

CSCE 146

Algorithmic Design II

TR 11:40–12:55, SWGN 1C01

Daniel J. Pade

djpade@gmail.com

<http://cse.sc.edu/~pade/csce146>

SWGN 2D19

Office Hours: TBD

This syllabus is subject to change

Course Description: This course introduces the concept of a multitude of data structures and their implementations in the Java programming language. It also is intended to show the practical and mathematical applications of these structures.

Prerequisite(s): MATH 141 & CSCE 145

Credit Hours: 4

Text(s): *Data Structures Using Java*, 1st Edition

Author(s): Duncan A. Buell

ISBN-13: 978–1449628079

Course Objectives:

At the completion of this course, students will be able to:

- Use Java for small scale projects more effectively
- Use and understand recursion
- Understand and implement the following data structures
 - Array List
 - Linked List
 - Stack
 - Queue
 - Heap
 - Binary Tree
 - AVL Tree (time permitting)
 - Graphs (time permitting)
- Understand the basics of ‘Big O’ analysis
- Use and analyze several searching/sorting techniques

NOTE: grades are given according to **percentile**, and not necessarily to actual score

Grade Distribution:

12 Labs	20%
10 Homework	20%
10 Quizzes	10%
2 Lab Exams	20%
2 Written Exams	20%
Final Exam	10%

Letter Grade Distribution (by PERCENTILE):

80	A	10	C
65	B+	7	D+
45	B	5	D
30	C+	0	F

i.e. a B means you are in the top 55% of the scores in the class

These weights are based on previous semesters and are subject to change

Course Policies:

- **General**
 - Written and Lab Exams are open book, open notes.
 - **No makeup quizzes or exams will be given.**
- **Grades**
 - Grades in the **C** range represent performance that **meets expectations**; Grades in the **B** range represent performance that is **substantially better** than the expectations; Grades in the **A** range represent work that is **excellent**.
- **Labs and Assignments**
 - Students are expected to work independently. **Offering** and **accepting** solutions from others is an act of **plagiarism**, which is a serious offense and **all involved parties will be penalized according to the Academic Honesty Policy**. Discussion amongst students is encouraged, but when in doubt, direct your questions to the professor, tutor, or lab assistant.
 - All code is expected to adhere to Google's Java Style (<https://google-styleguide.googlecode.com/svn/trunk/javaguide.html>)
 - **No late assignments will be accepted under any circumstances.**
- **Attendance and Absences**
 - Attendance is expected each class. 10 quizzes will be given at random, which will be used to determine attendance.
 - Students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes or materials.

Academic Honesty Policy Summary:

Cheating is defined as **giving** or **receiving** unauthorized aid on any assignment, test, or project, or **not documenting an outside source** of information should one be used. It is unacceptable and will not be tolerated. All offenses will be reported in accordance with the Carolina Community student handbook.

Academic sanctions are as follows. For the first offense, a student will receive a grade of 0 for the assignment. For the second offense, the student will receive a grade of F for the course.

Tentative Course Outline: The weekly coverage might change.

Week	Content
Week 1: 8/24–8/28	Java Review Reading: – Google Java Code Conventions – Textbook: 2.2, 2.3 Last day to drop without a ‘W’: Wed. Aug 26
Week 2: 8/31–9/04	Arrays in Detail Reading: – http://docs.oracle.com/javase/tutorial/java/nutsandbolts/arrays.html
Week 3: 9/08–9/11	Recursion Reading: – Textbook: 8.1, 8.2, 8.3 Labor Day: Mon. Sep 7
Week 4: 9/14–9/18	Generics Reading: – Textbook: 3.3.4, 5.1, 5.2
Week 5: 9/21–9/25	Arrays & Array Lists Reading: – Textbook: 3.3.5, 4.1
Week 6: 9/28–10/02	Linked Data Structures: Linked Lists Reading: – Textbook: 4.2, 5.3, 5.4
Week 7: 10/05–10/09	Stacks & Queues Reading: – Textbook: 7.1, 7.2, 7.3, 7.5 Midterm 1: Tue. Oct 6
Week 8: 10/12–10/16	Big O Notation Reading: – Textbook: Chapter 6 Last day to drop without a ‘WF’: Mon. Oct 12
Week 9: 10/19–10/21	Sorting Methods I: Insertion Sort Reading: – Textbook: 4.3, 11.3 Fall Break: Thurs. Oct 22 - Sun. Oct 25
Week 10: 10/26–10/30	Sorting Methods II: Divide & Conquer Reading: – Textbook: 11.7, 11.8
Week 11: 11/02–11/06	Heaps & Heapsort Reading: – Textbook: 7.5, 11.5
Week 12: 11/09–11/13	Searching: Binary Search Trees Reading: – Textbook: 12.3, 12.4 Midterm 2: Tue. Nov 17
Week 13: 11/16–11/20	AVL Trees
Week 13: 11/23–11/24	Graph Representations Reading: – Textbook: 13.2 Thanksgiving Break: Wed. Nov 25 - Sun. Nov 29
Week 14: 11/30–12/04	Graph Algorithms Reading: – Textbook: 13.3 Last Day of Class: Fri. Dec 04 Final Exam: Sat. Dec 12

Data for Research Disclosure:

Any and all results of in-class and out-of-class assignments and examinations are data sources for research and may be used in published research. All such use will always be anonymous.