

**Department of Mathematics and Computer Science
Adelphi University
Fall 2014**

0145-273-001	Data Structures Dr. R. M. Siegfried 212 Post Hall (516)877-4482 siegfrie@adelphi.edu
Class Web Site	http://home.adelphi.edu/~siegfried/cs
Office Hours	M 10:50-11:50AM; W 10-11AM; F 1-2PM
Course Description And Purpose	Students will examine, implement, and analyze common data structures such as stacks, queues, lists, trees, heaps, and graphs. Students will 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	None
Learning Goals	Students will be able to: Explain, implement and analyze the following constructs: stacks, queues and lists. Explain, implement and analyze the following constructs: dictionaries, sets. Explain, use and design code using map/reduce algorithms. Explain, use and implement graphs, sorting and searching algorithms.
Prerequisite	CSC 175
Texts	<i>Data Structures and Abstractions with Java</i> , 5 th ed., Frank M. Carrano and Timothy M. Henry, Pearson Education, Yedidyah Langsam, Moshe J. Augenstein and Aaron M. Tenenbaum, Prentice-Hall, 2018..
Topics	Bags Algorithmic Efficiency Stacks Recursion Generic Classes Sorting Queues Lists Iterators Trees Searching

Trees
Graphs
Heaps

Assignments

The assignments this semester will require students to use the Java Development Kit and IDE software to design, code, compile, debug and submit programs written in Java. Students may opt to program on Adelphi's Linux system, Panther, using the JDK on Panther using 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 Monday, September 10, Wednesday, September 19, Monday, September 24 nor Monday, October 1. We will meet on Tuesday, December 4 at our regular meeting time and classroom to make up one of these classes; online class presentations will be available to make up for the others.

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 on Moodle and at <http://home.adelphi.edu/~siegfried/cs273>

Tentative Schedule (**Subject to Change – Check the Course Web site** <http://home.adelphi.edu/~siegfried/cs171> for most current schedule) or **Moodle**

<u>Date</u>	<u>Topic</u>	<u>Assignment due</u>
August 27	Bags	
August 29	Bags	
August 31	Bags	
September 5	Efficiency of Algorithms	<u>Assn 1</u> - A Concordance Program
September 7	Stacks	
September 10	<u>No class – to be made up December 4</u>	
September 12	Stacks	Assn 2 – Working with

		Bags
September 14	Recursion	
September 17	Recursion	
September 19	No class – video presentation on Sorting	<u>Assn 3</u> – Running the Recursive Fibonacci Program
September 21	Sorting	<u>Assn 4</u> – Writing a Recursive Solution to Greatest Common Divisor
September 24	No class – video presentation on Sorting	<u>Assn 5</u> - Running the Recursive Fibonacci Program
September 26	Queues	
September 28	Queues	
October 1	No class – video presentation on Queues	<u>Assn 6</u> – Working with a Few Sorts
October 3	Lists	
October 5	Lists	<u>Assn 7</u> – A Simple Queue Program
October 10	Lists	
October 12	Lists	
October 15		<u>Assn 8</u> – Working with Lists
October 17	Sorting	
October 19	Sorting	
October 22	Sorting	<u>Assn 9</u> – Sorting Once Again
October 24	Review for Midterm Exam	
October 26	Midterm Exam	
October 29	Searching	
October 31	Searching	
November 2		<u>Assn 10</u> – Searching
November 5	Dictionaries	
November 7	Dictionaries	
November 9	Dictionaries	<u>Assn 11</u> – Working with Dictionaries
November 12	Hashing	
November 14	Hashing	
November 16	Hashing	<u>Assn 12</u> – Using Hashes to Sort
November 19	Trees	
November 26	Trees	
November 28	Trees	<u>Assn 13</u> – Working with Trees

November 30	Trees	
December 2	Search Trees	
December 4	Graphs	
December 5	Graphs	<u>Assn 14</u> – Working with Search Trees
December 7	Graphs	
December 10	Review for Final Exam	
TBA		<u>Assn 15</u> – Working with Graphs

Students With Disabilities

If you have a disability that may impact your ability to carry out assigned course work, and are not enrolled in the Learning Disabilities Program, it is important that you contact the staff in the Disability Support Services Office (DSS), University Center, Room 310, (516) 877-3145. DSS@adelphi.edu. DSS will review your concerns and determine, with you, appropriate and necessary accommodations. All information and documentation of disability is confidential.

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.