

# CS 161 – Introduction to Computer Science I

**Catalog Description:** Overview of the fundamental concepts of computer science. Introduction to problem solving, software engineering, and object-oriented algorithm development and programming.

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

**Prerequisites:** MTH 231 or ECE 271

**Courses that require this as a prerequisite:** CS 162

**Structure:** Three 50-minute lectures per week

**Instructors:** Christine Wallace

## Course Content:

- Object-oriented principles
- Class hierarchy and inheritance
- Message passing
- Primitive and abstract data types
- Control structures
- Arrays and vectors
- Graphical user interface design
- Error handling

## Measurable Student Learning Outcomes:

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

1. **Translate** natural language expressions into appropriate arithmetic, relational, and logic expressions (Level 3; ABET Outcomes: i)
2. **Read** a problem description in which the underlying algorithm is left implicit and **write** a program that uses the appropriate control constructs (Level 3; ABET Outcomes: c)
3. **Read** a problem description in which the underlying algorithm is left implicit and **write** an object-oriented program that efficiently solves the problem, using multiple classes, methods, and objects (Level 3; ABET Outcomes: c, I)
4. **Read** a problem description and **write** an object-oriented program that includes the interception and handling of error conditions (Level 3; ABET Outcomes: I)
5. **Describe** rudimentary (basic) software engineering design principles and software quality factors (Level 1; ABET Outcomes: c, k)
6. **Describe** the relationship between the software engineering design principles and software quality (Level 1; ABET Outcomes: I, k)

## Learning Resources:

- *Java, Java, Java Object-Oriented Problem Solving*, Ralph Morelli (required)
- *Core Java Fundamentals*, C. S. Horstmann and G. Cornell (optional)
- Java 2 Platform Standard Edition (<http://java.sun.com/j2se/1.3/docs/api/index.html>) (optional)

- The Source for Java Technology (<http://java.sun.com/>) (optional)
- The Java Tutorial (<http://java.sun.com/docs/books/tutorial/index.html>) (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