Wake Technical Community College
Computer Technologies Division Syllabus

Course Number: CSC-249
Course Title: Data Structures and Algorithm Analysis

Textbook Information

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http://www.waketech.edu/programs-courses/credit/computer-technologies/course-books

Online and Hybrid Course Information
*Students in Curriculum Education Online and Hybrid courses **must complete the Course Entry Quiz** during the first 10% of the course. The quiz can be found on the course's Blackboard site on the first day of class. Students who fail to complete the quiz within the required time frame will be immediately marked as "NA" (Never Attending) and **dropped from the class**.*

Course Description:

This course introduces the data structures and algorithms frequently used in programming applications. Topics include lists, stacks, queues, heaps, sorting, searching, mathematical operations, recursion, encryption, random numbers, algorithm testing, and standards. Upon completion, students should be able to design programs using appropriate data structures and implement algorithms to solve various problems.

Software Used to Complete Coursework:

Latest version of one of these Java IDEs: Eclipse for Java EE Developers or Jetbrains IntelliJ IDEA

Other Required Equipment:

None

Special Instructions:

None

Credit Hours:	Three (3) Semester Hours
Pre-requisites:	Take One: CSC-133, CSC-134, CSC-135, CSC-136, CSC-138, CSC-139, CSC-140, CSC-141, or CSC-142 And Take One Of: CIS 115, CSC 151 or CSC 153
Co-requisites:	None

Course Goals:

1. To provide the student with basic knowledge and understanding of data structures and how and when

to use them in large scale programs
2. To provide the student with a understanding of important algorithms used in large scale programming projects
3. To make the student a better programmer with both individual and team work

Student Learning Outcomes:

Upon successful completion, students will be able to demonstrate (through completion of class work and assignments):

- Develop algorithms for large programs
- Define and implement various data structures
- Evaluate programs in terms of time and space complexity

Grading:

- **30% Labs/Quizzes**
- **35% Programming Projects**
- **35% Exams -** Midterm (15%) and Final (20%)

Subject Areas:

Note: The order in which these subject area are presented may be changed/modified by your instructor. This list is offered only as a guide. The pace of each class differs according to the instructional needs of the students in the class. Always consult with your instructor.

- Software Engineering
- Data Design and Implementation
- Arrays and ArrayLists
- Linked Lists
- Stacks and Queues
- Programming with Recursion
- Binary Search Trees
- Priority Queues, Heaps
- Sets, Dictionaries and Hashing
- Graphs and Weighted Graphs
- Sorting and Searching Algorithms

Employability Skills:

Each student will be evaluated based on whether they demonstrate the skills that make them employable in their field. These skills may include, but are not limited to: promptness, presence, verbal articulation of subject matter concepts, quality of written communications, respect for their instructor, respect for their classmates, honorable presentation of original work, gracious acceptance of

constructive criticism, attention to detail, and a dedication to excellence in their academic goals. These employability skills are direct reflections of the Wake Tech's Core Values. Ask your individual instructor about how employability skills will affect your grade, and your ability to work in your chosen field once you have completed your academic goals.

The Core Values of Wake Technical Community College
(Opens in a new window)
https://www.waketech.edu/about-wake-tech/core-values

Classroom Policies:

- Students are responsible for all of the information presented in the Wake Technical Community College Student Handbook
- Please note that computers are to be used at all times for official course purposes.
- Use of computers for general web surfing, e-mailing, chat room discussions, social networking, and any other non-course related task is forbidden. Violation of this rule will result in a grade deduction and possible loss of computer privileges.
- The college forbids the use of all audible electronic equipment during instructional time.
- Forbidden devices include but are not limited to: cell phones, smart phones, MP3 players, tablets, and PDAs.
- If you miss a lecture or arrive late, you are responsible for the material presented, handouts distributed, and any announcements made that day. The instructor will not provide notes for missed classes.

Wake Technical Community College Student Email Policy
(Opens in a new window)
http://www.waketech.edu/student-services/catalog/campus-policies-and-procedure

Disability Support Services (DSS)

Disability Support Services (DSS) is available for students who require academic accommodations due to any physical, psychological, or learning disability. To determine eligibility, contact the office at 919-866-5670 or 141 Montague Hall, Main Campus or Building A 317, Northern Campus. Wake Technical Community College strives to make its websites accessible and usable for people of all abilities. We continue to make improve- ments and enhancements to our website accessibility features. If you find a feature that is not accessible, or if you have an immediate need, please contact accessibility@waketech.edu.

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