

CS-2121 Introduction to Programming in Java**Course Description:**

Design and implementation of applets using the Java programming language, including control structures, arrays, graphical user interface components and team programming projects.

Textbook: Deitel, H.M. et al. Simply Java(tm) Programming, Pearson Education Inc., Upper Saddle River, New Jersey, 2004. ISBN 0-13-142648-6.

Course Goals:

- To understand key Java programming constructs
 - 1) Master the essential programming constructs including program structure, variable declaration and scope, data types, operator precedence, input and output, assignment
 - 2) Become familiar with complex program flow control including the implementation of a variety of selection and repetition structures
- To develop a basic understanding of the fundamental concepts of computer hardware and software
- To understand the software development process
- To become familiar with team programming projects

Prerequisites by Course and Topic:

3 years high school math, programming course or instructor permission

Major Topics Covered in the Course:

- Fundamentals of hardware
- The software development process
- Program development using NetBeans and unix
 - Writing Java code
 - Program execution
 - Building a user interface
 - Coding, testing, debugging, and documenting an application
- Arithmetic expressions
- Variables and constants
- Assignment statements
- Variable scope
- Selection structures
 - Relational comparison operators
 - Logical operators and truth tables
 - Nesting
- The repetition control structure (Loops)
 - For...Next loop coding
 - While...Loop coding
 - Pretest loops
 - Posttest loops
- Coding methods and event handlers
- Declaring and using one-dimensional arrays
 - Searching
 - Sorting
 - Counting
 - Parallel arrays
- Two-dimensional arrays
- Team projects

Class/Laboratory Schedule: Lecture: 2 hours per week, Laboratory: 1

Laboratory Projects

Project 1: Intro to unix and html (1 week)

Project 2: First Java applet (compilation, file permissions) (1 week)

Project 3: Tutorials 3, 4 and 5, Inventory applet (variables and arithmetic operators) (1 week)

Project 4: Tutorial 6: Wage Calculator applet (selection) (1 week)

Project 5: Tutorial 9: Class Average (do...while loops) (1 week)

Project 6: Tutorial 10: Interest Calculator (for loops) (1 week)

Project 7: Tutorial 11 Security Panel (switch statement) (1 week)

Project 8: Tutorials 12 and 13, (methods and event handlers) (2 weeks)

Project 9: Text panel applet (Arrays, multiple files) (1 week)

Project 10: Group project (2-d arrays, layout managers, group work) (3 weeks)

Coordinator/Prepared by: J. Allert