UMPQUA COMMUNITY COLLEGE

ROSEBURG, OREGON

**COURSE OUTLINE**

Course No.: CS 162

Credit Hrs: 4

Lecture Hours: 3

Lab Hours: 2

Clock Hours: 52

Length of Course 11 weeks

Prerequisite: CS 161

Title: Computer Science II

Developed by: Dale Bryson

Date: December 1999

Reviewed: April 2004 by Sue Goff

COURSE DESCRIPTION: This course is a continuation of CS 161 and introduces the student to the

use of a variety of data structures. Topics include: string operations, records, stacks, queues, trees, recursion, sorting, linked lists, searching data structures. Programs will be written either in C++ or Java.

Required Text:

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

COURSE OBJECTIVES:

1. Develop a basic understanding of data structures.

2. Develop a mastery of the C++ programming language.

COURSE CONTENT: CS 162

I. Built in Data Structures

A. One-dimensional arrays

B. Two-dimensional arrays

C. Structure Data Type

II. Data Abstraction

III. String Data Types

IV. Recursion

V. Dynamic Data Structures

A. Stacks

B. Queues

C. Linked Lists

VI. Binary Search Tree

A. Concept of a tree structure and vocabulary

B. Binary search tree algorithms

C. Tree traversals

D. Applications using binary search tree

VII. Sorting Algorithms

A. Sequential search

B. Binary search

C. Hashing