



DAVIS UNIVERSITY

COURSE SYLLABUS
DS104: INTRODUCTION TO DATA STRUCTURES
SUMMER QUARTER 2024

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COURSE SYLLABUS FOR: DS104 INTRODUCTION TO DATA STRUCTURES

CREDIT HOURS: 4 CREDIT

INSTRUCTOR:

INSTRUCTOR EMAIL:

INSTRUCTOR OFFICE HOURS:

COURSE DESCRIPTION: This course is an introduction to logical data structures and the design, implementation, and analysis of algorithms. Topics that will be covered in this course include linked lists, stacks, decision trees, queues, and data analysis. Searching, sorting, and hashing techniques would also be covered as much as possible, as well as efficiency and effective use of data structure and algorithms in solving problems.

PREREQUISITES: Introduction to Programming

COURSE OBJECTIVES

1. Develop algorithms for manipulating stacks, queues, linked lists, hash tables, and decision trees.
2. Practice codes for organizing data to implement recursive algorithms listed above.
3. Know the causes of and the solutions to the issues of time complexity and examine various algorithms.

4. Analyze the efficiency of your solution and make select data structures by taking into account efficiency considerations (i.e., simplicity, clarity and generality).
5. Learn about incremental development, debugging and testing.

TEXT:

1. Koffman & Wolfgang, *Data Structures: Abstraction and Design Using Java*, Wiley
2. Lewis & Chase, *Java Software Structures: Designing and Using Data Structures*, 3rd edition, Addison-Wesley.

LATE WORK POLICY: All students are expected to submit homework assignments on time. No late homework will be accepted and the student will receive a “0” (zero) for the homework assignment. Should the student refuse to complete the assigned work for the class, it could result in the student failing the class. All work assigned is expected to be completed on the date assigned. The instructor reserves the right to alter the schedule as necessary.

PLAGIARISM AND COPYRIGHT INFRINGEMENT POLICY: Work that is found to be plagiarized receives a grade of zero and often causes a student to fail a class. Documentation of plagiarism is added to the student’s academic file as a violation of accepted student conduct and is subject to disciplinary action. Plagiarism is the use of another person’s exact words, or their ideas written in the student’s words without giving the original author credit.

Plagiarism can result from any of the following:

- Quote material directly without using quotation marks.
- Paraphrase the original so that many of the phrases are the same as the original. A good rule is no more than 3 or 4 words in a row should be the same as the original.
- Copy the original sentence pattern, substitution synonyms for key words.
- Neglect to indicate the source of the original material.

ASSESSMENTS:

Content

| | |
|---------------|------|
| Participation | 5% |
| Exams | 20% |
| Assignments | 75% |
| Total | 100% |

COURSE GRADE: A = 93%-100%

B = 85%-92%

C = 77%-84%

D = 70%-76%

F = below 70%

TENTATIVE CLASS SCHEDULE:

(Subject to change)

| Week: Date | Content Covered | Assignments & Assessment Due |
|-----------------------|--|---|
| Week 1: | Lists and Algorithm | Assignment 1-Friday |
| Week 2: | Stacks and Queues Recursion | Assignment 2-Friday |
| Week 3: | Trees | Assignment 3-Friday Midterm Exam |
| Week 4: | Sets, Maps and Hash Tables Sorting Algorithms | Assignment 4-Friday |
| Week 5: | Balanced Trees and Graphs | Assignment 5-Friday Final Exam |