

CS 160

ORIENTATION TO COMPUTER SCIENCE

Fall 2020

INSTRUCTOR: Sisi Virasak

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Office Hours: F 9-11 AM (or by appointment) <https://linnbenton.zoom.us/j/92614392755>
Meeting ID: 926 1439 2755

COURSE DESCRIPTION: CS160 introduces the field of computer science and programming. It covers binary encoding of data, logic, computer organization, operating systems, programming languages, algorithms, software engineering, and data and file organization.

CLASS TIME: TR 8-9:50 AM <https://linnbenton.zoom.us/j/96160185657> Meeting ID: 961 6018 5657

PREREQUISITE: Math 60 Intro to Algebra
Recommended concurrent registration in Math 65 and CS 120

TEXT BOOK:
Moodle (elearning.linnbenton.edu)

MATERIALS: Internet access and USB Key/Flash Drive/Thumb Drive.

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.
- 5) Write algorithms in pseudo code and a programming language to solve given problems
- 6) Describe in detail the duties and functions of an operating system.
- 7) Describe basic variable types and data structures
- 8) Describe the various differences between object oriented and procedural/traditional programming languages.

GRADING: Final grades will be assigned based on the percentages of the weighted total points.

Class Participation	10%	90%-100% ...A
Assignments & labs	25%	80%-89% ...B
Quizzes	25%	70%-79% ...C
Final Project	20%	60%-69%D
Programming Project	20%	below 60% ..F

The LBCC community is enriched by **diversity**. Each individual has worth 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:

QUIZZES:

- a) Missed quizzes cannot be made-up without instructor consent **PRIOR** to the quiz.
- b) The lowest quiz score will be dropped.
- c) **NO MIDTERM EXAMS or FINAL EXAM WILL BE GIVEN** - weekly quizzes will take the place of midterms and two (an individual and a group) projects will be given in place of the final.

HOMEWORK:

- a) All assignments must be uploaded into moodle before the due date. All assignments **MUST** be clearly written or typed. Acceptable file extensions are .doc/.docx or PDF.
- b) Assignments will lose 10% for each day being late and **will not be accepted** more than one week after the due date.
- c) The lowest assignment score will be dropped.
- d) Please **SHOW YOUR WORK** on all mathematical calculations.

MISSED CLASSES/HOMEWORK/QUIZZES:

In case of absence from class, students are responsible for announcements made and materials covered. If students would like to receive participation points for that day please email instructor the class notes after watching the video. If you know that homework and quiz will not be turned in on time email instructor before due date.

INDEPENDENT WORK:

All students are 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, make sure they are in “vibrate” mode while you are in class.

OFFICE of DISABILITY SERVICES:

Students who may need accommodations due to documented disabilities must **speak with the instructor during the first week of class**. If you have not accessed services and think you may need them, **please contact Disability Services, 541-917-4789**. If you have documented your disability, remember that you must complete a Request for Accommodations form every term in order to receive accommodations.

STUDENT RIGHTS & RESPONSIBILITIES: 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.

COURSE OUTLINE AND SCHEDULE

(subject to change during the term)

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Week 1	Monday 28 September 2020 – Sunday 04 October 2020
The Evolution of Computers: Contributions and Pioneers of Computing History, Computer Generations	
Reading: Chapter 0, Chapter 1	
Assignment Due: #1 – 04 October 2020	Quiz:

Week 2	Monday 05 October 2020 – Sunday 11 October 2020
Data Storage: The Binary Number System, Bit Shifting and Rotating, Negative Numbers: Two's Complement and Excess Notation, Binary Fractions, Floating Point	
Reading: Chapter 1	
Assignment Due: #2 – 11 October 2020	Quiz: #1 – 11 October 2020

Week 3	Monday 12 October 2020 – Sunday 18 October 2020
Data Storage (continued): Hexadecimal Number System, Mass Storage ASSIGN TEAMS	
Reading: Chapter 1, Chapter 2	
Assignment Due: #3 – 18 October 2020	Quiz: #2 – 18 October 2020

Week 4**Monday 19 October 2020 – Sunday 25 October 2020**

Machine Language:

Machine Language, CPU Architecture, The Instruction Cycle, Machine Instructions, Programs and Data

Lab #1

Reading: Chapter 2

Assignment Due:
#4 – 25 October 2020Quiz:
#3 – 25 October 2020**Week 5****Monday 26 October 2020 – Sunday 01 November 2020**

Operating Systems:

History of Operating Systems, Components of an Operating System, File Systems, Security

Lab #2

Reading: Chapter 3, Chapter 4

Assignment Due:
#5 – 01 November 2020
Lab #1 – 01 November 2020Quiz:
#4 – 01 November 2020**Week 6****Monday 02 November 2020 – Sunday 08 November 2020**

Algorithms:

Representation of Algorithms, Algorithmic Structures, Algorithm Efficiency, Big-O Notation

Reading: Chapter 4, Chapter 5

Assignment Due:
#6 – 08 November 2020
Lab #2 – 08 November 2020Quiz:
#5 – 08 November 2020

Week 7**Monday 09 November 2020 – Sunday 15 November 2020**

Introduction to Python:

Intro to Python, Hello World!, Basic Arithmetic and Strings, Variables, Booleans, The If-Else Statement and Conditions, The While Loop, Functions

Reading: Chapter 6

Assignment Due:
#7 – 15 November 2020Quiz:
#6 – 15 November 2020**Week 8****Monday 16 November 2020 – Sunday 22 November 2020**

Software Engineering:

Software Development and Product Life Cycle, Documentation, Software Licensing

Reading: Chapter 7

Assignment Due:
#8 – 22 November 2020Quiz:
#7 – 22 November 2020**Week 9****Monday 23 November 2020 – Sunday 29 November 2020**

Python Project:

Work on and complete python projects.

Assignment Due:
#9 – 29 November 2020

Quiz:

Week 10**Monday 30 November 2020 – Sunday 06 December 2020**

Final Project: TEAM PROJECT – MORE DETAILS WILL COME

Assignment Due:

Quiz:

#8 – 06 December 2020

Python Project Due:

06 December 2020 – 11:59 PM

Week 11**Monday 07 December 2020 – Sunday 13 December 2020**

Finals Week :: 08 December 2020 → 7:30 – 9:20 AM

Present Final Project in class

FINAL PROJECT DUE DATE: MONDAY DECEMBER 7 @ 11:59 pm