# CS160-20190331303 - ORIENTATION: COMPUTER SCIENCE

* [General](https://moodle.linnbenton.edu/course/view.php?id=6084#section-0)

**CS 160 Orientation to Computer Science - Hybrid Course**

**Hybrid Courses require some physical presence at the college. Course work is completed on-line and face-to-face. *Attending the first face-to-face class meeting is very important because it serves as the orientation session.***

***Instructor: David Becker***

***How to contact me:***

* 1. [***mailto: david.becker@linnbenton.edu***](http://david.becker@linnbenton.edu/)
	2. ***Office: MKH-105D***
	3. ***Office phone: 541- 917-4274***
	4. ***Office Hours: M 1200-1230, Tu 300-330, Th 1000-1030, Wed/Fri By Appointment***

***Please Note: It is best if you setup an appointment to meet  via email so that the time slot can be reserved for you.  I will respond confirming the meeting within 12 hours (usually much sooner) to ensure that we have a dedicated time together.***

**Course Description:**

Introduces the field of computer science and programming for students interested in careers in related fields. Covers digital logic, binary and hexadecimal encoding of data, computer organization, operating systems, algorithms, control structures, and an overview of programming languages and pseudo-code. Computing's impact on culture and society is a recurring theme throughout this course.

**Class Location**:           MKH – 101

**Class Hours**:                Tu/Th → 08:00 – 09:50 **(Hybrid Course)**

**Start Date**:                  07 January 2020

**Final Date/Time**:        TBA

**Prerequisites**:  MTH 075 Variables and Linear Equations with a grade of "C" or better.  CS 120 is also recommended as a basic computer course if the student has limited use and experience with computers and application software.

**Course** **Objectives**: On completion of this course, students will be able to:

1. Understand the concept of abstraction.

2. Understand the representation of numbers and perform conversions between the binary, decimal and hexadecimal number systems.

3. Understand the science and role of algorithms in the field of computer science. 4. Write and interpret short machine code expressions.

4. Write algorithms in pseudo code and a programming language to solve given problems

5. Describe in detail the duties and functions of an operating system.

6. Describe basic variable types and data structures

7. Describe the various differences between object oriented and procedural/traditional programming languages.

**Grades**: Final grades will be assigned based on the percentages of the weighted total points:

Class Participation:      10%

Assignments & Labs:   25%

Quizzes:                       25%

Python Project:            20%

Robotics Project:          20%

90 - 100%  →  A

80 – 89%    →  B

70 – 79%    →  C

60 – 69%    →  D

Below 60% →  F

The LBCC community is enriched by **diversity**. Each individual has value and makes contributions to create that diversity at the college. Everyone has the right to think, learn, and work together in an environment of respect, tolerance, and goodwill. (related to board policy #1015)

**Course Requirements**

**Materials:** A computer, internet access.  A USB is also recommended.

**Homework**:

1.  Several written assignments will be given throughout the quarter related to weekly modules.

2.  All assignments must be uploaded into Moodle before the beginning of the class period of the date the assignment is due. All assignments MUST be typed, using a word processor and saved as a doc/docx format.

3.  Assignments will lose 10% for each day they are late *and* **will** **not** **be** **accepted** **more** **than** **one** **week** **after** **the** **due** **date**.

4.  The lowest assignment score may be dropped.

5.  Please show your work on mathematical calculations.

**Quizzes**:

1. Quizzes will be available online through Moodle to be completed by the scheduled date/time.

2. Missed quizzes may not be made-up without instructor approval PRIOR to the scheduled date/time.

3. The lowest quiz score may be dropped.

4. There will be no midterm or final exam. These are replaced by two projects.

                                       Python Project

                                       Robotics Project

**Missed** **Classes** **–** **Homework** **–** **Quizzes**:

In case of absence from class, students are responsible for announcements made and materials covered. If an absence results in a missed quiz, that quiz may be treated as the lowest quiz score, which is discarded when total points are calculated at the end of the term.

**Independent** **Work**:

All students are *highly* encouraged to discuss assignments and course materials in general terms with other students. However, each student is expected to work independently on all assignments. **The** **work** **you** **turn** **in** **to** **be** **graded** **must** **be** ***your*** ***own*** **work**. If you need help with exercises, see the instructor for further assistance and guidance. The penalty for turning in work done by another student will range from a 0 grade on the assignment to a failing grade in the course.

**Tutors**:

Tutors are usually available for this and other computer science classes. Check with the instructor and/or the Learning Center if you feel you need further assistance with this course.

**Cell** **Phones**:

Cell phones can be very disruptive. If you carry a cell phone or pager, set it to vibrate, silent, or off while you are in class. No cell phones may be used during a test. If you are expecting a phone call, notify the instructor before class and step outside the classroom to conduct your conversation.

**Office** **of** **Disability** **Services**:

Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency should speak with their instructor during the first week of class. If you believe you may need accommodations but are not yet registered with the Center for Accessibility Resources (CFAR), please visit the [CFAR Website](https://www.linnbenton.edu/cfar) for steps on how to apply for services or call (541) 917-4789.

Center for Accessibility Resources:

Main Office, Red Cedar Hall 105 (RCH-105)

Phone: (541) 917-4789Email: **cfar@linnbenton.edu**

Website: [Center For Accessibility Resources](https://www.linnbenton.edu/current-students/student-support/center-for-accessibility-resources/)

**Students’** **Rights,** **Responsibilities,** **and** **Conduct**:

All students are expected to be familiar with the Student Rights and Responsibilities handbook, and to follow the conduct guidelines outlined. The handbook can be found on the LBCC Website, under Students/Students Rights.

Website: [Students' Rights, Responsibilities, and Conduct](https://www.linnbenton.edu/current-students/administration-information/policies/students-rights-responsibilities-and-conduct.php)

* 1. [AnnouncementsForum](https://moodle.linnbenton.edu/mod/forum/view.php?id=509953)
	2. [Resources for Computer Science studentsURL](https://moodle.linnbenton.edu/mod/url/view.php?id=524690)
* [January 7,9 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-1)

**Week 1 - The Evolution of Computers**

**Reading:  Chapter 0, begin Chapter 1**

**No assignments due this week.  No Quiz.**

* 1. Reading:
	2. [Chapter 0 - The Evolution of ComputersFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524693) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 0 - The Evolution of Computers.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. [Chapter 1 - Data StorageFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524694) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 1 - Data Storage.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	4. [Binary ConversionFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=551302) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [BinaryPresentation.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	5. Assignment:
	6. [Assignment #1 - Due by 14 Jan 2020 @ 11:59 PM](https://moodle.linnbenton.edu/mod/assign/view.php?id=524696)
* This week

[January 14 On-Line, January 16 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-2)

**Week 2 - Data Storage**

**Reading:  Chapter 1**

* 1. Reading:
	2. [Chapter 1 - Data StorageFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524698) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 1 - Data Storage.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. Quiz: Will Be Enabled/Accessible 0800 Wed Jan 15
	4. [Quiz #1 - Due by 19 Jan 2020 @ 11:59 PMAssignment](https://moodle.linnbenton.edu/mod/assign/view.php?id=524700)
	5. [Quiz #1 Extra CreditAssignment](https://moodle.linnbenton.edu/mod/assign/view.php?id=524701)

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* 1. Assignment:
	2. [Assignment #2 - Due by 21 Jan 2020 @ 11:59 PM](https://moodle.linnbenton.edu/mod/assign/view.php?id=524703)
* [January 21 On-Line, January 23 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-3)

**Week 3 - Data Storage (continued)**

**Reading:  Chapter 1, begin Chapter 2**

* 1. Reading:
	2. [Chapter 1 - Data StorageFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524705) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 1 - Data Storage.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. [Chapter 2 - Data Storage (continued)File](https://moodle.linnbenton.edu/mod/resource/view.php?id=524706) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 2 - Data Storage (continued).pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	4. Quiz:

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* 1. [Quiz #2](https://moodle.linnbenton.edu/mod/assign/view.php?id=524708)

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* 1. [Quiz #2 Extra CreditAssignment](https://moodle.linnbenton.edu/mod/assign/view.php?id=524709)

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* 1. Assignment:
	2. [Assignment #3](https://moodle.linnbenton.edu/mod/assign/view.php?id=524711)

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* [January 28 On-Line, January 30 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-4)

**Week 4 - Machine Language**

**Reading:  Chapter 2, begin Chapter 3**

* 1. Reading:
	2. [Chapter 2 - Data Storage (continued)File](https://moodle.linnbenton.edu/mod/resource/view.php?id=524713) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 2 - Data Storage (continued).pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. [Chapter 3 - Machine LanguageFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524714) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 3 - Machine Language.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	4. [Machine LanguageFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524715) [Accessibility score: Low Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Machine Language.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	5. Quiz:
	6. [Quiz #3](https://moodle.linnbenton.edu/mod/assign/view.php?id=524717)

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* 1. Assignment:
	2. [Assignment #4](https://moodle.linnbenton.edu/mod/assign/view.php?id=524719)

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* [February 4,6 On-Line](https://moodle.linnbenton.edu/course/view.php?id=6084#section-5)

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**Week 5 - Operating Systems**

**Reading:  Chapter 3, begin Chapter 4**

* 1. Reading:
	2. [Chapter 4 - Operating SystemsFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524721) [Accessibility score: Medium Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 4 - Operating Systems.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. [Week 4 Lecture NotesFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524722) [Accessibility score: Medium Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Week 4 Lecture Notes.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084) 211.1KB
	4. Quiz:
	5. [Quiz #4](https://moodle.linnbenton.edu/mod/assign/view.php?id=524724)
	6. Assignment:
	7. [Assignment #5](https://moodle.linnbenton.edu/mod/assign/view.php?id=524726)
	8. [Lab #1](https://moodle.linnbenton.edu/mod/assign/view.php?id=524727)
* [February 11,13 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-6)

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**Week 6 - Algorithms**

**Reading:  Chapter 4, Chapter 5**

* 1. Reading:
	2. [Chapter 4 - Operating SystemsFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524729) [Accessibility score: Medium Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 4 - Operating Systems.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. [Chapter 5 - AlgorithmsFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524730) [Accessibility score: Medium Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 5 - Algorithms.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	4. [Machine LanguageFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524731) [Accessibility score: Low Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Machine Language.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	5. Quiz:
	6. [Quiz #5](https://moodle.linnbenton.edu/mod/assign/view.php?id=524733)
	7. Assignment:
	8. [Assignment #6](https://moodle.linnbenton.edu/mod/assign/view.php?id=524735)
	9. [Lab #2](https://moodle.linnbenton.edu/mod/assign/view.php?id=524736)
* [February 18,20 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-7)

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**Week 7 - Introduction to Python**

**Reading:  Chapter 6**

* 1. Reading:
	2. [Chapter 6 - Introduction to PythonFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524738) [Accessibility score: Medium Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 6 - Introduction to Python.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. **Resources:**
	4. [Introduction to PythonURL](https://moodle.linnbenton.edu/mod/url/view.php?id=524740)
	5. Quiz:
	6. [Quiz #6](https://moodle.linnbenton.edu/mod/assign/view.php?id=524742)
	7. Assignment:
	8. [Assignment #7](https://moodle.linnbenton.edu/mod/assign/view.php?id=524744)
* [February 25 In-Class, February 27 On-Line](https://moodle.linnbenton.edu/course/view.php?id=6084#section-8)

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**Week 8 - Software Engineering**

**Reading:  Chapter 7**

* 1. Reading:
	2. [Chapter 7 - Software EngineeringFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524746) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 7 - Software Engineering.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. Quiz:
	4. [Quiz #7](https://moodle.linnbenton.edu/mod/assign/view.php?id=524748)
	5. Assignment:
	6. [Assignment #8](https://moodle.linnbenton.edu/mod/assign/view.php?id=524750)
* [March 3 On-Line, March 5 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-9)

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**Week 9 - Python Project**

**Reading:  Chapter 7**

* 1. Reading:
	2. [Chapter 7 - Software EngineeringFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524752) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Chapter 7 - Software Engineering.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. Quiz:
	4. [Quiz #8 -](https://moodle.linnbenton.edu/mod/assign/view.php?id=524754)
	5. [Quiz #8 Extra CreditAssignment](https://moodle.linnbenton.edu/mod/assign/view.php?id=524755)
	6. Python Project:
	7. [Python ProjectFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524757) [Accessibility score: Low Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Python Project.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	8. [Python Project -](https://moodle.linnbenton.edu/mod/assign/view.php?id=524758)
* [March 10,12 In-Class](https://moodle.linnbenton.edu/course/view.php?id=6084#section-10)

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**Week 10 - Robotics Project**

* 1. Robotics Project:
	2. [Robotics ProjectFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524760) [Accessibility score: High Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Robotics Project.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	3. [Robotics Extra CreditFile](https://moodle.linnbenton.edu/mod/resource/view.php?id=524761) [Accessibility score: Perfect Click to improve](https://moodle.linnbenton.edu/course/view.php?id=6084) [Robotics Extra Credit.pdf - Alternative Formats](https://moodle.linnbenton.edu/course/view.php?id=6084)
	4. [Robotics Project -](https://moodle.linnbenton.edu/mod/assign/view.php?id=524762)
	5. [Robotics Extra Credit -](https://moodle.linnbenton.edu/mod/assign/view.php?id=524763)
* [Finals Week](https://moodle.linnbenton.edu/course/view.php?id=6084#section-11)

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**Present robots in class with your group

Final Date/Time:        Tuesday 17 March 0730 - 0920**