

**CSC112**                      **Spring 2011**  
**Fundamentals of Computer Science**

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**Office/Hours:** Manchester 226: Monday and Wednesday 11:00 to 12:00, Thursdays 1:00 to 3:00 and by appointment.

**Text:** Absolute C++ by Walter Savitch.

**Goals:**

1. Proficiency in using the UNIX operating system
2. Programming skills in C/C++
  - (a) Procedural programming
  - (b) Object-oriented programming
  - (c) Event driven programming (if time allows)
3. Problem solving skills

**Topics:**

1. Overview of the UNIX operating system.
  - (a) Online reference: *<http://www.ee.surrey.ac.uk/Teaching/Unix>*
2. Review: variables, control structures and functions
3. Review: scope, recursion, and function overloading
4. Programming tools: separate compilation, header files, make
5. Arrays
6. Sorting, searching, ordered and unordered lists performance evaluation
7. Pointers
8. Dynamic memory allocation and error checking
9. Reference variables and C-style parameters
10. C-strings, command line arguments, and arrays of pointers
11. Structures (struct), Unions, and advanced data types
12. Abstract data types and classes; design, encapsulation
13. Classes: member data, public, private and protected data
14. Classes: member functions, constructors and destructors
15. Function and operator overloading, friends
16. Pointers to classes and classes with pointers

17. Linked lists, doubly linked lists, implementation, and iterators
18. Inheritance
19. Class templates, function templates

**Expectations:**

1. Class participation.
2. Communicate if things get complicated.
3. Your best effort.

**Grading:**

Four exams (65%), 12 labs, some take home problem sets (35%). Expected exam dates are Wednesday February 9, Wednesday, March 2, Wednesday, April 6, and Tuesday, May 2 (final exam). Programming assignment(s) **must** be submitted ready to compile and run under Linux (Ubuntu).

**Disability Notice:**

If you have a disability that may require an accommodation for taking this course, then please contact the Learning Assistance Center (758-5929) within the first two weeks of the semester.

**Pandemic Planning Notice:**

The University has requested that faculty collect personal contact information as part of emergency planning and preparation. The information you provide is strictly confidential.

**Pledge Work Notice:**

Assignments in Computer Science courses may be specified as “pledged work” assignments by the professor of the course. When an assignment is specified as “pledged work” the only aid that the student may seek is from either the course professor or an assistant that the professor has explicitly specified. On “pledged work” assignments the student may not use the services of a tutor.

**All lab assignments in CSC 112 are specified as “pledge work”.**