

**VIRGINIA STATE UNIVERSITY  
SCHOOL OF ENGINEERING, SCIENCE AND TECHNOLOGY  
DEPARTMENT OF MATHEMATICS & COMPUTER SCIENCE  
COURSE SYLLABUS: SPRING 2004  
CSCI-150 Programming in C++ I 3 Sem. Hrs.**

**Instructor:** Dr. Dawit Haile

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**Course webpage:** <http://www.vsu.edu/facultypage/dhaile>

**Course Section:** 01

**Course Meeting Days, Time and Place:** HM 201 TR 9:30 – 10:50

**Office Hours:** M\_\_\_\_\_ T\_\_\_\_\_ W\_\_\_\_\_ R\_\_\_\_\_ F\_\_\_\_\_

### **COURSE DESCRIPTION**

This course introduces software design methodology using C++. Students are introduced to the process of designing and implementing a program to solve an algorithmic problem. Topics include procedural abstraction, control structures, iteration, data types and their representation, iterative approximation methods. An introduction to a high-level language (C++), for gaining mastery of these principles, will be provided in lectures and in closely coordinated laboratory experiences.

**COURSE PREREQUISITES:** Problem Solving with Computers (CSCI-120) with a grade of C or better or previous exposure to a general purpose programming language such as C, FORTRAN, Java or Pascal.

### **COURSE TEXT**

Gary J. Bronson, Program Development and Design Using C++, Brooks/Cole Publishing Company  
Pacific Grove, CA, 2000

As supplementary materials, the student must acquire a few high density 3.5 inch floppy disks. These must be submitted with programming projects.

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

#### **KNOWLEDGE/SKILLS**

The student will:

1. Be familiar with the terminology of Computer Science , particularly those terms and concepts important in C++.
2. Know the syntax rules for C++.
3. Know how to invoke the appropriate input and output objects and how to suitably control output display.
4. Be familiar with the basic data types and know how to perform operations involving various data types.
5. Know how to declare and use variables in a C++ program.
6. Know how to call a C++ library function.
7. Be able to evaluate expressions involving relational operators.
8. Be familiar with the application of various selection statements and control structures in the C++ language.
9. Know how to design a function and call it to process data and return a result.

## ABILITIES

The student will

1. Write, run and debug complete C++ programs.
2. Construct algorithms for solving programming problems.
3. Create easily readable and understandable programs by employing appropriate program modules and commentary.

## Evaluation Strategy:

The numerical grade is computed as follows:

midterm grade =  $(2/3)$ (Average of assignments and quizzes before midterm) +  $(1/3)$ (Midterm exam grade)

Final grade =  $(1/3)$ (midterm grade) +  $(1/3)$ (Average of assignments & quizzes after midterm)  
+  $(1/3)$ (Final Exam grade)

The Midterm and Final exams will be comprehensive.

## COURSE REQUIREMENTS

This course is an introduction to programming using a modern high level language: C++. Programming projects will be assigned approximately every two weeks. These are each worth 100 points and constitute the major portion of the homework for this course.

Students should be prepared to spend 3 to 5 hours per week in the design, testing and documentation of these projects. Short homework assignments from the text will also be given. These may range in value from 10 to 40 points.

There will be one full period test before midterm and one full period test after midterm. There may be an occasional short quiz or a take-home test. Homework, including projects and text assignments is weighted 50% and tests/quizzes are weighted 50% in the determination of pre and post midterm averages. Assignments should be turned in at the beginning of the class on the due dates. Late assignments are not accepted.

Students are expected to:

1. Attend class regularly and on time.
2. Turn in all assignments on time.
3. Read carefully the relevant portions of the text.
4. Conduct themselves in a quiet and respectful manner during lectures.
5. Study hard and perform well on tests and quizzes.
6. Seek the professors help on assignments and projects in the computer lab (HM 214) or during office hours.
7. Be honest and do their own work. (Grading and treatment of academic dishonesty are conformed to University rules. Please read carefully the attached excerpts from catalog and student handbook.)

**Note:** A student covered under the American Disability Act should privately inform the teacher of this fact so that appropriate instructional arrangements can be made.

## **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.

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

Dale, Nell; C++ plus Data Structures, 3rd 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++, 3rd Edition (2002), Jones and Bartlett Publishers, 40 Tall Pine Drive, Sudbury, MA 01776.

Lafore, Robert, C Programming Using C++, 2nd Ed., Sams Publishing, 1993.

Lambert, K; Nance, D, and Naps, T. Introduction to Computer Science With C++, 2nd Ed., Brooks/Cole , 2000.

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++, 3rd Edition (2004), Thomson Brooks/ Cole, 511 Forest Lodge Road, Pacific Groove, CA 93950.

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

Scharpf, Carl A., Computers in Context, The Benjamin Cummings Publishing Company.

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

Winston, Patrick H., On To C++, Addison-Wesley, 1994.