

CSE 2123 (Approved): Data Structures Using Java

Course Description

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

Prior Course Number: CSE 214

Transcript Abbreviation: Data Struct Java

Grading Plan: Letter Grade

Course Deliveries: Classroom

Course Levels: Undergrad

Student Ranks: Freshman, Sophomore

Course Offerings: Spring

Flex Scheduled Course: Never

Course Frequency: Every Year

Course Length: 14 Week

Credits: 3.0

Repeatable: No

Time Distribution: 3.0 hr Lec

Expected out-of-class hours per week: 6.0

Graded Component: Lecture

Credit by Examination: No

Admission Condition: No

Off Campus: Never

Campus Locations: Columbus

Prerequisites and Co-requisites: CSE 1223 or CSE 201

Exclusions: Not open to students with credit for CSE 214

Cross-Listings:

The course is required for this unit's degrees, majors, and/or minors: No

The course is a GEC: No

The course is an elective (for this or other units) or is a service course for other units: Yes

Subject/CIP Code: 14.0901

Subsidy Level: Baccalaureate Course

Course Goals

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| 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. |

Course Topics

| Topic | Lec | Rec | Lab | Cli | IS | Sem | FE | Wor |
|-----------------------------|-----|-----|-----|-----|----|-----|----|-----|
| Object-oriented programming | 9.0 | | | | | | | |
| Recursion | 4.0 | | | | | | | |
| Sorting and binary search | 8.0 | | | | | | | |
| Linked lists | 6.0 | | | | | | | |
| Stacks | 3.0 | | | | | | | |

| Topic | Lec | Rec | Lab | Cli | IS | Sem | FE | Wor |
|----------------------------|-----|-----|-----|-----|----|-----|----|-----|
| Queues | 3.0 | | | | | | | |
| Binary trees | 4.0 | | | | | | | |
| Quizzes, exams, and review | 4.0 | | | | | | | |

Representative Assignments

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|-----------------------------------|
| Manipulating strings and file I/O |
| Towers of Hanoi using recursion |
| Sorting and recursion |
| Linked lists and databases |
| Trees and traversals |

Grades

| Aspect | Percent |
|-----------|---------|
| Homeworks | 10% |
| Labs | 25% |
| Quizzes | 10% |
| Midter | 20% |
| Final | 35% |

Representative Textbooks and Other Course Materials

| Title | Author |
|----------------------|------------|
| <i>Lecture Notes</i> | Instructor |

ABET-EAC Criterion 3 Outcomes

| Course Contribution | | College Outcome |
|---------------------|---|---|
| * | a | An ability to apply knowledge of mathematics, science, and engineering. |
| | b | An ability to design and conduct experiments, as well as to analyze and interpret data. |
| ** | c | An ability to design a system, component, or process to meet desired needs. |
| | d | An ability to function on multi-disciplinary teams. |
| | e | An ability to identify, formulate, and solve engineering problems. |
| * | f | An understanding of professional and ethical responsibility. |
| | g | An ability to communicate effectively. |
| | h | The broad education necessary to understand the impact of engineering solutions in a global and societal context. |
| * | i | A recognition of the need for, and an ability to engage in life-long learning. |
| | j | A knowledge of contemporary issues. |
| ** | k | An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. |

Prepared by: Bruce Weide