



蘇州大學
Soochow University

CHM 320 Atmospheric Chemistry

Summer 2023

Course Credits: 4

Contact Hours: 55 hours

Instructor: TBA

Email:TBA

COURSE OBJECTIVES

In this class, students will learn, implement, and analyze several types of data structures and algorithms using a mix of programming and theory, including analysis of algorithm, stacks, queues, arrays, linked lists, sorting, searching, graphs and graph algorithms, binary search trees, queues, hash tables, etc. This course will familiarize students with basic data structures and their application to algorithms design and analysis.

Upon Completion of this Course, students will be able to:

1. Explain the systematic methods of efficiently organizing and accessing data in data structures and algorithms;
2. Identify the properties and structural patterns in data structures;
3. Apply abstract data types to the design of data structures;
4. Analyze algorithms using a mathematical notation and experimental studies;
5. Perform comparative analysis of the typical data structures and algorithms.

PREREQUISITES

N/A

GRADING

Grades will be determined by accumulating points, with 100 points being the maximum, as follows:

ITEM

POINTS



Assignments	40 Points
Midterm	25 Points
Final Exam	35 Points
Total	100 Points

Late submissions will be graded at the end of the course. Grades will be assigned according to the following rule:

$$A \geq 90 > B \geq 80 > C \geq 70 > D \geq 60 > F.$$

We reserve the right to make adjustments to the overall grading policy.

COURSE MATERIALS

Required Texts:

Algorithms and Data Structures: The Basic Toolbox by Kurt Mehlhorn, Peter Sanders, Springer, 2008.

Recommended (Optional) Texts or Other Materials:

The Algorithm Design Manual by Steven S. Skiena, 2nd Edition, Springer, 2008.

COURSE TOPICS

MODULE	TASKS
Module 1	<p>Topics: Topic 1: Course Overview Topic 2: Introduction to Algorithm Design Topic 3: Reasoning about Correctness Topic 4: Algorithm Analysis Topic 5: Data Structures</p> <p>Assessments: Assignment#1</p>
Module 2	<p>Topics: Topic 6: Graphs Topic 7: Representing Sequences by Arrays and Linked Lists Topic 8: Stacks and Queues Topic 9: Hash Tables and Associative Arrays Topic 10: Hash Tables and Associative Arrays(Cont.)</p> <p>Assessments: Assignment#2</p>



Module 3	Topics: Topic 11: Sorting and Selection Topic 12: Priority Queues Topic 13: Binary Heaps Topic 14: Sorted Sequences Topic 15: Binary Search Trees Assessments: Midterm Assignment#3
Module 4	Topics: Topic 16: Graph Representation Topic 17: Graph Traversal Topic 18: Shortest Paths Topic 19: Minimum Spanning Trees Topic 20: Minimum Spanning Trees(Cont.) Assessments: Assignment#4
Module 5	Topics: Topic 21: Generic Approaches to Optimization Topic 22: Dynamic Programming Topic 23: Dynamic Programming(Cont.) Topic 24: Intractable Problems and Approximation Algorithms Topic 25: Algorithmic Resources Assessments: Final Exam

ATTENDANCE

1) Class attendance is required. Missing classes without permission will lead to decrease in overall grade.

Missing less than two classes: no penalty.

Missing more than two classes: 7% will be taken off from the overall grade.

If the instructor reports a student's frequent missing of class to the Soochow University Academic Administration Office, the student might get a written warning and might be prohibited from attending final exam.

2) Participants in this course are expected to arrive in class promptly and adequately prepared. The primary objective of this course is to critically engage with the readings and the subject matter. Therefore, course participants are expected to have completed the reading prior to class and prepare thoughtful reflections/commentaries to share



with fellow colleagues.

LEARNING REQUIREMENTS

- 1) Late assignments are not acceptable and are subjected to grade deductions.
- 2) Assignments submitted in the wrong format will be counted as not submitted.
- 3) Failure to submit or fulfill any required course component results in failure of the class.
- 4) Make-up for midterm and final exams only with valid excuses, as defined by the University.
- 5) In order to earn a Certificate of Completion, participants must thoughtfully complete all assignments by stated deadlines and earn an average quiz score of 50% or greater.

TECHNOLOGY POLICY

The use of electronic devices in class is distracting, both for the user and for the rest of the class. Only non-programmable calculators can be used in the tests and exam. Any attempts to use cell phones and other electronic communication devices will be seemed as cheating. Laptops are discouraged, unless you use them for activities DIRECTLY related to the course (eg., note taking, reading course documents).

ACADEMIC INTEGRITY POLICY

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

DISABILITY ACCOMMODATION

Soochow University is committed to maintaining a barrier-free environment so that students with disabilities can fully access programs, courses, services, and activities at Soochow University. Students with disabilities who require accommodations for access to and/or participation in this course are welcome.



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Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.