

**Department of Mathematics and Computer Science
Adelphi University
Fall 2015**

0145-343-001	Data Structures Dr. R. M. Siegfried 212 Post Hall (<i>After the Department moves – 407 Science</i>) (516)877-4482 siegfried@adelphi.edu
Class Web Site	http://home.adelphi.edu/~siegfried/cs343
Office Hours	Tu 11:00AM – 12:00Noon & 2:00-3:00PM; W 10:00AM-1:00PM; Th 11:00AM – 12:00Noon
Course Description and Purpose	Expand on topics learned in CSC 172. Examine, implement, and analyze common data structures such as stacks, queues, lists, trees, heaps, and graphs. Understand how to choose an appropriate data structure for a real-world problem and use it in solving such problems.
Gen Ed Learning Goals and Distribution Requirements	Quantitative Reasoning
Course Learning Goals	Students will be able to write programs in C++ and solve problems, using data structures such as stack, queues, lists, trees and heaps. Students will be able to analyze the efficiency of sorting and searching algorithms given different types of data sets. Students will know how to implement these data structures.
Prerequisite	CSC 156 and a grade of C- or better in CSC 156 and CSC 270.
Texts	<i>Data Structures Using C and C++</i> , 2nd ed., Yedidyah Langsam, Moshe J. Augenstein and Aaron M. Tenenbaum, Prentice-Hall, 1996.
Topics	Data Abstraction and a Review of Object Orienting Programming Stacks Recursion Queues and Lists Trees Sorting Searching Graphs Garbage Collection (Time permitting)

Assignments

The assignments this semester will require students to use Microsoft Visual Studio to design, code, compile, debug and submit programs written in C and C++. Students may opt to program on Adelphi's Linux system, Panther, using the GNU C++ compiler and the text editor vi.

Grading

Each programming assignment will be graded with a base grade of 90%, with points added to reflected areas in which the assignment exceeded specified requirements and/or points deducted to show areas where the assignment is deficient.

Late penalties may be assessed of 2 points per class after the due date.

The final average will be weighted (based on the following ratio:

Programming Assignments	25%
Quizzes	25%
Midterm Exam	25%
Final Exam	25%

The final average will translate to a letter grade according to the following table:

Final Average	Course Grade
A	90 – 100
A-	87.5 – 89.9
B+	83.3 – 87.4
B	80.0 – 83.2
B-	77.5 – 79.9
C+	73.3 – 77.4
C	70.0 – 73.2
C-	67.5 – 69.9
D+	63.3 – 67.4
D	60.0 – 63.2
F	0.0 – 59.9

Attendance

The following is the Adelphi University General Attendance Policy:

Only students who are registered for courses, and whose name appears on the Official Class Roster may attend courses at the University. Adelphi students make a commitment to be active participants in their educational program; class attendance is an integral part of this commitment. Attendance requirements for

each course will be announced by the faculty member at the beginning of each term. Students are expected to be present promptly at the beginning of each class period, unless prevented by illness or by other compelling cause. In the event of such absence, students may request that faculty members be notified by the Office of Academic Services and Retention. Students are responsible for completing course work missed through absences. Students should wait a reasonable length of time for an instructor in the event that the instructor is delayed.

Additionally, you are also responsible for whatever work is covered in class whether or not you are there. Absence from the final exam will be excused only for a good and well-documented reason. The decision to allow a make-up exam will be made in accordance with the policies of Adelphi University.

NB: I will not be available on Tuesday, September 15, Tuesday, September 29, or Tuesday, October 6. I may also be unavailable on Tuesday, November 3. We will meet on Tuesday, December 8 at our regular meeting time to make up one of three lectures classes; online class presentations will be available to make up for the others. There will be an Open Lab on all except September 15 in the Mathematics Department Computer Lab (exact room to be announced). Attendance will be taken. Students are encouraged to take advantage of the time to complete programming assignments.

If the University is closed for more than two days due to an emergency, go the home page for this course site each day for instructions and assignments. Student instructions materials can be found at <http://home.adelphi.edu/~siegfried/cs343>

Tentative Schedule (***Subject to Change***)

Date	Topic	Assignment due
September 1	Data Abstraction	
September 3	Review of Object-Oriented Programming	
September 8	Review of Object-Oriented Programming	
September 10	Stacks	Assn #1 - A Concordance Program
September 15	No class	
September 17	Stacks	Assn #2 - Page 115

		Exercises 2.3.1, 2.3.2, 2.3.3
September 22	Stacks	
September 24	Quiz; Recursion	Assn #3 - Page 85, Exercise 2.2.8 - The Bashemin Parking Garage
September 29	Open Lab; Recursion	
October 2	Recursion	
October 6	Open Lab; Recursion	
October 8	Queues and Lists	Assn #4 - Page 139, Exercise 3.2.2 - The Greatest Common Divisor
October 13	Queues and Lists	
October 15	Review for Midterm Exam	Assn #5 -Running the Recursive Fibonacci Program
October 20	Midterm Exam	
October 22	Queues and Lists	
October 27	Queues and Lists	Assn #6 - Using A Linked List To Manage Inventory
October 29	Trees	
November 3	Trees	Assn #7 - Traversing Binary Trees
November 5	Trees	
November 10	Sorting	Assn #8 - Using A Binary Tree To Manage Inventory
November 12	Sorting	
November 17	Quiz; Sorting	
November 19	Searching	Assn #9 - Creating A Heap and Sorting It
November 24	Searching	Assn #10 - Sorting an Array of Character Strings
December 1	Searching	
December 3	Graphs	Assn #11 - Constructing a multiway search tree of order 3
December 8	Graphs	
December 10	Review for Final Exam	Assn #12 – Working with Graphs
December 17	Final Exam (10:30AM-12:30PM)	

Students With Disabilities

If you have a disability that may significantly impact your ability to carry out assigned coursework, please contact the Office of Disability Support Services (DSS), located in Room 310 of the University Center,

516-877-3145, dss@adelphi.edu. The staff will review your concerns and determine, with you, appropriate and necessary accommodations. When possible, please allow for a reasonable time frame for requesting ASL Interpreters or Transcription Services; a minimum of four (4) weeks prior to the start of the semester is required.

Honor Code

Students enrolled in this course are expected to abide by the Adelphi University Honor Code. The purpose of the Honor Code is to protect the academic integrity of the University by encouraging consistent ethical behavior in assigned coursework by students. Following is excerpted from the Student Honor Code:

The code of academic honesty prohibits behavior, which can broadly be described as lying, cheating, or stealing. Violations of the code of academic honesty will include, but are not limited to, the following:

1. Fabricating data or citations
2. Collaborating in areas prohibited by the professor
3. Unauthorized multiple submission of work
4. Sabotage of others' work, including library vandalism or manipulation
5. Plagiarism: presenting any work as one's own that is not one's own
6. The creation of unfair advantage
7. The facilitation of dishonesty
8. Tampering with or falsifying records
9. Cheating on examinations through the use of written materials or giving or receiving help in any form during the exam, including talking, signals, electronic devices, etc.

Student Course Evaluations

During the last two weeks of the class, you will receive notification, via mail and eCampus, that the course evaluation is available for your input electronically. Availability will end at the start of the final examination period. Your feedback is valuable and I encourage you to respond. Please be assured that your responses are anonymous and the results will not be available to the instructor until after the end of the semester and therefore after course grades have been submitted.

Tear off this and return with information required below:

STUDENT ACKNOWLEDGEMENT:

I HAVE RECEIVED AND READ THE SYLLABUS FOR
[INSERT COURSE NUMBER AND SECTION].

SIGNED: _____

PRINT NAME:

DATE: _____

Warning – This page must be signed and returned to the instructor to receive a complete grade in this course.