# COMPUTER SCIENCE

Students receive the foundation to succeed in the next step in their education path with the recommended Association of Computer Machines (ACM) foundation knowledge in computer science principles of program design and analysis, mathematical maturity, and a good physics foundation.

## Associate in Science Degrees

- Computer Science - Associate in Science (https://lbcc-public.courseleaf.com/degrees-certificates/computer-science/computer-science-as/)

## Certificates of Achievement

- Computer Science - Certificate of Achievement (https://lbcc-public.courseleaf.com/degrees-certificates/computer-science/computer-science-certificate-achievement/)

## Certificates of Accomplishment

- Android App Developer - Certificate of Accomplishment (https://lbcc-public.courseleaf.com/degrees-certificates/computer-science/android-app-developer-certificate-accomplishment/)

**CS 11  (C-ID COMP 122)      3 units**
**Introduction to Computer Science- C++**
**54 hours lecture, 18 hours laboratory**
Prerequisite: Elementary algebra or qualifying through the LBCC math placement process.
Recommended Preparation: COSP 7.
Grading: letter grade.
This is an introductory course in the C++ programming language, a problem-solving technique used in modern software technology. The features of C++ that support the development of small and large systems are covered, thus providing a method for prototyping the commercial software development in business and industry.
Transferable to both UC and CSU; see counselor for limitations

**CS 12      4 units**
**Advanced Computer Science-C++**
**72 hours lecture**
Prerequisite: CS 11.
Grading: letter grade.
This is the second course in C++ course offerings, which includes further explanation of C++ areas such as data types, input/output, data structures, pointers and accessing files and object-oriented programming, object hierarchy, inheritance, data abstraction, templates, recursion, operator overloading, linked lists, stacks and queues, and streams.
Transferable to both UC and CSU; see counselor for limitations

**CS 21  (C-ID COMP 122)      3 units**
**Introduction to Computer Science-Java**
**54 hours lecture, 18 hours laboratory**
Recommended Preparation: COSP 7.
Grading: letter grade.
This course introduces Computer Science and the Java programming language. It will cover the basics of programming and software design using a procedure-oriented approach.
Transferable to both UC and CSU; see counselor for limitations

**CS 22  (C-ID COMP 132)      3 units**
**Data Structures and Algorithms**
**54 hours lecture**
Prerequisite: CS 11 or CS 21 or CS 31.
Grading: letter grade.
This course covers the application of software engineering techniques for the design and development of large programs, and will include the topics of data abstraction and structures with their associated algorithms.
Transferable to both UC and CSU; see counselor for limitations

**CS 31  (C-ID COMP 122)      3 units**
**Introduction to Computer Science-Python**
**54 hours lecture, 18 hours laboratory**
Recommended Preparation: COSP 7.
Grading: letter grade.
This is an introductory course in Computer Science covering basic subjects in computer programming using the Python programming language. Topics covered include basic input/output, decision structures, loops, functions, operations on text strings, data collection structures (lists, sets, tuples, and dictionaries), and software design using a procedure-oriented approach.
Transferable to both UC and CSU; see counselor for limitations

**CS 51  (C-ID COMP 142)      3 units**
**Introduction to Computer Architecture**
**54 hours lecture, 18 hours laboratory**
Prerequisite: CS 11 or CS 21 or CS 31 or COSP 8 and MATH 50
Grading: letter grade.
This course covers the organization and behavior of real computer systems at the assembly-language level. The mapping of statements and constructs in a high-level language onto sequences of machine instructions is studied, as well as the internal representation of simple data types and structures. Numerical computation is examined, noting the various data representation errors and potential procedural errors. This course is modeled after the State C-ID COMP 142 course standard.
Transferable to both UC and CSU; see counselor for limitations

**CS 61  (C-ID COMP 152)      3 units**
**Discrete Structures**
**54 hours lecture, 18 hours laboratory**
Prerequisite: CS 11 or CS 21 or CS 31 or COSP 8 and intermediate algebra or qualifying through the LBCC math placement process.
Grading: letter grade or pass/no pass.
This course is an introduction to the discrete structures used in Computer Science with an emphasis on their applications. Topics covered include: Functions, Relations and Sets; Basic Logic; Proof Techniques; Basics of Counting; Graphs and Trees; and Discrete Probability.
Transferable to both UC and CSU; see counselor for limitations