Computer Science, Part 2

(CS-043-300-001)

Computer Science, Part 2 Syllabus

Course Description

This course is the continuation of Computer Science, Part 1, and it builds on the concepts and skills students acquired in the first course. The main focus of this course is programming for the internet using the Python programming language. Most modern web applications are built on three interacting building blocks:

(1) client programs that run locally in the user's web browser

(2) server programs that run on machines in data centers

(3) databases for information storage

In this course, students will learn how to write client and server code and become familiar with database usage to build simple web applications. The goal of this course is not to teach students how to build graphically attractive web programs, but rather to teach the mechanics underpinning modern web applications.

Prerequisites

It is recommended, but not required, that students take Computer Science, Part 1 (CS 041), or a first-semester programming course that covers Python prior to taking this course.

Course Materials

This course uses CodeHS.com. Students will need to sign up for a free account.

For questions about how CodeHS works, or if you see errors, visit the CodeHS Customer Support page.

Course Outcomes

As students complete the course assignments, they will increase their knowledge, improve twenty-first-century skills, and develop an attribute.

Knowledge: Computer Science

In this course, *knowledge* refers to the subject matter and content students will learn while completing the readings, practices, quizzes, and assignments.

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

1. Use object-oriented programming techniques.
2. Search official documentation and forums for answers to programming questions.
3. Use development tools.
4. Create and manipulate a simple database.
5. Write programs to create web applications.
6. Collaborate with others to test and refine a program.

Twenty-First-Century Skill: *Idea Design and Refinement*

As students complete this course's assignments, they will gain skills in *Idea Design and Refinement*. This skill is part of Creativity.

Attribute: Diligence

This course focuses on developing the attribute of diligence in the context of computer science.

Grading and Assignments

The letter grade in this course will be based on these assignments and exams.

Assignment or Exam	Grading	Percent of Total Grade
Progress Checks	Computer-Graded	5%
Assignments	Teacher-Graded	40%
Unit Quizzes and Midcourse Quiz	Computer-Graded	20%
Capstone Project	Teacher-Graded	25%
Final Exam*	Computer-Graded	10%

*Students must pass the final exam with a 60% or higher to earn credit for the course. They may retake the final exam once for a fee.

Progress Checks

These short quizzes are a self-report that you have completed the assigned activities using the online resource.

Assignments

These assignments verify your completion of the assigned activities using the online resource. You will also submit programming assignments and capstone project planning and testing as part of your module assignments.

Unit Quizzes

These quizzes test how well you learned the programming concepts. There are ungraded practice quizzes to prepare you for success on the graded unit quizzes.

Midcourse Quiz

This computer-graded quiz will cover the material up to the midcourse quiz. The questions on the midcourse quiz will be similar in format to the questions on the final exam.

Capstone Project

Students will plan, code, test, and refine a major programming project. The student is required to solicit feedback and suggestions for improvement from others and then use the feedback to improve the project.

Final Exam

Students must pass the final exam to earn credit for the course. They may retake it once, for a fee, upon request.

Course Grade

The letter grade will be calculated according to these percentages.

Percent to Letter Grade Calculation	
A	100%–93%
A–	<93%–90%
B+	<90%–87%
B	<87%–83%
B–	<83%–80%
C+	<80%–77%
C	<77%–73%

C–	<73%–70%
D+	<70%–67%
D	<67%–63%
D–	<63%–60%
F (fail)	<60%–0%