Syllabus for CS 9: Data Structures and Algorithms

General Information

- Meeting Times: Monday, Wednesday: 2:00 – 5:05 PM in S-14
- Office Hours:
  - Monday, Wednesday: 11:30 – 12:30 PM
  - Tuesday, Thursday: 2:00 – 3:30 PM
    Or by appointment
- Office Location: Math 12
- Office Phone: (760) 776-7223
- Email: ghagopian@collegeofthedesert.edu

Course Description:

This course provides an introduction to data structures, algorithms, and software engineering techniques. Topics include recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs) and the basics of algorithmic analysis (including hashing, sorting, heaps, searches and algorithm efficiency using Big-O notation). Topics will also include the development of large programs including definition, implementation, and analysis. Focus will be on object-oriented programming and its principles of objects, classes, encapsulation, inheritance and object-oriented design of abstract data types. Students will implement these concepts by writing numerous programs in an object-oriented language such as C++.

Prerequisites

- CS-7B with a minimum grade of C
- Math-015 with a minimum grade of C (waived as an advisory this semester)

Textbook

***Data Structures and Algorithms in C++*, 4th ed., by Adam Drozdek. ISBN: 1-133-60842-6**

Student Learning Outcomes:

Upon successful completion of the course students will be able to:

- Apply a systematic approach to the design, construction and management of computer programs, emphasizing programming style, documentation, and debugging techniques.
- Demonstrate knowledge of data structures such as stacks, lists, trees, graphs, and queues.
- Implement (program) these structures in appropriate applications
- Analyze and implement (program) sorting and searching algorithms
- Utilize design principles of object-oriented programming, including encapsulation, inheritance

Grading Policy

Final grade will be based upon: Exams: 45%, Homework: 55%

Assignments are due as announced in class. Late assignments will be accepted up to one week after they are due and will receive a deduction of 20% off the points/grade. *After one week, assignments will no longer be accepted. It is your responsibility to submit the homework the day homework is due.* For problems due to health, family emergencies, etc. you are responsible for providing supporting documentation for the exceptional event at the earliest possible time.

You are expected to attend each class and remain for the entire class. You are responsible for anything missed. If you are going to miss an exam you must discuss this with me before the date of the exam. If you miss an exam due to a personal emergency, you must inform me as

soon as possible and make up the exam as soon as you return. Switch off cell phones during lectures and laboratory sessions. Cell phones and electronic dictionaries are not allowed during exams.

Collaborate with others from the class is encouraged on homework assignments. However, the programs you submit should be written by you alone (and not copies of collaborations), unless otherwise specified.

Fall 2013 Approximate Calendar of Events

Note that there are a number of chapters from the book used in CS-7B by Gaddis that will be very useful and relevant to the material.

Unit:	***Topics:***	***Duration:***	***Chapters from Drozdek:***
1	Intro to class Review of OOP using C++ and STL	2 weeks	1
2	Complexity Analysis ADT and lists	3 weeks	2
3	Stacks and Queues	2 weeks	3
4	Recursion	2 weeks	4
5	Binary Trees	3 week	5,6
6	Trees, Tables, Graphs	3 weeks	7,8

Important Dates Fall 2012:	
August 27 (Monday)	***Classes Begin***
September 3 (Monday)	***HOLIDAY: Labor Day***
September 5 (Monday)	***Last Day to Drop with Refund*** ***Last Day to ADD*** ***Last day of FREE PARKING***
September 9 (Sunday)	***Last day to DROP without a "W"***
November 12 (Monday)	***HOLIDAY: Veteran's Day***
November 16 (Friday)	***Last day to DROP with a "W"***
November 22-23	***HOLIDAYS: Thanksgiving***
December 11-17	***FINAL EXAM WEEK***