



COURSE NUMBER: CSCI120

CREDITS: 3

COURSE TITLE: INTRODUCTION TO COMPUTER SCIENCE
AND PROGRAMMING I

PREREQUISITES:

Math 12, Math 100 or equivalent.

Students who have obtained credit for
CSCI 101, 102, 103 or 110 may not take
this course for further credit.

Weekly Hours: 3

Lecture: 1.5

Lab: 1.5

Total Hours: 39

Total Weeks: 13

COURSE DESCRIPTION:

This course is an elementary introduction to computers, computer science and computer programming. Students will study the history of computers and computing. Students will learn the fundamental concepts and terminology of computer science, and acquire elementary programming skills in the Python 3 programming language. This course includes an introduction to hardware programming using the Raspberry Pi computer. No prior programming background is required.

TEXTBOOK:

Free online book: <http://openbookproject.net/thinkcs/python/english3e/>



LEARNING OUTCOMES:

By successful completion of this course, you should be able to:

Cite some historical facts of computer science.

Describe fundamental concepts behind computer science.

Analyze problem specifications.

Define simple algorithms using pseudocode.

Construct Python programs from algorithms using standard programming methodologies.

Describe and apply techniques to debug programs.

Define functions that take appropriate arguments and either perform output or return results.

Use objects that are built-in or defined in modules (creating new classes is not required).

Trace the execution of Python programs.

Use elementary data structures such as strings and lists.

Implement fundamental algorithms such as the linear search and selection sort.

Analyze the running time of simple iterative algorithms.

Write a program to control hardware wired to the Raspberry Pi computer.

Document a project.



COURSE CONTENT:

Week	Topic	Chapter
Week 1	Introduction to Computer Science and Python Programming	1, 2
Week 2	Data types, Processing, Input, Algorithms, Numbering Systems	1, 2
Week 3	Selection	5
Week 4	Repetition and String Formatting	7
Week 5	Repetition and String Formatting, Quiz 1	7
Week 6	Functions	4, 6
Week 7	Functions, Midterm Exam	4, 6
Week 8	Lists	11
Week 9	Strings	8
Week 10	Strings, Quiz 2	8
Week 11	Files and Exceptions, Searching	13, 19
Week 12	Hardware programming using the Raspberry Pi	Online Resources
Week 13	Introduction to Sorting, Quiz 3	Online Resources



EVALUATION:

Lab Assignments / Participation	15%
Midterm	30%
Final exam	35%
Quizzes / Lab Tests	20%
Total	100%

Midterm Exam – Questions types may include: multiple choice, short answer, interpreting code (predict the output), writing code, as well as other kinds of questions. Questions could be based on the course resources and notes, example programs, and lab activities.

Cheating: Students cheating on tests and exams will receive a “F” grade in this course.

If a student misses an exam, a mark of zero will be assigned unless there are extenuating circumstances. In such cases, the proportion of grade assigned to the missed exam will be added to the proportion assigned to the final exam. The final exam will be held during exam week. NO consideration will be given to any student wishing to write the exam at any other time than that assigned.

It is a student’s responsibility to know and follow the school’s policies regarding cheating on exams.

The school’s policy regarding electronic devices is that any student who has a cell phone or other unauthorized electronic device (ie. ipad, laptop, playbook, etc.) on their person or around their desk during an exam will be guilty of cheating and will a grade of “F” for the course.