

Data Structures Using Java

CSE 2123

Credit Hours:

3.00

Course Coordinator:**Course Length:**

14 weeks (autumn or spring)

12 weeks (summer only)

Representative Textbooks and Other Course Materials:

Title	Author	Year
Lecture Notes	Instructor	

Course Description:

Subroutines and modular programming; searching; basic data structures; recursion; introduction to sequential files.

Prerequisites and Co-requisites:

Prereq: 1223.

Designation:

Elective

Course Goals / Objectives:

- Be competent with modular design and structured programming techniques
 - Be competent with commonly used data structures
 - Be competent with how to design and implement abstract data types
 - Be competent with sequential file I/O
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ABET-CAC Criterion 3 Outcomes:

Outcome	Contribution	Description
1	Some contribution (1-2 hours)	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2	Substantial contribution (3-6 hours)	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
4	Some contribution (1-2 hours)	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
6	Significant contribution (7+ hours)	Apply computer science theory and software development fundamentals to produce computing-based solutions.

ABET-EAC Criterion 3 Outcomes:

Outcome	Contribution	Description
1	Some contribution (1-2 hours)	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	Substantial contribution (3-6 hours)	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
4	Some contribution (1-2 hours)	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
7	Some contribution (1-2 hours)	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Course Topics:

- Object-oriented programming
- Recursion
- Sorting and binary search
- Linked lists
- Stacks
- Queues
- Binary trees
- Quizzes, exams, and review