

# North Hennepin Community College

## CSCI 2001: Structure of Computer Programming I

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites:

This course requires any of these three prerequisites

CSCI 1120 - Programming in C/C++

CSCI 1130 - Introduction to Programming in Java (Minimum grade: 1.67 GPA Equivalent)

CSCI 1150 - Programming in C# for .NET (Minimum grade: 1.67 GPA Equivalent)

Corequisites: None

MnTC Goals: None

Students will learn object-oriented programming using Java. In this course, students are exposed to the concepts, fundamental syntax, and the thought processes behind object-oriented programming. The basic principles of software engineering are emphasized. By doing their own Java projects, students will develop problem-solving skills and gain experience in detecting and correcting software errors.

Prerequisite: CSci 1120 or CSci 1130 or CSci 1150

**B. COURSE EFFECTIVE DATES:** 08/27/1997 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Students will use an object-oriented programming language Java as a means of expressing algorithms and data structures. They will implement Java computer programs that are thoroughly documented and tested.
2. Topics include:
  - Introduction to Java Applications and Java Applets
  - Java Runtime Environment
  - Java Virtual Machine and Java Libraries
  - Control Structures
  - Methods
  - Events
  - Arrays
  - Classes and Objects
  - Encapsulation
  - Inheritance
  - Polymorphism
  - Interfaces
  - Reusability

#### **D. LEARNING OUTCOMES (General)**

1. Formulate algorithms for solving advanced problems, and translate these algorithms into Java instructions (NHCC Core Ability Critical Thinking, comps. a, b, c; Program goal C).
2. Apply the skills necessary for problem-solving using object-oriented programming language Java (NHCC Core Ability Critical Thinking, comps. a, b; Program goal B).
3. Comprehend the fundamental concepts of object-oriented programming. Program with thorough attention to details. (NHCC Core Ability Critical Thinking, comps. a, b, c, d; Program goal C).
4. Implement Java computer programs that are thoroughly documented and tested (generally of high quality and incorporating all principles of good design) (NHCC Core Ability Critical Thinking, comps. a, b, c, d; Program goal B).
5. Develop critical thinking skills through problem analysis, algorithm development, coding, and testing (NHCC Core Ability Critical Thinking, comps. a, b, c; Program goal B).
6. Demonstrate effective thinking skills through organization and attention to details required when working with computers and computer languages (NHCC Core Ability Critical Thinking, comps. a, b, c, d; Program goal A).

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted