

**NORMANDEALE COMMUNITY COLLEGE**  
**COMMON COURSE OUTLINE**  
**CSCI 2002, STRUCTURE OF COMPUTER PROGRAMMING II**

**9/28/2011**

**I. EFFECTIVE DATE OF OUTLINE**

Spring Semester, 2006. To be reviewed by the department annually.

**II. CATALOG DESCRIPTION**

- A. CSCI 2002
- B. Structure of Computer Programming II
- C. 4 Credits
- D. Offered Spring Semester
- E. Prerequisite: CSCI 1111 and CSCI 2001
- F. Exposes students to the language C++ and to object-oriented programming. Reinforces the concepts presented in CSCI 2001, such as data abstractions. Introduces data structures such as stacks, lists, and trees. Introduces simple sorting algorithms. Students will implement data structures and their operations as abstract data types using an object-oriented approach.

**III. RECOMMENDED ENTRY SKILLS/KNOWLEDGE**

Before taking CSCI 2002, students should be able to:

- A. Use a top-down approach to problem-solving, designing functions to modularize problem solutions.
- B. Express problem solutions as algorithms, using some sort of algorithmic representation, e.g., flowchart or pseudocode.
- C. Design C computer programs that are thoroughly documented and tested, generally of high quality, and incorporating all principles of good design.

**IV. OUTLINE OF MAJOR CONTENT AREAS**

- A. Data types
- B. Fundamental structures of procedural languages
- C. Data abstractions
- D. Stack data structures
- E. Strings
- F. List data structures
- G. Sorting
- H. Tree structures and their pre-order and post-order traversals
- I. Hashing
- J. Classes and object-oriented programming
- K. Introduction to the C++ programming language

**V. LEARNING OUTCOMES**

Upon successful completion of CSCI 2002, students will be able to understand and use:

- A. The C++ programming language
- B. The syntax, operators and data types of the C++ programming language.
- C. A variety of data structures, their operations and how to implement them as abstract data types.
- D. Data structures and control structures on a computer using the C++ programming language.

**VI. METHODS USED FOR EVALUATION OF STUDENT LEARNING**

The instructor will choose from among various evaluation techniques including – but not limited to – in-class testing, take-home testing, assignments, quizzes, attendance, group or individual projects, and research. The instructor will also choose a method for end-of-the-semester evaluation.