

CSCI 152

Programming Fundamentals II



Summer 2008

Introduction and
Administrative

June 2, 2008



Course Structure

The course is generally broken into 2 parts. In the first half of the course, we will be concentrating on what is known as plain vanilla C (e.g. not using the object-oriented features of C++). We will quickly review the basics you should have learned from CSci 151, and then we will move on to some more advanced features, including Arrays and their applications, Pointers and memory management issues, and simple records using the C struct. The first test will cover this portion of the class, and is scheduled to occur at the end of week 4.

The second half of the course covers Object-Oriented programming and design, specifically using the features of C++ for OOP/OOD. We will be covering the basics, including classes, class scoping, inheritance and composition, constructors and destructors, etc. I will also try and give a flavor of some of the big-picture issues of why OOP is good and useful, and what some of the OO concepts such as encapsulation, data hiding and polymorphism mean. The second test will be focused on these aspects of C++ and OOP concepts.

Time permitting, we will finish the course by looking at some advanced features of C++ like templates, overloading and the STL library. The final exam will be comprehensive, covering all materials presented and discussed during the class.



Course Structure

- Syllabus Handout
- Face-to-face lectures
 - Optional
 - T&R 1-2:50pm Jour 204
- eCollege
 - Practice logging in later



Textbook

C++ Programming: From Problem Analysis to Program Design (any edition)

Author: D.S. Malik

- Please respond to textbook discussion and let me know your edition
- If you don't have it, get it!
- I believe 3rd edition is in the bookstore?



Assignments & Grading

- 2 Tests
 - 15% each, 30% of final grade
 - W4, Friday June 27, 11:59pm
 - W8, Friday July 28, 11:59pm
- Comprehensive Final
 - 20% of final grade
 - W10, Friday August 8, 11:59pm



Assignments & Grading

- 10 Assignments
 - Due by Thursday 11:59pm each week
 - Assignment 1 due Thursday June 5th
 - Pass, Make Changes, Fail (redo)
 - 1 week to make changes or redo
 - Nonlinear effect
 - 1 (2 lates) 1%
 - 2 (4 lates) 10%
 - 3 (6 lates) 40%



Participation

- Participation refers to online activities
- Discussions
 - quality of questions & answers
- Time spent on system
- Quizzes
- All assignments will have a discussion thread each week.



How to Get Started

Here are the tasks that students should begin working on in order to get started with the class:

1. I have started a discussion about the edition of the textbook that students will be using this summer in the Week 1 discussion area. Please respond to the discussion and indicate which textbook you will be using. Of course if you don't have a copy of the text you should get one ASAP.



How to Get Started

2. If you don't already have a good environment or IDE for writing and debugging C++ programs, you need to immediately get something set up for use for the course. I will be showing people how to use the Eclipse IDE on my labs Linux machines for our first face-to-face meeting. I will also show people after class how to gain access to their account and use Eclipse from the machines in the Jour 101/102 computing lab. But you are not required to use Eclipse. You can get a student copy of Visual Studio from the campus CTIS technical services. Other good freely available IDE's that support C++ development include Eclipse and NetBeans. There is also a discussion thread started about IDEs for the first week as well.



How to Get Started

3. The first programming assignment will be posted at the beginning of the week and will be due by the end of the day Thursday, June 5th. This should be a simple assignment for people who have completed CSci 151, as it simply asks you to use control structures, loops and functions to perform some simple tasks. The real purpose is to motivate you to get your development environment set up quickly, as we will be moving on to more substantial assignments quickly.



How to Get Started

4. If you feel you need help with the eCollege system, you should log on and perform the eCollege system student tutorial first thing today after class.

Wk	Date	Topic / Activity	Read (3 rd ed)	Assg	Test
1	Jun 3	1- Intro / Admin 2- Using Eclipse 3- Assignment #1			
	Jun 5	4- Basic Elements & I/O 5- Control Structures 6- Functions	Review Ch. 2 & 3 Review Ch. 4 & 5 Review Ch. 6 & 7	1	
2	Jun 10	1- Arrays 2- C-Strings and character arrays) 3- Assignment #2	Ch. 9 473-495 Ch. 9 496-502		
	Jun 12	4- Two & Multidimensional Arrays 5- Intro search & sorting 6- Selection and other sorts	Ch. 9 503-521 Ch. 10 551-572 Ch. 10 551-572	2	
3	Jun 17	1- Sequential Search 2- Binary Search 3- Assignment #3	Ch. 10 572-574 Ch. 10 575-579		
	Jun 19	4- C Structures 5- Using struct variables 6- Arrays vs. structs	Ch. 11 609-616 Ch. 11 616-617 Ch. 11 617-626	3	
4	Jun 24	1- Intro to pointers 2- Using Pointers: referencing & dereferencing 3- Assignment #4	Ch. 14 791-793 Ch. 14 793-799		
	Jun 26	4- Pointers and C arrays 5- Pointers, and dynamic memory 6- Linked Lists w/ pointers	Ch. 14 800-808 Ch. 14 809-817 Ch. 18 1023-1037	4	1
5	Jul 1	1- Fundamentals of C++ Classes 2- Class member variables 3- Assignment #5	Ch. 12 649-653 Ch. 12 654-657		
	Jul 3	4- Class member functions 5- Private, public and protected scope 6- Class Constructors and Destructors	Ch. 12 658-671 Ch. 12 658-671 Ch. 12 672-683	5	
6	Jul 8	1- Data Abstraction & ADTs 2- Information Hiding & OO principles 3- Assignment #6	Ch. 12 683-686 Ch. 12 687-690		
	Jul 10	4- Object Oriented Design & Programming 5- Introduction to Inheritance 6- Member functions of derived and base classes	Ch. 13 756-759 Ch. 13 725-728 Ch. 13 729-735	6	
7	Jul 15	1- Constructors of derived and base classes 2- public, private and protected inheritance 3- Assignment #7	Ch. 13 736-746 Ch. 13 747-750		
	Jul 17	4- Object Composition 5- Inheritance vs. Composition 6- Examples of Inheritance and Composition	Ch. 13 751-755 Ch. 13 751-755	7	
8	Jul 22	1- Operator Overloading 2- Syntax for Operator Functions 3- Assignment #8	Ch. 15 859-867 Ch. 15 859-867		
	Jul 24	4- Overloading vs. Friend Functions 5- Overloading Binary & Stream operators 6- Overloading Unary & Assignment operators	Ch. 15 868-873 Ch. 15 874-884 Ch. 15 885-898	8	2
9	Jul 29	1- Introduction to C++ Templates 2- Function Templates 3- Assignment #9	Ch. 15 923-924 Ch. 15 923-924		
	Jul 31	4- Class Templates 5- Introduction to the C++ Standard template lib 6-	Ch. 15 925-932	9	
10	Aug 5	1- C++ STL Vectors 2- Implementing Queues and Stacks in C++ 3- Assignment #10	Ch. 19 1117-1135...		
	Aug 7	4- C++ STL Stacks 5- C++ STL Queues 6- C++ STL Hashes & Dicts		10	Final