

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: CIS 106 (Computer Logic and Programming Technology) and MTH 103 (College Algebra) with grades of C or better, or MTH 140 (Precalculus) or MTH 220 (Discrete Mathematics, IAI M1 905, IAI CS 915) with a grade of C or better, or placement into MTH 200 (Calculus I, IAI MTH 901) 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 (Computer Science I, IAI CS 911) and either MTH 134 (Calculus for Business and Social Sciences, IAI M1 900-B) or MTH 200 (Calculus I, IAI M1 900-1, IAI MTH 901) with grades of C or better.

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 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.