail at any time, so always plan to submit your assignments or take test earlier. It's a bad habit to always wait till last minute.

Grading Appeals

Once an assignment or test is graded you have 48 hours to appeal. Email to lyang@cpp.edu with specific problem(s) and reason(s) (e.g. Question 1, my answer is correct because ….; Question 3 I believe I deserve partial credit because …). Vague requests such as please regrade because I want a higher score will be ignored.

Academic Integrity

All of the work completed in this course is expected to be each student or team's own work. Submitting programs or answers copied from Internet (even with minor touch-up modification) will be considered as academic dishonest. Plagiarism or cheating will not be tolerated in this course. For more information, visit Academic Integrity Policies (http://www.cpp.edu/~studentconduct/academic-integrity-resources/academic-integrity.shtml).

Privacy and Security for our classes

Please observe CPP's online privacy policy. Any course materials posted on Canvas course site including but not limited to lecture slides, assignments, etc. should be kept within this class. Please do not share outside of the class, in particular, do NOT post on any social media.

Special Note on Use of AI tools

Generative artificial intelligence (gAI) tools such as ChatGPT, DALL-E, Grammarly, etc., are not allowed in this class unless the specific assignment clearly states that gAI use is allowed. Certain assignments in this course will permit or encourage the use of specific gAI tools in specific ways. gAI use on these assignments must be appropriately acknowledged and cited. The use of unauthorized AI tools will result in a failing grade for the assignment, with more severe penalties possible in consultation with Student Conduct. You are expected and encouraged to talk to me [the instructor] if you have any questions.

Netiquette

Netiquette refers to the behavior that you are expected to follow when communicating online. It covers both common courtesy in an online environment and the informal ground "rules" for navigating in cyberspace. For this course, you are asked to follow these basic guidelines:

- When writing an email to your instructor, include the class name and section, along with a description, in the subject line. For example: CS4080-02 RE: Assignment #1. Use a signature with your full name at the end of your emails.
- Do not submit assignments by email. Follow the submission instruction stated in the assignments.
- Be sensitive to those with cultural and/or linguistic backgrounds, as well as different political and religious beliefs. Respect different views and opinions. Provide constructive feedback and use good judgment when composing responses to your classmates.
- Remember that slang can be misunderstood or misinterpreted – use your "academic" voice. Be aware of your tone and avoid sentences typed in all caps – it implies online "screaming" or "shouting." Do not send angry messages known as "flaming." Do not use offensive language.

Response Time and Feedback

Feel free to email me (lyang@cpp.edu) on any questions regarding lectures, assignments, and tests. I usually respond quickly. If you don't hear back from me after 24 hours, please send me another email as a reminder.

Tentative Lecture Schedule

Please see Canvas homepage for updates.
Week 1: Introduction & language overview.
Week 2-3: Syntax and Semantics.
Week 4: Names and binding.
Week 5: Data types.
Week 6: Expressions and assignments.
Week 7: Lecture catchups and Exam1.
Week 8: Control structures.
Week 9-10: Subprograms.
Week 11: ADT
Week 12: OOP
Week 13: Exception handling
Week 14: Optional topics (FP, LP, Concurrency)
Week 15: Lecture catchup, review, Exam 2
Finals: Capstone project demos