Rutgers University
Finance and Economics Department
Fall 2019
Special Topic Object-Oriented Programming I (22:839:614:40)

Instructor:	Dr. John Jenq jjenq@rutgers.edu
Time:	Friday 9:00am – 11:50am @ 1WP 412
Office Hour:	By appointment, WP 1105F
TA and hours	Zhuolin Li (zl345@scarletmail.rutgers.edu) Wednesday 10:00am-12:00 noon MQF room
	Rui Cao (rc1058@scarletmail.rutgers.edu) Thursday 10:00am-12:00 noon MQF room
Recitation:	Tuesday 8:30am to 11:20am @WP 308
Final Exam:	Fri, Dec. 6, 2019
Final Project:	Sun, Dec. 15, 2019
Textbook	C++ How to Program, by P. J. Deitel and H. M. Deitel, 10th ed. Prentice Hall, ISBN13: 9780134448237

Course Description

This course assumes some computer programming language experience like C. It is designed for learning object oriented programming using C++ programming language. Basic concepts such as data types, control structures, classes design, class hierarchy, class libraries, inheritance, polymorphism, I/O handing, exceptions, templates and standard template libraries will be covered. Other C++ features will also be covered. This course is focus on hand-on experience of developing financial related computer applications

Course Outline

Introduction to Computers and C++ Programming
The basic of C++
C++ data type, expression
Input/output
Flow controls
Predefined functions and user defined functions
Function overloading
Call by reference and call by value
Stubs and Drivers for debugging functions
More on I/O
Arrays, Strings and vectors
Pointers and dynamic arrays
Definition of classes
Class components
Object interaction
Grouping objects
Designing classes
Friend functions
Operator overloading
Namespaces and separate compilations
Pointers and Linked lists
Stacks and queues Recursion
Class inheritance
Polymorphism
Handling errors and exceptions
Templates
Standard template library and other C++ library
C++ applications in finance

Evaluation

Homework	30%	
In-class Practice	5%	
Midterm Exams	30%	(tentatively 10/3 and 11/7 each 15%)
Projects	15%	
Final Exam	20%	

Reference Text Problem Solving with C++, by Walter Savitch, 7th ed. Addison Wesley (easy for beginner)
Introduction to C++ for Financial Engineers: An Object-Oriented Approach, by D. Duffy, Wiley
Objects, Abstraction, Data Structures and Design Using C++, by Elliot B. Koffman, and Paul A. T. Wolfgang, Wiley, ISBN 978-0-471-46755-7
Introduction to C++ for Financial Engineers: An Object-Oriented Approach, by D. Duffy, Wiley

Grades

A >=93, A- >=90-93, B+ >=86-89, B >=83-85, B- >=80-82, C+ >=76-79, C >=73-75, C- >=70-72, D+ >=66-69 D >=60-65, F<60