

**VIRGINIA STATE UNIVERSITY  
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE  
SCHOOL OF AGRICULTURE, SCIENCE AND TECHNOLOGY  
CSCI 250: Programming in C++ II - 3 sem. hours  
COURSE SYLLABUS**

**Instructor's Name:** \_\_\_\_\_

**Instructor's Office Location:** \_\_\_\_\_

**Instructor's Office Phone:** \_\_\_\_\_ **Instructor's E-mail:** \_\_\_\_\_

**Departmental Fax Number: (804) 524-5746**

**Instructor's Office Hours:**

Monday	Tuesday	Wednesday	Thursday	Friday

**COURSE DESCRIPTION**

A continuation of CSCI-150. Brief review of parameter passing in functions. One and two dimensional arrays: basic search and sort algorithms. Pointers and characters strings in C++. I/O Streams and Files. Records as Data Structures. The course ends with an introduction to classes and Object Oriented programming.

**Prerequisite:** CSCI 150 (with a grade of C or better)

**COURSE TEXT**

**Bronson, Gary:** Program Development and Design Using C++, 2<sup>nd</sup> Edition, (2000), Brooks/Cole, 511 Forest Lodge Road, Pacific Grove, CA 93950

As supplementary materials, the student must acquire a few high density 3 ½" floppies. These must be submitted with your project. Refer to the accompanying document "Guidelines for Project Documentation".

## **LEARNING OUTCOMES, ACTIVITIES AND EVALUATION PROCEDURES**

### **KNOWLEDGE**

The student will

1. Distinguish between parameters and arguments; between value and variable parameters
2. Be able to declare abstract data types in C++, arrays, records.
3. Describe Input/Output protocols in the class Library of C++.
4. Describe the elements of Object-based programming: object, constructor, methods, etc.

**Evaluation Strategy:** Quizzes and questioning and answering in classroom.

### **SKILLS**

The student will

1. Recognize the need of using special data types arrays and records in a program.
2. Write programs in C++ which involve formatted input and output.
3. Be able to use and define functions with array parameters.
4. Understand the relation between pointers and string arrays.

**Evaluation Strategy:** Quizzes will be the main mean to evaluate skills.

### **ABILITIES**

The student will

1. Write complete programs in C++ involving arrays and records processing.
2. Understand simple searching and sorting procedures.
3. Implement basic searching operations on arrays.

**Evaluation Strategy:** Since the above require some time and concentration, as well as well-rounded knowledge of the Pascal language, comprehensive exams will be the preferred evaluation strategy (see below).

## ADDITIONAL EVALUATION STRATEGIES

Quizzes and assignments will be given at regular intervals. Lab and class participation will be encouraged through extra credit points to be used toward quizzes.

There will be two comprehensive exams: a midterm and a final.

The numerical grade is computed as follows:

$$MA = \frac{2}{3} * QA_1 + \frac{1}{3} * ME$$

$$FA = \frac{1}{3} * MA + \frac{1}{3} * QA_2 + \frac{1}{3} * FE$$

Where,

$QA_1$  : average of assignments and quizzes before Midterm

$QA_2$  : average of assignments and quizzes after Midterm

$ME$  : Midterm examination

$MA$  : Midterm average

$FE$  : Final Examination

$FA$  : Final Average.

## COURSE REQUIREMENTS

This is a continuation of the course CSCI-150 (Programming in C++ I). Students are assumed to have a solid base in using control structures in C++, including and basics of functions. As opposed to the former course which emphasizes the algorithmic aspect, this course concentrates more

on the **data structures**, although some basic algorithms are covered.

In order to achieve success in the course it is fundamental the abilities acquired by doing assigned **projects** and **homework**. **Quizzes** given at regular intervals will should serve as self-check and are often indicators of future performance in exams.

Students are strongly advised, not only to study, but to do the **textbook programming exercises** by visiting frequently the Computer Science and Mathematics Lab. Hours are posted at the door and will be provided no later than the third week of classes.

Students are expected to:

1. Attend class regularly and on time. Be **active participant** in class discussions.
2. Turn in required homework and assignments on time.
3. Purchase and **study** required text and material.
4. A student covered under the American Disability Act should privately inform the teacher of this fact so that appropriate instructional arrangements can be made.

## **GRADING STANDARDS**

Grading and treatment of academic dishonesty are conformed to University rules. Please read carefully the attached excerpts from the Catalog and the Students Handbook.

## **BIBLIOGRAPHY/READING LIST**

Some of the reference books on C++ that are listed below are available in the main VSU library.

**Bergin, Joseph;** Data Abstraction, the object-oriented approach using C++, (1994), Addison Wesley, One Jacob Way, Reading, MA 01867.

**Dale, Nell;** C++ plus Data Structures, 3<sup>rd</sup> Edition (2003), Jones and Bartlett Publishers, 40 Tall Pine Drive, Sudbury, MA 01776.

**Dale Nell, Weems, Chip, and Headington, Mark;** Programming and Problem Solving with C++, 3<sup>rd</sup> Edition (2002), Jones and Bartlett Publishers, 40 Tall Pine Drive, Sudbury, MA 01776.

**Cohon, James and Davidson, Jack;** C++ Program Design, 3<sup>rd</sup> Edition (2002), McGraw Hill Companies Inc., 1221 Ave. of the Americas, New York, NY 10020.

**Stroustrup, Bjarne** (The Creator of C++); The C++ Programming Language, 3<sup>rd</sup> Edition (1997), Addison Wesley, One Jacob Way, Reading, MA 01867.

**Malik, D. S.;** C++ Programming: From Problem Analysis to Program Design, Course Technology (Thomson Learning), 25 Thomson Place, Boston, MA 02210.

**Magler, Eric;** Learning C++, 3<sup>rd</sup> Edition (2004), Thomson Brooks/ Cole, 511 Forest Lodge Road, Pacific Groove, CA 93950.

**Savitch, Walter;** Absolute C++, 1<sup>st</sup> Edition (2002), Addison Wesley, One Jacob Way, Reading, MA 01867.

**Savitch, Walter;** Problem Solving with C++, 2<sup>nd</sup> Edition (2002), Addison Wesley, One Jacob Way, Reading, MA 01867.

**Muldner, Tomasz;** C++ Programming with Design Patterns Revealed, (2002), Addison Wesley, One Jacob Way, Reading, MA 01867.

**Hennefeld, Julien and Burchard, Charles;** Using C++: An Introduction to Programming, PWS Publishing Company, 20 Park Plaza, Boston, MA, 02116.

**Farrell, Joyce;** Object Oriented Programming Using C++, (1998), Course Technology (Thomson Learning), 25 Thomson Place, Boston, MA 02210.