

Computer Science w/ Optional Dual Credit

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Course Description

Computer Science is for students with a desire to develop programming fundamentals. Java and Python will be used to create console and window applications. A student can take up to eight semesters of computer science. Python will be taught the first semester. The next four will use Java and build upon the previous semester(s). The final three semesters are used for advance study through independent programming projects.

Dual Credit

College credit through Helena College or Carroll College is available for this class:

- ☞ 3 Helena College semester credits after 1st semester (Python), 3 semester credits after 2nd semester (Java Semester 1) and 4 more after 3rd semester (Java Semester 2)
- ☞ Cost: First 6 are FREE with [One-Two-Free Program](#) after that around \$63.00 per credit.

Course Objectives

By the end of this course, you should:

1. Know the fundamentals of Python and Java
2. Know the basic concepts & methods of object-oriented programming
3. Use Python & Java to implement logic involving sequence, selection & repetition
4. Create well-written and readable programs
5. Use practical problems to illustrate application-building techniques

Textbooks

Learning with Python: Interactive Edition (Using Python 3.x) - [site](#)

Java Programming, 8th Edition

Joyce Farrell

ISBN-10: 1285856910

ISBN-13: 9781285856919

Useful URLs

Students will be using the Internet to complete their CS work.

- ☞ Moodle: <https://moodle.helenaschools.org/>
- ☞ Java API: <https://docs.oracle.com/javase/8/docs/api/>
- ☞ Python Documentation: <https://www.python.org/>

Course Outlines

Python :

Simple Python Data

Debugging

Python Turtle Graphics

Python Modules

Functions

More About Iteration

Strings

Recursion

Java:

Chapter 1	<i>Creating Java Programs</i>	Chapter 9	<i>Advanced Array Concepts</i>
Chapter 2	<i>Using Data</i>	Chapter 10	<i>Introduction to Inheritance</i>
Chapter 3	<i>Using Methods, Classes, and Objects</i>	Chapter 11	<i>Advanced Inheritance Concepts</i>
Chapter 4	<i>More Object Concepts</i>	Chapter 12	<i>Exception Handling</i>
Chapter 5	<i>Making Decisions</i>	Chapter 13	<i>File Input and Output</i>
Chapter 6	<i>Looping</i>	Chapter 14	<i>Introduction to Swing Components</i>
Chapter 7	<i>Characters, Strings, and the String Builder</i>	Chapter 15	<i>Advanced GUI Topics</i>
Chapter 8	<i>Arrays</i>	Chapter 16	<i>Graphics</i>



Classroom Expectations

BE RESPONSIBLE

- ☞ Be seated when bell rings (5 or more minutes tardy = absent)
- ☞ No food or drinks except for those listed in handbook
- ☞ Take care of the equipment & clean up after yourself

BE INVOLVED

- ☞ Stay awake
- ☞ Work hard on Computer Science work the whole period
 - ☞ Don't use CS time to work on other classes
 - ☞ Internet is only for CS work (see HHS AUP)
- ☞ **Cellphones and headphones are not allowed** – both interfere with being able to get the most out of the class

BE RESPECTFUL

- ☞ Compliment people instead of putting them down
- ☞ Don't be disruptive (out of seat, talking when I am talking, etc.)

BE A GRADUATE

- ☞ Assignments 70%
- ☞ Quizzes/Tests 30%
- ☞ Semester Grade = Q1/Q3 40%, Q2/Q4 40% & Final 20%

GRADING Scale

- ☞ 100-92 = A 91-90 = A- 89-88 = B+ 87-82 = B 81-80 = B-
- ☞ 79-78 = C+ 77-72 = C 71-70 = C- 69-68 = D+ 67-62 = D
- ☞ 61-60 = D- 59 & below = F

LATE WORK

- ☞ 20% off on any assignment that is turned in late

ABSENCES: Check assignments on my webpage.

- ☞ New assignments: 2 days for 1st day missed; 1 for all others
- ☞ Previously assigned work will be due on original due date
- ☞ Previously scheduled tests will be taken on return to class