Exam 2 Study Guide

The exam is closed book and closed notes. It is comprehensive and includes all materials covered during the term so far, in lecture, lab, and on the projects. However, it will mainly focus on topics covered since exam 1.

Topics covered:

- Abstract Data Type definition
- ADTs: string, array, stack, queue
- Class, constructors, operator overloading, const methods
- Templates
- Copy semantics, destructors, copy ctor, assignment, constant time swap
- Dynamic memory, pointers, new, delete, pointer arithmetic
- Linked lists
- Recursion
- Converting infix to prefix and postfix
- Pre, post conditions, invariants, assertions
- Software testing

Not on the exam: make, svn, or Unix commands

Sample Exam Questions

These questions are representative of the types and format of the exam questions. The instructor has given similar questions in the past.

1. What are the three components of an abstract data type (ADT)?

2. Write a template class for the ADT Array. You must use a dynamic array. You must implement the following:
   - constructor with a specific capacity provided
   - destructor
   - copy constructor
   - assignment
   - constant time swap

3. Write a template class for the ADT queue using a fixed sized circular array. It must use all the memory in the array for storage.

4. Convert the following expression to prefix and postfix: A + B + C * D * E