

CS 162 – Introduction to Computer Science II

Catalog Description: Basic data structures. Computer programming techniques and application of software engineering principles. Introduction to analysis of programs.

Credits: 4 **Terms Offered:** Fall, Winter, Spring

Prerequisites: CS 161, MTH 231 or ECE 271

Courses that require this as a prerequisite: CS 261

Structure: Three 50-minute lectures per week

Instructors: Paul Paulson

Course Content:

- Software quality factors
- OOP principles
- Algorithm analysis
- Java Collections API (stacks, queues, priority queues, linked lists, vectors, arrays, maps)
- Recursion
- Sorting algorithms

Measurable Student Learning Outcomes:

At the completion of the course, students will be able to...

1. **Develop** programs that require (1) the use of multiple classes and structures and (2) the understanding of abstraction, modularity, separation of concerns, and exception handling (Level 4; ABET Outcomes: b, C, I, k)
2. **Classify** moderately complicated algorithms in these complexity classes: $O(1)$, $O(\log n)$, $O(n)$, $O(n \log n)$, and $O(n^2)$; Level 3; ABET Outcomes: A, J)
3. **Develop** test-data sets and testing plans for programming projects (ABET Outcomes: A, c, I, K, L)
4. **Produce** recursive algorithms (Level 3; ABET Outcomes: A, j)

Learning Resources:

- Java, Java, Java: Object-Oriented Problem Solving, Ralph Morelli (required)
- *Core Java Fundamentals*, C. S. Horstmann and G. Cornell (optional)

Students with Disabilities:

Accommodations are collaborative efforts between students, faculty and Services for Students with Disabilities (SSD). Students with accommodations approved through SSD are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through SSD should contact SSD immediately at 737-4098.

Link to Statement of Expectations for Student Conduct:

<http://oregonstate.edu/admin/stucon/achon.htm>

Revised: 8/14/07