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| **Email: swansop**@linnbenton.edu | **Class Room:** MKH-101 |
| **Office:** MKH-105D | **Class Day/Time:** MW 1500-1650 |
| **Phone:** 541-917-4274 | **Office Hours:** MW 0900-100, 1400-1500, TR 1330-1400 |

**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.

**Prerequisite:**

1. Math 75 Intro to Algebra.
2. Recommended concurrent registration in Math 95 and CS 120.

**Required Course Textbook and Materials:**

1. Computer Science: An Overview, Brookshear and Brylow; digital access.
2. Internet access and USB Key/Flash Drive/Thumb Drive.

**Learner Outcomes:**

1. Perform conversions between binary, decimal and hexadecimal number systems.
2. Demonstrate an understanding of the differences between data types.
3. Write and interpret short machine code instructions to perform simple arithmetic
4. Computations, including conversion to a negative in two’s complement to perform subtraction.
5. Describe algorithms in pseudo-code and implement an algorithm to solve a problem in a programming language.
6. Demonstrate an understanding of the concept of abstraction and describe the difference between syntax and semantics.
7. Summarize the duties and functions of an operating system.

**Grades:**

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| **Quizzes/Assignments/Exams** | **Weight** | |
| 6 quizzes | 25% | |
| 13 assignments & 2 labs | 25% | |
| Programming Project | 20% | |
| Robotics Project | 20% | |
| Participation (2% points for each day missed).  IMPORTANT: If you miss 10 or more classes, you’ll automatically fail this course! No matter what the circumstances! | 10% | |
| TOTAL | 100% | |
| **Grades:**  A grade of “C” or higher is considered passing. | A: 90-100%  B: 80-89%  C: 70-79%  D: 60-69%  F: < 60% | P: >= 70%  NP: < 70% |

**Instructor and Student Responsibilities:**

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| **Instructor Responsibilities** | **Student Responsibilities** |
| I commit to starting all classes on time. | You agree to attend all classes and to comply with college code of conduct. |
| I commit to showing up to class prepared. | You agree to actively participate in class discussions and exercises. |
| I commit to balancing class time between lecture and hands-on exercises. | You agree to spend an average of 4 hours per week on readings and assignments outside of class (see Moodle for details). |
| I commit to holding published office hours. | You agree to complete all readings and course assignments on time (due on Sunday night). |
| I commit to responding to your email within 24 hours (no voice mail please). | You agree to collaborate professionally with fellow students on the class project. |
| I commit to grading assignments within 1 week |  |
| If I'm unable to come to a class, I commit to doing my best to find a substitute instructor while keeping you up-to-date. |  |

**Academic Honesty:**

Helping, or being helped by, another student during an exam will be considered a breach of academic honesty and is grounds for receiving a zero grade and/or failing the course among other possible remedies.

**Classroom Conduct:**

1. Please silence cell phones and do not use during class.
2. Please do not bring other electronic devices to class including laptops, iPods, iPads, etc.
3. No food or drink in the classroom.
4. Please respect the learning environment of others and keep distractions to a minimum.
5. **Time management**: The ability to plan ahead, start assignments early, ask for needed help early, and submit assignments according to specifications and on time.
6. **Patience**: The ability to look calmly at a problem, analyze how to solve it, and concentrate on its solution.
7. **Skill in analytical and logical problem-solving**: A genuine liking for solving puzzles, and satisfaction in having done your best work to produce a solution.
8. **A sense of humor**: Working with computers humbles a person every day. Learn not to take it personally!

**LBCC Center for Accessibility Resources:**

Students who may need accommodations due to documented disabilities, or who have medical information which the instructor should know, or who need special arrangements in an emergency, should speak with the instructor during the first week of class. If you believe you may need accommodations, but are not yet registered with CFAR, please go to <http://linnbenton.edu/cfar> for steps on how to apply for services or call 541-917-4789.

**LBCC Comprehensive Statement of Nondiscrimination:**

LBCC prohibits unlawful discrimination based on race, color, religion, ethnicity, use of native language, national origin, sex, sexual orientation, gender, gender identity, marital status, disability, veteran status, age, or any other status protected under applicable federal, state, or local laws. For further information see Board Policy P1015 in our [Board Policies and Administrative Rules](http://linnbenton.edu/42145BA0-3DCC-11E3-AA36782BCB47BBE7). Title II, IX, & Section 504: Scott Rolen, CC-108, 541-917-4425; Lynne Cox, T-107B, 541-917-4806, LBCC, Albany, Oregon. To report: [linnbenton-advocate.symplicity.com/public report](http://linnbenton-advocate.symplicity.com/public_report).

**LBCC Statement of Inclusion:**

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 Schedule**

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| Week | Activity |
| Week-1  April 1 | \*\*\* Monday, April 1 is LBCC InService Day = No School \*\*\*   * Welcome, introductions, scope & set clear expectations. * **Scope:** History of Computing, Intro to Algorithms, Abstraction. * **Reading**: Chapter 0 and start chapter-1. * Assignment-1 (Due Mon, April 8) |
| Week-2  Apr 8 | * **Scope:** Data Storage: Storing integers, storing fractions, two’s complement notation, storing floating point numbers, and logical operators. * **Reading**: Continue chapter-1. * Assignment-2 (Due Wed, April 10) * Quiz-1 (In class on Wed, April 10) * Assignment-3 (Due Mon, April 15) |
| Week-3  Apr 15 | * **Scope:** Data Manipulation: Two’s complement & floating point (cont.), Data Compression, Communication, Errors, Computer Architecture. * **Reading:** Finish chapter-1 and start chapter-2. * Assignment-4 (Due Wed, April 17) * Quiz-2 (In class on Wed, April 17) * Assignment-5 (Due Mon, April 22) |
| Week-4  Apr 22 | * **Scope:** Computer Architecture: Machine Language, Program execution, Other Architectures. * **Reading:** Finish chapter-2. * Assignment-6 (Due Wed, April 24) * Quiz-3 (In class on Wed, April 24) * Assignment-7 (Due Mon, April 29) |
| Week-5  Apr 29 | * **Scope:** Operating Systems: Evolution of Operating Systems and Security. * **Scope:** Networking and the Internet: Network Fundamentals, Protocols, Security. * **Reading:** Chapter-3 and start chapter-4. * Lab-1 (Due Wed, May 1) * Quiz-4 (In class on Wed, May 1) * Assignment-8 (Due Mon, May 6) |
| Week-6  May 6 | * **Scope:** Algorithms: Network Fundamentals (cont.), representation, discovery, structures. * **Reading**: Finish chapter-4 & chapter-5. * Lab-2 (Due Wed, May 8) * Quiz-5 (In class on Wed, May 8) * Assignment-9 (Due Mon, May 13) |
| Week-7  May 13 | * **Scope:** Programing Languages: Algorithms (cont.), historical view of programming, procedural languages, object oriented languages. * **Reading:** Chapter-6. * Assignment-10 (Due Wed, May 15) * Assignment-11 (Due Mon, May 20) |
| Week-8  May 20 | * **Scope:** Software Engineering: Program Languages (cont.), life cycle, modularity, maintenance. * **Scope:** Data Abstraction: fundamentals. * **Reading:** Chapter-7 & chapter-8. * Assignment-12 (Due Wed, May 22) * Quiz-6 (In class on Wed, May 22) * Assignment-13 (Due Mon, May 27) |
| Week-9  May 27 | \*\*\* Monday, May 27 is Memorial Day = Holiday \*\*\*   * **Scope:** Python Programming Project and Robotics Project. * Python programming project (Due on Sunday, June 2) |
| Week-10  June 3 | * **Scope:** Robotics Project. * Robotics project (Due on Sunday, June 9) |
| Week-11  Jun 10 | * No final exam! * Robots demos on Wednesday, June 12 @ 3:00 pm |