San José State University
Computer Science
CS 46B - Introduction to Data Structures, Section 2

Spring 2019

Course and Contact Information

Instructor:	Nooshin Tajik
Office Location:	Please contact nooshin.tajik@sjsu.edu
Telephone:	Please use email
Email:	nooshin.tajik@sjsu.edu Or contact me through Piazza
Office Hours:	Wed at 7:15 to 8:30 pm
Class Days/Time:	Mon & Wed at 6:00 to 7:15 pm
Classroom:	Science Building 311
Prerequisites:	Knowledge of Java equivalent to that obtained by completing CS 046A or CS 049J with grade of C- or better. Eligibility for Math 030 or Math 030P, or instructor consent. Math remediation completed or a post baccalaureate. Pre/Co-requisite: Math 42.

Description:

Stacks and queues, recursion, lists, dynamic arrays, binary search trees, Iteration over collections, Hashing, Searching, elementary sorting, Big-O notation, Standard collection classes. Weekly hands-on activity. Prerequisite: Knowledge of Java equivalent to CS 046A or CS 049J (with grade of C or better). Eligibility for MATH 030 or MATH 030P, or instructor consent. Pre/Co-Requisite: MATH 042. Misc/Lab: 3 hours of lecture/ 3 hours lab

For the official catalog description, please visit the online catalog at http://info.sjsu.edu/web-dbgen /catalog/courses/CS046A.html

Course Learning Outcomes (CLO):

Upon successful completion of this course, students will be able to:
1. Use and work with basic structures such as linked lists, stacks, queues, binary search trees, and iterators.
2. Implement Java classes that embody data structures.
3. Use pre-existing implementations such as the Java Collections framework.
4. Make relative estimates of the running times of alternative algorithms using big-O analysis.
5. Formulate and test for pre- and post-conditions.

6. Distinguish between different types of program defect, and understand how testing and debugging are used to correct them.
7. Implement simple sorting algorithms such as Insertion Sort and Selection Sort.
8. Implement the Sequential Search and Binary Search algorithms.
9. Implement simple recursive algorithms such as binary tree traversal.
10. Work competently with commonly used tools for software development.
11. Create custom data structures when appropriate pre-existing classes are not available

Required Texts/Readings:

Textbook

> Big Java 6e ENGAGE Custom Interactive Text By Cay S. Horstmann, ISBN: 9781119290223.

Course Requirements and Assignments:

Exams
Two in-class exams (15% per exam) and a final exam (30%). Exams cannot be made up, except for reasons of illness, as certified by a doctor, or documentable extreme emergency.

Weekly Assignments
One assignment per week (35%). Assignments will be posted on Canvas every Sunday night at 12:00 am. The problems are mostly related to the topic that will be covered on that week lectures. You have time to look at the problems and try to get ready to solve them by attending the class and ask questions. All homeworks are due at 6:00 am on the next Monday (a week after).

Labs
You must enroll for a lab section and attend all labs. You will fail the course if you don't pass the lab section. You will fail the lab and the class if you miss more than 2 labs. Provided you get a passing grade in the labs, it counts as 5% of your total grade. Please do not use up your 3 allowed misses in the first few weeks of class on non-emergencies.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

Grading Information:

• Weekly Assignments (35%)
• Lab reports (5%)
• Two Midterm Exams (30%) (15% per exam)
• Final Examination (30%)

Incomplete work: Points will be deducted for incomplete question responses and solutions that are partially functional. Consult individual assignment for details of point allocation for each problem.

Late assignments: You have two bonus days for late submission for the whole semester. After you used the two days, any late submission would cause a deduction of daily 20% of total points for the assignment. Please note, in the case of the bonus, even if you submit 1 hour late it would be counted as a one day.

Makeup Exams: You must submit only your own work on exams. Makeup exams will only be given in cases of illness (documented by a doctor) or in cases of documentable, extreme emergency.

Individual Work:

All homework and exams must be your own individual work. It is ok to have general discussions about homework assignments, or read other material for inspiration. You may never copy anything from anyone without attribution. This means if you find code on Stackoverflow or another web site, you need to give the URL where you found the code in a comment at the top of your class so that I can look at it if necessary. You may copy from the textbook, the labs, or anything we do in class without attribution. For homeworks and exams, you may not copy anything from any other student at all, and you may not collaboratively produce results in pairs or teams. Your work must be entirely your own. It is never okay to give your completed code to another student before the due date. A first incident of cheating will result in a 0 on that assignment or exam. A second incident will result in a failure for the class.

Point Range	Letter Grade
100% to 94%	A
< 94% to 90%	A-
< 90% to 87%	B+
< 87% to 84%	B
< 84% to 80%	B-
< 80% to 77%	C+
< 77% to 74%	C
< 74% to 70%	C-
< 70% to 67%	D+
< 67% to 64%	D
< 64% to 61%	D-
< 61 to 0%	F

Classroom Protocol:

- Having laptop in the class is recommended. We may need them to do some codings.
- Try to be on-time. In case of being late, please take a seat quietly.

University Policies:

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/"

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The course schedule is subject to change with fair notice. Changes will be announced on Canvas.

Course Schedule

Week	Date	Topics
1	1/28	Introduction to the Course
1	1/30	Inheritance
2	2/04	Inheritance
2	2/06	Interface
3	2/11	Interface
3	2/13	I/O and Exception Handling
4	2/18	I/O and Exception Handling
4	2/20	Recursion
5	2/25	Recursion
5	2/27	Recursion
6	3/04	Review
6	3/06	Midterm Exam
7	3/11	Sorting and Searching
7	3/13	Sorting and Searching
8	3/18	Java Collections Framework
8	3/20	Basic Data Structures – Linked List
9	3/25	Basic Data Structures – Linked List
9	3/27	Basic Data Structures –Array List
10	4/01	Cesar Chavez Day (observed) – Campus Closed

10	4/03	Spring Recess
11	4/08	Basic Data Structures – Stack and Queue
11	4/10	Basic Data Structures – Hash Table
12	4/15	Review
12	4/17	Midterm Exam
13	4/22	Trees
13	4/24	Trees
14	4/29	Trees
14	5/01	Trees
15	5/06	Trees
15	5/08	Heaps
16	5/13	Review
Final Exam	5/15	17:15-19:30