CSC Computer Science

CSC 121 Computer Science I (3-2) 4 crs.
Introduces a disciplined approach to problem solving and algorithm development. Introduces both procedural and object-oriented design strategies; selection, repetition, and sequence control structures; containers (mathematical manipulation, searching, sorting, etc.); and file manipulation. Emphasizes program design, testing, and documentation using good programming style in a high-level, object-oriented programming language. Emphasizes mathematics, engineering, science, and computer science applications. Designed as the first of a sequence of courses (CSC 121, CSC 122, CSC 216, and CSC 217) for students majoring in Computer Science. IAI CS 911
Prerequisite: MTH 140 with a grade of C or better, or placement into MTH 200, or consent of instructor. https://www.harpercollege.edu/registration/testing/pdf/Math_Placement_Grid.pdf

CSC 122 Computer Science II (3-2) 4 crs.
Uses an object-oriented approach to introduce the design and implementation of large scale problems. Introduces data structures: arrays, files, sets, pointers, lists, stacks, queues, trees, and graphs. Introduces program verification and complexity. Builds on previous knowledge of searching and sorting to help introduce the student to recursion as well as give practical examples of complexity analysis. Emphasizes mathematics, engineering, science, and computer science applications. Designed as the second of a sequence of courses (CSC 121, CSC 122, CSC 216, CSC 217) for students majoring in Computer Science. IAI CS 912
Prerequisite: CSC 121 and MTH 200 with grades of C or better, or consent of instructor.

CSC 208 Problem Solving for Science and Engineering Using FORTRAN (3-2) 4 crs.
Emphasizes problems analysis and problem solving. Includes problem formulation, data storage and retrieval techniques, algorithm analysis and development, flow chart or pseudocode construction. Introduces the student to numerical methods and simulations. Develops working knowledge of current version of FORTRAN. Designed to use the computer in the study of problems in engineering, mathematics and/or physical sciences. Intended for the mathematics, science, computer science or engineering student.
Prerequisite: MTH 200 or higher with a grade of C or better, or consent of instructor.

CSC 211 Introduction to C Programming and UNIX (3-2) 4 crs.
Develops working knowledge in the use of the computer in the C programming language. Includes problem formulation, data storage and retrieval, algorithms, flowcharts or pseudocode, numerical analysis and structural programming, lexical analysis and string manipulation. Introduces student to a UNIX-like operating system environment. Intended for the computer science or engineering student.
Prerequisite: CSC 121 or CSC 208 with a grade of C or better, or consent of instructor.

CSC 214 Introduction to Java Programming (3-2) 4 crs.
Introduces the Java language in a UNIX environment. Includes algorithms, problem formulation, structured programming, variables, data types, input/output repetition, selection, arrays, functions, classes/objects, and recursion. Applications emphasize math, science, engineering, and computer science. This course will build on topics covered in CSC 121 (only in a new language).
Prerequisite: CSC 121 with a grade of C or better, or consent of instructor.

CSC 216 Data Structures and Algorithm Analysis (3-2) 4 crs.
Provides exposure to techniques for storing and manipulating data. Includes discussion of insertion, deletion, and retrieval algorithms for stacks, queues, deques, linked lists, trees, etc. Emphasizes algorithm analysis as it builds on topics from previous course (CSC 122). Emphasizes mathematics, engineering, science, and computer science applications. Designed as the third of a sequence of courses (CSC 121, CSC 122, CSC 216 and CSC 217) for students majoring in Computer Science.
Prerequisite: CSC 122 with a grade of C or better, or consent of instructor.

CSC 217 Assembler Programming and Machine Organization (3-2) 4 crs.
Emphasizes machine-level programming, instruction sets, data representation, subroutines, I/O hardware and software, linking and loading related to higher level languages. Designed as the fourth in a sequence of courses (CSC 121, CSC 122, CSC 216 and CSC 217) for students majoring in Computer Science.
Prerequisite: CSC 216 with a grade of C or better, or consent of instructor.