



UNIVERSITY OF NEW YORK IN TIRANA Course Syllabus

Course: Programming in C++ (3 credit hours)

Lecturer: Narasimha Rao V

Office Hours: Monday 10 AM to 4 PM or By Appointment (TBA).

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Catalog Description

The purpose of the course is to teach the basics of the C++ programming language. This course teaches people with little or no programming experience how to program using the C++.

Prerequisite: Programming in C.

Course Purpose

This course provides an introduction to the most essential components of C++. The course begins by introducing the built in data types, fundamental control constructs, and rich expression operator repertoire of C++. It also deals with object-oriented programming features of C++.

Required Readings, Text

C++, How to Program, Deitel and Deitel, Fifth Edition

C++ in the Lab, Deitel & Deitel, Fourth Edition

Required Additional Materials

Students will be provided hand outs and extra notes as and when required.

Course Objectives

Upon completion of this course, students should be able to:

- Implement object-oriented programs in C++.
- Demonstrate mastery of the C++ implementation of object-oriented concepts including:
 - Encapsulation.
 - Information hiding.
 - Data abstraction.
 - Inheritance hierarchies.
 - Polymorphism.
 - Function overloading.
 - Operator overloading.
- Write clear, elementary C++ programs.
- Understand algorithmic thinking and apply it to programming.
- Understand problem-solving techniques.
- Code with C++ arithmetic, increment, decrement, assignment, relational, equality and logical operators.
- Code C++ control structures (if, if/else, switch, while, do/while, for) and use built-in data types.
- Use standard library functions.
- Write user-defined function definitions.
- Understand and manipulate arrays.
- Pass arrays to functions.
- Overload operators.

Content of the Course

1. Introduction to Computers, the Internet and world Wide Web
2. Introduction to C++ Programming.
3. Introduction to Classes and Objects.
4. Control Statements : Part 1
5. Control Statements : Part 2
6. Functions and Introduction to Recursion
7. Arrays and Vectors.
8. Pointers and pointer based strings
9. Classes: Deeper Look
10. Operator Overloading: String and Array Objects.
11. Friend Functions
12. Types of Inheritance
13. Dynamic Memory Allocation
14. Virtual Functions
15. Singleton Classes
16. File IO
17. Templates
18. Polymorphism & Virtual Destructors
19. Exception Handling
20. Standard Template Library

Course Requirements

Participation: Participation extends beyond mere attendance. Expect your instructor to keep track of how often you contribute to class discussion (as a whole), particularly during the panel discussion section. You may miss up to three classes without penalty - your first two absences count whether you have a good excuse or not. Each absence beyond the first three will cost you points off of your participation grade. The only exceptions to this rule are severe illness (doctor's note required) and UNYT approved trips/activities. Appropriate documentation for absences beyond the first three is necessary the class day directly before or after the one you miss. In general: this class is intensive and interactive. Missing class could seriously affect your grade! Students are reminded not to approach the instructor for copies of the previous week's materials during immediately before, during, or immediately after class. Students are expected to collect materials from their classmates or see the instructor during consultation hours.

Exams: Two examinations will be taken, a midterm and a final exam covering all course content during the final examination period. Test format may combine a mixture of short answer, true/false, matching, sort answer, and one or two essay questions covering *all* readings, lecture, hand-out and class discussion content.

Final Examination: To be Announced

General Requirements

Late assignments and absence from tests will *not* be tolerated. *In the event of illness or emergency, contact your instructor IN ADVANCE to determine whether special arrangements are possible. The University's rules on academic dishonesty (e.g. cheating, plagiarism, submitting false information) will be strictly enforced. Please familiarize yourself with the STUDENT HONOUR CODE, or ask your instructor for clarification.*

Criteria for Determination of Grade, including Evaluation Methods

Quizzes	15%
Assignments(Home & Lab Practice)	15%
Midterm	30%
Final	40%

Grading Scale

Letter Grade	Percent (%)	Generally Accepted Meaning
A	96-100	Outstanding work
A-	90-95	
B+	87-89	Good work, distinctly above average
B	83-86	
B-	80-82	
C+	77-79	Acceptable work
C	73-76	
C-	70-72	
D+	67-69	Work that is significantly below average
D	63-66	
D-	60-62	
F	0-59	Work that does not meet minimum standards for passing the course

Bibliography (Additional Readings)

- Budd, T. An Introduction to Object-oriented Programming, Addison Wesley, 2nd edition.
- Design Patterns: Elements of Reusable Object-oriented Software. Addison-Wesley.
- Let us C++, Yashavant Kanetkar, BPB Publications
- Test Your C++ Skills, Yashavant Kanetkar, BPB Publications.
- Data Abstraction and Object-oriented Programming in C++, K.E.Gorlen, et.al, J. Wiley, ISBN 0-471-92346-X
- The Design and Evolution of C++, B. Stroustrup, Addison-Wesley, ISBN 0-201-54330-3
- Scientific and Engineering C++, J.J. Barton, L.R.Nackman, Addison-Wesley, ISBN 0-201-53393-6
- The Annotated C++ Reference Manual, M. Ellis, B. Stroustrup, Addison-Wesley, ISBN 0-201-51459-1
- Object Oriented Programming Using C++, I. Pohl, The Benjamin/Cummings, ISBN 0-8053-5382-8
- The Draft Standard C++ Library, P.J. Plauger, Prentice Hall, ISBN 0-13-117003
- The C++ Programming Language, B. Stroustrup, Addison-Wesley.
- C++ Primer, S.B. Lippman, Addison-Wesley, ISBN 0-201-54848-8
- C++ database Development, A. Stevens, MIS: Press, ISBN 1-55828-357-9
- C++ I/O Streams Handbook, S. Teale, Addison-Wesley, ISBN 0-201-59641-5
- The Complete C++ Primer, K. Weiskamp, B. Flaming, Academic Press.
- Taming C++: Pattern Classes and Persistence for Large Projects, J. Soukup, Addison-Wesley, ISBN 0-201-52826-6

Technology Expectations

- Software Required: GNU C++ Compiler (Open Source), Cygwin.
- Students can get all the Lecture Slides, notes and other links at the course webpage. The link for the course web page will be provided on the day of the first class.
- Students must keep copies of all assignments and projects sent by e-mail.
- Assignments are to be word-processed. Continuing and regular use of e-mail is expected.

Date Prepared: **November 3, 2007**

Prepared by: **Narasimha Rao V.**