UMPQUA COMMUNITY COLLEGE

ROSEBURG, OREGON

COURSE OUTLINE

Course No.: CS 161

Credit Hrs: 4

Lecture Hours: 3

Lab Hours: 2

Clock Hours: 55

Length of Course: 11 weeks

Prerequisite: MTH 111

Title: Computer Science I

Developed by: Dale Bryson

Date: December 1999

Reviewed: April 2004 by Sue Goff

Course Description: This is an introduction course to computer science. Topics covered are: Algorithms, programming concepts, programming in a structured language, and computer applications. The C++ or the Java language will be introduced and programs will be written on a microcomputer using a C++ or Java Compiler and editor.

Required Text:

*C++ Programming: Program Design Including Data Structures,* D.S. Malik, Course Technology Publisher.

Course Objectives:

1. Computer Literacy

2. Problem solving and algorithm design

3. Programming in a high level language

4. Perspectives toward computer science - hardware, software, theoretical foundation, historical development, current directions, and limitations.

COURSE OUTLINE: CS 161 - C++

I. Overview of Programming

A. Programming and programming languages

B. Types of computer - main frame, mini, and micro

C. Introduction to the C++ language

II. Algorithm design and problem solving

A. Problem solving process

B. Syntax diagrams

C. Data types, variables, and assignment

III. Top-Down Design

A. Program development

B. functions

IV. Selection Structures

A. Conditions and boolean expressions

B. Selection control structure

V. Repetition

A. While statement

B. For statement

C. Do-while statement

D. Nested loops

VI. Functions

A. function return valve

B. Parameter passing and local variables

VII. Data Types

A. representations of integers

B. floating and characters

C. character variables

VIII. Formatting and Files

A. standard input/output stream

B. external files

COURSE OUTLINE: CS 161 - JAVA

I. Overview of Programming

A. Programming and programming languages

B. Types of computer - main frame, mini, and micro

C. Introduction to the Java language

II. Introduction to Java

A. Applets and applications

B. World wide web

C. Introduction to HTML

III. Introductory Graphics

IV. Variables and Calculations

V. Methods and parameters

VI. Events

VII. Decisions - if and switch statements

VIII. Repetition - While, for and do statements