CS202 Programming Systems

Summer 2015

(the following outline is subject to change!)

WEEK #1: *Getting started with OOP in C++*

Introduction

Week:	**Topic:**	**Reading/Projects:**
Week #1		
6/24	**Introduction** Objectives for the course Discuss expectations Review Outline	****Login to D2L** (For a Review of C++ examine Prata Ch 1-8)

Object Oriented Design: Concept

Topic #1 Responsibility Driven Design
What is Object Oriented Design?
Examples of how Abstraction can help
Identifying and Assigning Responsibilities
Determining Collaborations and Identifying their Purpose
Examining Relationships between Classes

Topic #3 Implementing the Design: Terminology & Concept
Inheritance
Polymorphism
Measuring the Quality of the Design
Alternatives?
Common Design Flaws

6/26 Lab Session #1

Lab 1 – Topic #1 - Getting Started with OO Concepts

By 6/26 – Get a CS Account (prior to your first lab!)

- *(there are no pre-lab exercises)*
- Getting Started with Object Oriented Programming
- Demonstrate OO techniques

WEEK #2: *Building Inheritance Hierarchies*

Advanced C++ Concepts: Syntax

Week:	Topic:	Reading/Projects:
Week #2		
7/1	**Topic #2 Remember C++...**	Lecture Notes #1
	Data Abstraction vs.	**Prata Chapter 10**
	Object Oriented Programming	
	Topic #3 Introduction to Inheritance	**Prata Chapters 13-14**
	Terminology, Single Inheritance	
	Multiple and Virtual Inheritance	Lecture Notes #5, 6
	Copy Constructors	

7/2 7pm Design for Programs #1 and 2 Due - Submit to the D2L Dropbox

Alternate Lab Sessions on 7/2 Lab Session #2

** If you cannot attend the alternate sessions, arrange to attend a makeup by contacting karlaf@pdx.edu

Lab 2 – Topic #3 - Inheritance

- Bring your Pre-Lab exercise completed!
- Examine design methodologies
- *Building an employee OO program for a local department store*

NO LABS on July 3rd – PSU is CLOSED

WEEK #3: *Dynamic Binding*

Dynamic Binding

Week:	**Topic:**	**Reading/Projects:**
Week #3		
7/8	**Topic #4 Dynamic Binding, Run Time Type Identification**	**Prata Chapter 13** Lecture Notes #7

7/8 Quiz #1 - Topic #1,3 (OOP and inheritance)

7/10 Lab Session #3

Lab 3 – Topic #4 - Dynamic Binding

- Bring your Pre-Lab exercise completed!
- *Implement solutions using dynamic binding*

7/10 7pm Program #1 Due - Submit to the D2L Dropbox

WEEK #4: *User Defined Conversions and Exception Handling*

User Defined Conversions and Exception Handling

Week:	Topic:	Reading/Projects:
Week #4		
7/15	**Topic #4 User Defined Conversions**	Lecture Notes #8
	Topic #5 Exception Handling	**Prata Chapter 15**
	Namespaces	**Prata Chapter 9**

7/15 Quiz #2 - Topic #4 (Dynamic Binding)

7/17 Lab Session #4

Lab 4 – Prepare for the proficiency demo

- Bring your Pre-Lab exercise completed!
- *Practice recursive solutions with linear, circular, and doubly linked lists*

Lab 5 – Topic #5 – Exception Handling and Namespaces

- Bring your Pre-Lab exercise completed!
- *Implement solutions using exception handling and namespaces*

7/17 7pm Program #2 Due - Submit to the D2L Dropbox

WEEK #5: *Operator Overloading*

C++ Proficiency

Midterm Proficiency Practice and Demonstrations by appointment
Demonstrations are required to pass this class and are by appointment. Watch your pdx.edu email for an appointment schedule.

Students will be demonstrating C++, data structures, and gdb at the midterm demonstration. All students should be fluent with either vi, vim, or emacs and will be asked to demonstrate features of the editors.

Building User Defined Data Types

Week: Topic:	Reading/Projects:
Week #5	
7/22 **Topic #6 C++ Dynamic Memory Issues & Operator Overloading**	
Constructors allocating memory	Lecture Notes #2
Destructors and Dynamic memory	
Operator Overloading	**Prata Chapter 11**
Rules, Guidelines	Lecture Notes #3, 4
Rvalues, Modifiable Lvalues	
Constant References	
Constant Member Functions	
The Behavior of Objects	
Constant Objects, Logical Constness	

7/22 Quiz #3 - Topic #4, 5 (User Defined Conversions, Exception Handling)

7/24 Lab Session #5

Lab 6 – Topic #6 – Operator Overloading

- Bring your Pre-Lab exercise completed!
- *Experience operator overloading*

7/24 7pm Design for Program #3 Due - Submit to the D2L Dropbox

WEEK #6: *The Process of Learning new Languages*

Introduction to Java

Week: **Topic:** **Reading/Projects:**

Week #6

7/29 Learning Java
Walk through examples projects using Java and C++
Discuss Garbage Collection

7/29 Quiz #4 - Topic #6 (Operator Overloading)

7/31 Lab Session #6

Lab 7 – Eclipse Tutorial

- Bring your Pre-Lab exercise completed!
- Begin the Java Workshop

Lab 8 – Begin the Java Workshop

- Bring your Pre-Lab exercise completed!
- *If you already know Java, practice creating data structures and using recusion!*

7/31 7pm Program #3 Due - Submit to the D2L Dropbox

WEEK #7: *Achieving OO Solutions*

Object Oriented Programming in Practice

Week: Topic: **Reading/Projects:**

Week #7

8/5 7pm Design for Programs #4 and 5 Due - Submit to the D2L Dropbox

8/5 **Analyze OOP solutions**
Examine OOP solutions and design OOP alternatives in class

Topic #7 Friends, Nesting, Static Members Lecture Notes #9
Template Functions and Classes Lecture Notes #10, 11

Prepare for the Final Exam

NO QUIZ!

8/7 Lab Session #7 – THIS IS THE LAST DAY of LABS!

Lab 8 – Java Workshop (Continued)

- Bring your Pre-Lab exercise completed!
- *Aimed at first time Java programmers – attendance is optional if you already know Java*

Lab 9 –Recursion in Java

- Bring your Pre-Lab exercise completed!
- *Experience returning references*

Lab 10 – Data Structures and Recursion (OPTIONAL)

- Bring your Pre-Lab exercise completed! **(OPTIONAL)**
- *Review and Practice for the final proficiency demonstration*

8/7 7pm Term Papers - Submit to the D2L Dropbox

WEEK #8: *Finals Week*

Final's Week

Final Exam Time: **Wednesday August 12th 5:30pm-7:20**
******IMPORTANT –*** ***Final Proficiency demos will be taking place on August 14th***
Final Proficiency Demonstrations take place by appointment. *An appointment calendar link will be emailed to your pdx.edu email!*

8/14	**7pm**	**Programs #4-5 Due - Submit to the D2L Dropbox**
		***** NO LATE PROGRAM's Accepted after 8/14*****