

## Introduction to Programming

Course Code: CSC1631

### Course Description

This course includes the fundamentals of computer programming with an emphasis on problem solving methods and algorithm development. Topics include design and implementation of programs that use events, functions, conditionals, loops, recursion and various data structures. Students will be expected to design, implement, and debug programs in a functional programming language. Credits: 3

### Course Requirements

Students need to be placed at math level L4 or higher.

### Course Objectives and Goals

1. Design, implement, test and debug programs that use standard conditional and iterative control structures and functions in one programming language.
2. Create appropriate algorithms and data structures for solving a given problem.
3. Employ object-oriented design and the concepts of encapsulation, abstraction, inheritance, and polymorphism
4. Design, prototype, and evaluate an engaging interactive system for entertainment or education
5. Create programs that support a graphical user interface
6. Identify the range of possibilities for games engines, including their potential and their limitations.
7. Evaluate game elements based on the genre of the game
8. Criticize product development based on user-centered theory
9. Communicate the narratives necessary for compelling game design.
10. Describe the societal aspects of gaming.

### Required Text and Course Materials

**Textbook:** None

**Other Materials:** Master Notebook, notebook paper, pencils/pens, highlighters, dividers

**Software:** Mindstorm LabView (optional)

<http://www.lego.com/en-us/mindstorms/downloads/download-software>

Python 3 (optional)

<https://www.python.org/downloads/>

### Technical Requirements and Skills

There are minimum technical recommendations for participating in online classes at Landmark College:

### *Technical Requirements*

A productivity suite such as Microsoft Office, Microsoft Office 365, Google Workspace (formerly G-Suite), or Open Office is recommended and may be required for some Landmark College Online courses. Students also need the ability to access Landmark College's online course content through a web browser running on a desktop or laptop computer with a webcam. An audio headset is recommended, but not required. All popular browsers are supported, but Landmark College recommends Chrome or Firefox. Landmark College Online Dual Enrollment courses are optimally experienced through a full-featured web browser running on a desktop or laptop computer running Microsoft Windows or Apple Mac OS. Mobile phones and tablets may not be adequate or appropriate for completing certain aspects of your course work. However, when your laptop or desktop equipment is not available you can still access your courses through a mobile web browser such as Chrome or Safari. This allows you to keep up with your assignments, calendar, to-do list, and Inbox even when traveling. (The mobile app called "Canvas Student" is not compatible with our courses and should be avoided.)

If students access courses from school networks that use content filtering systems, which block access to public sites such as YouTube and Vimeo, students may have issues completing their assignments.

### *Skills for Success*

To succeed in an online class, you should have the ability to:

- Navigate the WWW, including downloading and reading files from web sites;
- Download and install software or plug-ins such as Adobe Reader or Flash;
- Use the Learning Management System (Canvas) and be able to upload videos, files, and other materials as necessary. More about Canvas can be found in the Canvas Overview course located on your dashboard;
- Save files in commonly used word processing formats (.doc, .docx, .rtf);
- Copy and paste text and other items on a computer;
- Save and retrieve documents and files on your computer; and
- Locate information on the internet using search engines.

### *Course Topics*

Robotics – Moving, Sensors, Loops, Switch Loops

Python – Numbers, Strings, Lists

Python – Decisions

Python – Loops

Python – Functions

### *Grading*

#### *Discussions and Online Participation – 30 %*

Students respond to discussion prompts and reply to peers' posts. Participation also includes orientation assignments and weekly self-evaluations

#### *Homework Assignments – 30%*

There are graded exercises and projects which will be assigned at various points in the semester. Each assignment is designed to give you some practice on the material that you learned in the previous weeks.

All assignments are available the relevant week.

### *Final Project – 20%*

There will be a project which you will work on towards the end of the semester. This may be done individually or in a group. All project work will be presented online in a virtual poster fair.

### *Quizzes – 20%*

There will be a series of quizzes which will test your knowledge of various topics.

If you feel that you will need extra time on the exam, make arrangements to start the exam early.

## Letter Grades

Letter Grades will be assigned as follows:

A	100-93
A-	92-90
B+	89-87
B	86-83
B-	82-80
C+	79-77
C	76-73
C-	72-70
D+	69-67
D	66-63
D-	62-60
F	59 and below

## Homework Policy

In the computer industry, late projects are not accepted without some prior agreement with the client as well as some compensation for not meeting the deadline. In the real world, if you are late and don't communicate this with the client, you could get sued.

Therefore, late projects will not be accepted unless you communicate with me, and get approval, 48 hours in advance of the due date. Please note: this may not be accepted if the reason for the project being late is not valid. If the proposal is accepted, we will determine a reasonable new due date as well as the penalty that will be applied.

## Accommodations Policy

"Given the unique mission of Landmark College, many academic accommodations that might be customary or required at traditional institutions would not be appropriate at Landmark, because they would alter the College's academic program."

If you need individual accommodations to meet course objectives, please make an appointment with your professor to discuss your needs within the two weeks of the semester.

To view the full accommodations policy for Landmark College please visit:

<https://www.landmark.edu/student-life/our-community/request-for-accommodations>.

## Learning Outcomes

Computer Science Program Goal	Course Learning Outcomes (based on Program Goal)
1. Demonstrate fundamental game production skills including animation, 3-D modeling, game design and programming.	a) Design, implement, test and debug programs that use standard conditional and iterative control structures and functions in one programming language. b) Create appropriate algorithms and data structures for solving a given problem. c) Employ object-oriented design and the concepts of encapsulation, abstraction, inheritance, and polymorphism
2. Design, develop, and manage multimedia (script, graphics, sounds, animation, & video) and interactive game projects.	a) Design, prototype, and evaluate an engaging interactive system for entertainment or education b) Create programs that support a graphical user interface c) Identify the range of possibilities for games engines, including their potential and their limitations.
3. Apply Human-computer interaction theory to product development.	a) Evaluate game elements based on the genre of the game b) Criticize product development based on user-centered theory
4. Incorporates gaming industry business practices in project development.	a) Communicate the narratives necessary for compelling game design. b) Describe the societal aspects of gaming.