C SC 397a
Advanced C++

The University of Arizona
Spring Semester, 2010

Introduction

Instructor

Teaching philosophy

Course topics

Syllabus Highlights

Instructor

- William Mitchell
- Research programmer here in Computer Science since July 2009, working on the AnimalWatch project. Mostly work with Adobe Flex and ActionScript, and a little Groovy.
- 1993-2009: Consultant/contractor specializing in software development and training of software developers. Primarily coded in Java, C++, C, and Icon.
- Occasionally teach courses in programming languages at The University of Arizona (C SC 352, 372, and others).
- Education: BSCS (North Carolina State University, 1981), MSCS (The University of Arizona, 1984).
- Lecturer, not a professor.

Teaching Philosophy

- I work for you!
- My goal: counting lecture time you'll need to average no more than four hours per week to maintain an average over 90%.
- Effective use of office hours, e-mail, IM, and the telephone can equalize differences in learning speed.
- I should be able to answer every pertinent question about course material.
- My goal is zero defects in slides, assignments, etc.

About the course title...

UA Catalog:
"Advanced C++"

More accurate:
"Fundamentals of C++"

Course description

This course covers the fundamentals of the C++ programming language, building on prerequisite knowledge of C and Java. Major topics include class definition, object creation and interaction, aggregation of objects, single and multiple inheritance, operator overloading, I/O streams, exception handling, and templates. The Standard Template Library is introduced with coverage of the principles of containers, iterators, algorithms, and function objects.

An underlying theme of the course will be the tensions that arise from C++ simultaneously providing support for object-oriented programming, type extensibility, high-level language facilities, very strong compile-time type-checking, and efficient execution.

Topic Sequence

This is the anticipated set and sequence of topics:

Introduction and Overview
Class and Object Basics in C++
Fine Points on Classes and Objects
Miscellany—References, const, Friends, and more
Aggregations of Objects
Operator Overloading
IO Streams
Inheritance
Multiple Inheritance
Templates
Exceptions
Run-Time Type Information
Introduction to the C++ Standard Library

Syllabus Highlights

- Prerequisites
- (No) Textbook
- Grading Structure
- Assignments
- Bug Bounties
- Quizzes
- Office Hours
- E-mail
- IM
- Telephone
- Mailing List
- Original Thoughts
- (**NO!**) Cheating

Read the syllabus!

Class Picture!