Programming Language Concepts
Course Syllabus

Spring 2023 (Jan 17 to May 10) – 16 Week Semester
CS 311-04 (2450) - Web Online Asynchronous
Weekly Meetings – North Science, N206 – We 9:30 – 10:45 AM

Instructor

Name: Barbara Hecker, PhD
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Office Location: Online via Skype or Zoom
Hours: Tu & Th 8-11am or by appointment

Course Description

This course will cover a survey and critical comparison of a variety of computer languages. Issues include syntax, semantics, control structures, and data representation. There will be a discussion of both design and implementation of both imperative and declarative languages. Topics include formal descriptions of syntax and semantics, control structures, data representation, design and implementation of imperative and functional languages. There will be programming projects in several languages.

Prerequisite: CS 201 and CS 221

Course Credit: 3 units

Course Learning Outcomes

Upon completion of this course the student will:

1. Formally describe simple statements via parse trees and grammars.
2. Apply knowledge of mathematics and computational theory to identify the best programming language for a particular domain
3. Identify and define the resources and requirements needed to implement common control structures
4. Employ current techniques, skills, and tools necessary for writing programs using functional, imperative, and object-oriented languages.
5. Recognize the need for continuing professional development through the evaluation and use of evolving and new programming languages

Required Materials

Sebesta, Robert (2019) *Concepts of Programming Languages* (12th Edition). Addison-Wesley. (or current edition).

Grading

Programming Assignments	35%	You will be assigned 7 programming assignments throughout the quarter. Each assignment will be worth 5% of your course grade.
Midterm Exam	30%	There will be one midterm exam given about halfway through the course. This exam will be a blackboard, online exam.
Final Exam	35%	There will be one comprehensive final exam, which will count for 35% of your course grade. This will be a blackboard, online exam during the final exam week.

Academic Dishonesty

By enrolling in this class, the student agrees to uphold the standards of academic integrity described in the catalog at **http://www.csueastbay.edu/ecat/current/i-120grading.html#section12**

Although collaborate study and dialogue are encouraged, students are expected to author solutions entirely on their own.

Grading Formula

A	95 – 100	C+	77 – 79
A-	90 – 94	C	73 – 76
B+	87 – 89	C-	70 – 72
B	83 – 86	D	60 – 69
B-	80 – 82	F	59 or <

Late Policy

If you are going to be late with an assignment, please notify the instructor prior to the assignment due date. Exceptions to due dates can be made per instructor approval before the posted due date.

Assignments will NOT be accepted after the last day of class (Sun 5/7).

Exams

There will be a midterm exam due **2/26** and a final exam due **5/10**. Both exams will be online using the **Respondus Lock Down** web browser.

Both exams can be taken within a 5-day window at a time that is convenient for the student. **NO webcam or other software will be required.**

Course Schedule and Assignment Due Dates

Week	Topic	Assignments	Date
1	Preliminaries, Programming Language Concepts		We 1/18
2	Evolution of Major Programming Languages	Program – 1, Due **Sun 1/29** (Lexical Analysis)	We 1/25
3	Stages of Compilation Language Systems		We 2/1
4	Describing Syntax and Semantics Pure Interpreted Languages Intro to Python	Program – 2, Due **Sun 2/12** (Python)	We 2/8
5	Functional Programming Languages Intro to Lisp and Scheme Lexical and Syntax Analysis		We 2/15
6	Logical Programming Languages Intro to Prolog Lexical and Syntax Analysis	**Midterm Exam** Due **Sun 2/26**	We 2/22
7	Semantics Analysis Parsing Process, Parse Trees		We 3/1
8	Names, Bindings	Program – 3, Due **Sun 3/12** (Scheme)	We 3/8

9	Type Checking and Scopes		We 3/15
10	Data Types, Abstract Data Types Expressions and Assignment Structures	Program – 4, Due **Sun 3/26** (Prolog)	We 3/22
	SPRING BREAK	**NO CLASS**	**3/27 to 3/31**
11	Statement-Level Control Structures		We 4/5
12	Statement-Level Control Structures	Program – 5, Due **Sun 4/16** (OOP & Design)	We 4/12
13	Subprograms Implementing Subprograms	Program – 6, Due **Sun 4/23** (Names, Binding)	We 4/19
14	Abstract Data Types and Encapsulation Constructs		We 4/26
15	Support for Object-Oriented Programming NO assignments will be accepted after **Sunday, 5/7**.	Program – 7, Due **Sun 5/7** (Data Types)	We 5/3
	Final Exam Week	May 8 – 12	We 5/10

Other Policies

- Information on what to do in an emergency situation (earthquake, electrical outage, fire, extreme heat, severe storm, hazardous materials, terrorist attack) may be found at: http://www.aba.csueastbay.edu/EHS/emergency_mgnt.htm. Please be familiar with these procedures. Information on this page is updated as required. Please review the information on a regular basis.
- If you have a documented disability and wish to discuss academic accommodations, or if you would need assistance in the event of an emergency evacuation, please contact me as soon as possible. Students with disabilities needing accommodation should speak with the Accessibility Services.

- Title IX and CSU policy prohibit discrimination, harassment and retaliation, including Sex Discrimination, Sexual Harassment or Sexual Violence. CSUEB encourages anyone experiencing such behavior to report their concerns immediately. CSUEB has both confidential and non-confidential resources and reporting options available to you. Non-confidential resources include faculty and staff, who are required to report all incidents and thus cannot promise confidentiality. Faculty and staff must provide the campus Title IX coordinator and or the DHR Administrator with relevant details such as the names of those involved in an incident. For confidential services, contact the Confidential Advocate at 510-885-3700 or go to the Student Health and Counseling Center. For 24-hour crisis services call the BAWAR hotline at 510-845-7273. For more information about policies and resources or reporting options, please visit the following websites:
    - http://www.csueastbay.edu/af/departments/risk-management/investigations/registercomplaints.html
    - www.csueastbay.edu/titleix