

CSCI 140 OUTLINE

C++ LANGUAGE AND OBJECT DEVELOPMENT

TEXT: C++ How to Program by H. Deitel & P. Deitel, 8th ED Prentice Hall

C++ in the Lab by H. Deitel & T. Nieto Prentice Hall

Approved: OCTOBER 2012

Effective: SPRING 2013

MATERIAL TO BE COVERED	SECTIONS FROM TEXT	TIME LINE
Hardware and software, computer organization, high level languages, operating systems, C++ and IDE, first simple program in C++, preprocessor directives (#include, #define), macros, arithmetic, memory concepts, relational operators, intro to classes OOP, constructor, member function, data member, set/get	1.1 - 1.14 2.2 - 2.7 3.1 - 3.8	5 Hours
Algorithms, pseudo-code, control structures, selection structures (if, if/else, and switch), repetition structure (while, for, and do/while), assignment operators, increment and decrement operators, relational operators, logical operators, break and continue, typedef and bitwise operators	4.1 - 4.12 5.1 - 5.10 21.2 - 21.6	5 Hours
Functions: standard library functions and user-defined functions, function prototypes, function definitions, function calls, scope rules, storage classes, passing parameters by value and by reference, default arguments, recursive functions, inline functions, function overloading	6.1 - 6.21	4 Hours
Arrays, Pointers and Strings: one-dimensional and multidimensional arrays, array applications (sorting and searching), pointer variables, pointers vs. arrays, pointer arithmetic, arrays of pointers, function pointers (optional), passing arrays to functions, character and C-string processing, character and string libraries (optional)	7.1 - 7.11 8.1 - 8.12	3 Hours
Classes: structure vs. class, encapsulation, class scope, controlling access to members (public and private), constructors, destructors, interface and implementation files, software reusability, constant objects and constant member functions, friends, the "this" pointer, static class members, composition, data abstraction, information hiding, dynamic memory allocation/deallocation (new and delete)	9.1 - 9.10 10-1 - 10.7	5 Hours
Operator overloading: fundamentals and restrictions, overload as member functions vs. as friend functions, stream-insertion and stream-extraction operators, overloading unary operators and binary operators, copy constructor, converting between types, ease study: array class, C++ strings	11.1 - 11.14	3 Hours
Inheritance and Polymorphism: base class and derived classes, protected members, base-class pointers and derived-class pointers, overriding, composition vs. inheritance, multiple inheritance, virtual functions and pure functions, abstract base classes and concrete classes, static binding vs. dynamic binding, virtual destructors, the v-table	12.1 - 12.7 13.1 - 13.9	4 Hours
C++ Stream Input/Output: stream I/O classes and objects, stream output, stream manipulators, stream format states, stream error states, unformatted I/O read/write	15.1 - 15.9	3 Hours
Templates: function templates, class templates	14.1 - 14.5	1 Hour
Exception handling: error-handling techniques, basics of C++ exception handling (try, throw, and catch)	16.1 - 16.12	1 Hour
File processing: data hierarchy, files and streams, sequential access files, random access files	17.1 - 17.11	3 Hours
Class String: templated data structures and Standard Template Library: linked lists, stacks, queues, trees, introduction to STL, containers and algorithms (optional), standard C++ language additions (optional)	18.1 - 18.12 20.1 - 20.7 22.1 - 21.8	3 Hours

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***** One hour - 1 hours of face time. **** This outline allows for 3 hours of exams.

16 Week Term: 1 week = 2.8333 hours (face time) 6 Week Term: 1 week = 7.5 Hours (face time)

NOTES:

1 week: 3 lecture hours and 3 lab hours

The above outline allows 1 week for review and exams, not counting holidays.

Submitted by: H. Pop