GLENDALE COMMUNITY COLLEGE BUSINESS DIVISION
COURSE OVERVIEW (SYLLABUS) FOR CS/IS 212,
Advanced Data Structures

Instructor: Tony Biehl

Ticket #'s	Classroom	Class Day	Class Hours	Final Exam
1183	SG137	TTh	1:40 – 3:05 pm	Tuesday, June 13, 2:30 pm – 4:50 pm

Semester: Spring 2017
Telephone: 818 240-1000 X5478
E-mail: tbiehl@glendale.edu but please use Moodle messaging instead to contact instructor
Office Location: SR334
Office Hours: MW 1:30-2:45 pm, TTh 5:30 – 6:45 pm
Supplemental Instruction: TBD

Course Description

CS/IS 212 is designed to provide a thorough coverage of data structures with data abstraction applied to a broad spectrum of practical applications. Students who take this course will master the principles of programming as a tool for problem solving. The students will solve practical problems in a computer-equipped laboratory using an object oriented programming language, such as JAVA. Some specific topics that will be covered include hash tables, trees, persistent structures, indexed files, and databases. Lecture 3 hours.

Recommended Prerequisites

CS/IS 211, or the equivalent.

Disabled Students

All students with disabilities requiring accommodations are responsible for making arrangements in a timely manner through the Center for Students with Disabilities.

Course Objectives

Students should be able to:
- create computer programs using more complex OOP problems;
- explain more complex abstract data types such as trees, graphs, hash tables, and heaps;
- explain queues, deques, and priority queues;
- write programs utilizing trees, binary trees, full binary trees, and complete binary trees.

Course topics (not inclusive):
  Recursion
  Array searching and file searching
  Linked lists
  Stacks
  Queues
  Class Relationships.
  Trees.
  Advanced Implementation of Tables
  Graphs
  External Methods

Student Learning Outcomes

Upon successful completion of the required coursework, the student will be able to:
1. create computer programs solving more complex OOP problems;
2. explain more complex abstract data types such as trees, graphs, hash tables, and heaps;
3. explain queues, deques, and priority queues;
4. write programs utilizing trees, binary trees, full binary trees, and complete binary trees.

Textbook and Supplies

Required Text: Data Abstraction & Problem Solving with C++, Walls & Mirrors, 7th edition, Carrano, Addison Wesley
Have a flash drive to store your assignments

Attendance

Students are required to attend all class sessions and to stay for extra lab time whenever needed to complete work on time (see weekly schedule below). Any student missing more than two consecutive class meeting must call or e-mail to inform the instructor. Missing more than two class meetings could seriously jeopardize a student's grade and could, without arrangements made with the instructor, make him/her subject to being dropped from the course. Also inactivity on assignments, such as quizzes, homeworks/labs, and such, will cause a drop.

Exam Makeup Policy

An exam may be made up if there is a valid excuse (serious illness corroborated by a physician). A make-up exam must be scheduled within 12 hours of the actual exam in person, by phone or email.

Grading Method

Required Work:	%	Grading Scale
Attendance/participation	5	
Homework/In Class Exercises	15	A = 90%
Labs/Projects	25	B = 80%
Quizzes	10	C = 70%
Midterm	20	D = 60%
Final	25	F = less than 60%

First Day Drop Policy

This instructor reserves the right to drop no-shows after the first hour of the first class meeting if no prior arrangements were made for the absence.

Late Policy

Assignments have a one-day grace period. Then they are marked off 20% up to a week late from the due date. After that, they are marked off 50% until the final. Quizzes have no grace period but a makeup quiz may replace a missed quiz. Only the first makeup quiz has no penalty: subsequent makeup quizzes count only 50%.
Note: programs, if lacking proper formatting and/or has minor bugs, may be rejected and given 48 hours to correct the defect. You must submit the correction and notify the instructor via Moodle messaging within 2 days or the program will be treated as a week late, 20% off. After a week, it will be 50% off. Also, if the program does not compile or has a major flaw it will be counted as 20% late and you need to correct, resubmit, and notify the instructor.

In any case, the student must notify the instructor of any late submission or the late work may not be graded.

Communication

Students are encouraged to contact the instructor with questions or problems as necessary. Using the Moodle messaging system is preferred (look under the Moodle profile to see the messages option). If you need to use e-mail, please use your GCC email account to contact the instructor about course related issues (go to MyGCC to activate your GCC email account).

Academic Honesty Policy

This instructor follows the Glendale Community College Honesty Policy as listed in the *Glendale Community College Catalog* and the *Student Handbook* (free at Information Desk near Admissions). Students are, at all times, required to do their own work. No copying of other students' work, whether on a test or on routine class work, is allowed at any time. Activities that are considered to be CHEATING include, but are not limited to, the following: communication with another person during an exam, accessing materials electronic or otherwise without the instructors express permission. Violation of any of these rules (i.e. cheating) could result in a lowering of the exam grade or the course grade (e.g. a "Fail"), and the violator's name and student I.D. number will be sent, with a description of the violation, to the Division Chair and to the Vice President of Instruction to be kept on record for future reference. The Dean of Student Activities may also be contacted for disciplinary action, if necessary.

Academic Integrity

The work you do and submit is expected to be the result of your effort ONLY. You may discuss the high level (general) solution of an assignment. However, cooperation should not result in one or more students having possession of any part of an assignment written by another student. Incidents of academic dishonesty or lack of integrity will be referred to the Vice-President of Instruction's office.

Class Rules

Turn off cell phones before entering class. Use of recorders (audio and/or video) is allowed with instructor permission. No eating or drinking in class, and please return chairs, throw away your trash, etc. Everyone is to behave in a professional manner while online and while interacting with the instructor or other students (no rude or insulting behavior, please). Those acting in an unprofessional manner may be banned for a few days from the online site.

Issues or Complaints

Please address any issues you may have that are relative to this course *with me, your instructor*, either in person during my office hours (see above), by e-mail (tbiehl@glendale.edu or Moodle), or by telephone (818 240-1000 X5478) as early in the semester as possible. If you and I cannot resolve the issue, I will refer you to the division chair, Rory Schlueter, rory@glendale.edu, 818 240-1000, Ext. 5886 or see the Division Office, SR 311, Ext. 5484, for an appointment.

Schedule of Class work, Homework, Exams, and Other Activities

Week	Date	Concept Lectures & Projects	Exams
CS/IS 212 – Tentative Class Work Schedule - Spring 2017			
1	T, 2/21 Th, 2/23	Introduction, Chapter 2, Recursion: The Mirrors Chapter 4, Linked Lists	
2	T, 2/28 Th, 3/2	Chapter 5, Recursion as a Problem-solving Technique	Q1
3	T, 3/7 Th, 3/9	Chapter 6, Stacks	Q2
4	T, 3/14 Th, 3/16	Chapter 7, Implementations of the ADT Stack	Q3
5	T, 3/21 Th, 3/23	Chapter 10, Algorithm Efficiency	Q4
6	T, 3/28 Th, 3/30	Chapter 11, Sorting Algorithms and Their Efficiency	Q5
	F 3/31	Cesar Chavez day – campus closed	
7	T, 4/4 Th, 4/6	Chapter 12, Sorted Lists and Their Efficiency	Q6
8	T, 4/11 Th, 4/13	Chapter 13, Queues and Priority Queues Chapter 14, Queue and Priority Queue Implementation	Midterm Exam
	4/17 – 4/22	Spring break	
9	T, 4/25 Th, 4/27	Chapter 15, Trees Chapter 16, Tree implementations	Q7
10	T, 5/2 Th, 5/4	Chapter 17, Heaps	Q8
11	T, 5/9 Th, 5/11	Chapter 18, Dictionaries and Their Implementations	Q9
12	T, 5/16 Th, 5/18	Chapter 19, Balanced Search Trees	Q10
13	T, 5/23 Th, 5/25	Chapter 20, Graphs	
14	T, 5/30 Th, 6/1	Chapter 21, Processing Data in External Storage	
15	T, 6/6	Review	
	T, 6/13		Final Exam