CS 375 Programming Language Concepts

Winter 2024

Course Credits: 4
Contact Hours: 56 hours
Instructor: TBA
Email:TBA

COURSE OBJECTIVES

This course introduces the essential concepts and features in the design and implementation of programming languages as well as its evaluation criteria. In the course, students will learn various programming languages and paradigms. Specific topics will be covered include syntax specification, semantic Analysis, binding and scoping, type systems, control structures, data abstraction, subroutines, concurrency, and scripting languages etc. The course aims to provide students with a solid understanding of programming languages and their underlying principles, enabling them to evaluate, design, and implement programming languages effectively.

Upon Completion of this Course, students will be able to:

1. Gain a comprehensive understanding of the design and evaluation criteria used for programming languages;
2. Understand the concepts and abstractions used by high-level programming languages;
3. Understand how these concepts are implemented in specific languages;
4. Be exposed to diverse programming languages and paradigms;
5. Gain practical experience through hands-on programming exercises and projects.

PREREQUISITES

MAT 242 Discrete Structures I; CS 326 Programming Paradigms

GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM	POINTS
Assignments	20 Points
Midterm 1	15 Points
Midterm 2	15 Points
Programming Project	20 Points
Final Exam	30 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

A ≥ 90 > B ≥ 80 > C ≥ 70 > D ≥ 60 > F.

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

Scott, Michael L., ***Programming Language Pragmatics***, 4th Edition, Morgan Kaufmann.

Recommended (Optional) Texts or Other Materials:

None

COURSE TOPICS

MODULE	TASKS
Module 1	**Topics:** Topic 1: Introduction to Programming Language Concepts Topic 2: Programming Languages Design & Evaluation criteria Topic 3: Programming Language Syntax Topic 4: Names, Scopes, and Bindings **Assessments:** Assignment#1

Module 2	**Topics:** Topic 5: Semantic Analysis Topic 6: Target Machine Architecture Topic 7: Control Flow Topic 8: Type Systems **Assessments:** Midterm#1
Module 3	**Topics:** Topic 9: Composite Types Topic 10: Subroutines and Control Abstraction Topic 11: Subroutines and Control Abstraction (Cont.) Topic 12: Data Abstraction and Object Orientation **Assessments:** Assignment#2
Module 4	**Topics:** Topic 13: Data Abstraction and Object Orientation (Cont.) Topic 14: Functional Languages Topic 15: Logic Languages Topic 16: Concurrency **Assessments:** Midterm#2
Module 5	**Topics:** Topic 17: Scripting Languages Topic 18: Building a Runnable Program Topic 19: Run-Time Program Management Topic 20: Final Exam Reviews **Assessments:** Programming Project Final Exam

ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately

prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share with fellow colleagues.

LEARNING REQUIREMENTS

1) Late assignments are not acceptable and are subjected to grade deductions.
2) Assignments submitted in the wrong format will be counted as not submitted.
3) Failure to submit or fulfill any required course component results in failure of the class.
4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACEDEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that

students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.