COMPUTER SCIENCE

Computer Science Courses

CS R110—Programming with JAVA **4 units**

Corequisites: MATH R115 or MATH R118B (may be taken previously)
3 hours lecture, 3 hours lab weekly

Programming with JAVA is an introductory course to computer programming. The basic components, syntax, and semantics of the Java programming language are covered. This course uses the Java computer language to introduce basic programming concepts such as algorithms, data and control structures, debugging, documentation, and object oriented programming.

Transfer credit: UC, CSU

CS R115—Programming C++ **4 units**

Prerequisites: MATH R115 or MATH R118B.
3 hours lecture, 3 hours lab weekly

This course explores concepts and techniques of object-oriented programming using C++. Topics include introduction to computers, history of programming languages, statements, functions, classes, pointers, arrays, overloading, file processing, preprocessor, and inheritance. Although designed to meet transfer requirements for Computer Science majors, this course is open to all students. (2) *(previously MATH R139)*

Transfer credit: UC, CSU

CS R122—Architecture & Assembly Language **4 units**

Prerequisites: CS R110.
3 hours lecture, 3 hours lab weekly

Architecture & Assembly Language covers basic computer organization, assembly language programming, input-output programming, and interrupt handlers.

Transfer credit: UC, CSU

CS R128—Data Structures & Program Design **4 units**

Prerequisites: CS R110.
3 hours lecture, 3 hours lab weekly

In Data Structures and Program Design, object-oriented programming methods will be applied to abstract data types such as stacks, queues, trees, and graphs. The concepts of pointer variables, linked lists, list processing, recursion, simulation, algorithms, and dynamic programming will also be introduced.

Transfer credit: UC, CSU

CS R142—Computer Organization **3 units**

Prerequisites: CS R122 and CS R128.
3 hours lecture weekly

Computer Organization is an introduction to the structure and organization of computer systems. The topics covered include digital logic, microprogramming, micro architectures, machine languages and their interpretation, operating systems, virtual memory and cache memory.

Transfer credit: UC, CSU

CS R144—Concepts of Programming Languages **4 units**

Prerequisites: CS R122 and CS R128.
3 hours lecture, 3 hours lab weekly

In Concepts of Programming Languages, basic concepts of programming languages will be discussed including storage management, syntax, Bakus-Naur form (BNF), scope of names, semantics, and type checking. Programming languages including PASCAL, ADA, FORTRAN, COBOL, C and LISP will be compared.

Transfer credit: UC, CSU