



# Syllabus

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## Course Description

This is an introductory semester course in computer programming, software engineering, and applications. The course introduces you to the fundamentals of computer programming. You will learn to design, code, and test your own programs. The course will introduce basic programming concepts to beginning students through the Python programming language, preparing them for the second semester, when they will learn object-oriented programming skills in an internet environment.

## What You Should Already Know

You should have taken Algebra I, Secondary Math 1, or an equivalent course prior to taking this course.

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## Learning Outcomes

- Become familiar with Python's IDLE and program editor.
- Employ accepted programming methodology.
- Properly use language-fundamental commands and operations.
- Properly employ control structures.

- Use simple data types such as lists, lists of lists, and dictionaries.
- Discuss current ethical issues dealing with computers and information in society.
- Identify computer programming and software engineering careers of interest and list the requirements for these jobs.

## **Course Materials**

You will need access to a computer in order to complete all the activities in this course.

## **Assignments**

### **Lab Projects (Instructor-Graded)**

In each unit you are presented with at least one fully functioning game that you will be expected to modify in order to change how the game functions. This helps you learn how to implement the concepts from the lessons in a more complex program.

### **Capstone Project (Instructor-Graded)**

The capstone is worth more points than anything else in the course because it demonstrates your skills as a programmer. You get to pick what you will create for your capstone project. Creating your own project from scratch can be a daunting experience, so we help you break it down into more manageable steps. During each unit, you will be given new concepts that you can use to develop your project a little more. As part of each unit's lab project submission, you will also submit these updated versions of your capstone project to your instructor for feedback. By the end of the course, you will have built a significant portion of your capstone project.

### **Skill Checks (Computer-Graded)**

Skill checks are a self-reported activity where you are presented with a programming challenge that requires you to use the skills that you developed in the lesson to be able to solve it.

### **Knowledge Checks (Computer-Graded)**

Knowledge checks check your understanding of programming concepts, not necessarily your ability to write code. These quizzes will help you recognize blind spots in your understanding so that you can fill the gaps and have a more complete understanding.

## Unit Quizzes (Computer-Graded)

Unit quizzes help ensure that you are retaining the knowledge that you are gaining in the course. Questions on the unit quizzes will be similar to those on the knowledge checks.

## Ethics and Computing Discussion Board (Instructor-Graded)

The discussion board gives you an opportunity to interact with your peers and the teacher to discuss issues pertaining to cybersecurity, privacy, copyright, and other social and ethical considerations relating to programming.

## Career Opportunities Paper (Instructor-Graded)

Jobs in computer science fields are well paid and in high demand. The goal of this assignment is to expose you to the many career opportunities in computer science so that you can identify any careers of interest. You will also report on what you would need to do in order to qualify for these positions.

## Exams

The final exam is comprehensive, meaning it covers all of the concepts in the course. Note that the final exam is worth significantly less than the capstone and lab projects. So make sure that you spend more of your time on projects. Questions on the final exam will be similar to those on the unit quizzes and knowledge checks.

## Grading

Assessment	Number	Total Percentage of Grade	Number of Submissions Allowed
Capstone and Lab Projects	5	45%	1
Skill Checks	16	5%	Unlimited
Knowledge Checks	17	5%	Unlimited

<b>Assessment</b>	<b>Number</b>	<b>Total Percentage of Grade</b>	<b>Number of Submissions Allowed</b>
Unit Quizzes	4	20%	2
Final Exam	1	15%	2
Ethics and Computing Seminar	1	5%	1
Career Opportunities Paper	1	5%	1

<b>Grading Scale</b>	
<b>A</b>	100–93%
<b>A–</b>	92–90%
<b>B+</b>	89–87%
<b>B</b>	86–83%
<b>B–</b>	82–80%
<b>C+</b>	79–77%
<b>C</b>	76–73%
<b>C–</b>	72–70%
<b>D+</b>	69–67%
<b>D</b>	66–63%
<b>D–</b>	62–60%
<b>E (fail)</b>	59–0%

## **Discussion Board Policies**

This course contains several discussion boards which allow you to interact with your peers and teacher. As you use this discussion board, be aware that the following things are prohibited:

- use of offensive or derogatory language
- bullying behavior
- discussion of topics unrelated to the course

- sharing contact information such as phone number, physical address, email address, Facebook address, Twitter account, etc.

Failure to follow these policies may result in removal from the course with a failing grade.