Course Name: Introduction to Data Structures and Algorithms: CSCI 2220

Course Description: Prereq: Programming Fundamentals CSCI 1210

Design, implement, and use fundamental abstract data types including: linked lists, stacks, queues, and trees. Analyze the time and space complexity of algorithms, such as sorting.

SLOs: Students completing this course should be able to:

- Implement basic data structures such as linked lists, stacks, queues, and trees in a high-level programming language.

- Compare alternative implementations of data structures with respect to time and space complexity.

- Explain the advantages and disadvantages of a variety of sorting algorithms.

- Develop recursive algorithms to traverse list and tree structures.

Credits: 3

Comparitors

SJC

COSC-262 Data Structures 3

A course in data structures, software methodologies, and analysis of algorithms using an object-oriented programming language. The Standard Template Library (STL) is covered in detail.

Prerequisites: COSC-218.

NMSU

C S 272. Introduction to Data Structures   **4 Credits (3+2P)**

Design, implementation, use of fundamental abstract data types and their algorithms: lists, stacks, queues, deques, trees; imperative and declarative programming. Internal sorting; time and space efficiency of algorithms. Taught with **C S 463**.

Prerequisite: At least a C- in **C S 172**, or placement.

Learning Outcomes

NMT

CSE 122, Algorithms and Data Structures   **3 cr, 3 cl hrs**

Prerequisite: CSE 113 with a grade of C or higher Corequisite: MATH 132 (Math 1520) Usually offered in both Fall and Spring semesters.

Fundamental data structures including linked lists, trees, hash tables, and graphs. Algorithms for sorting, searching, and other fundamental operations. Introduction to mathematical foundations for analysis of iterative and recursive algorithms and for bask correctness proofs. Analysis of algorithms. Implementation of selected algorithms using sound programming methodologies. (Same as IT 122.)