暨南大學 JINAN UNIVERSITY

2025

0806C305
Data Structures and Algorithms Analysis

Instructor: TBA

Time: October 20, 2025 - November 21, 2025

Office Hours: 2 hours (according to the teaching schedule)

Contact Hours: 60 (50 minutes each)

Credits: 4

E-mail: TBA

Course Description

In this course we will study algorithm cost, data and information structures, trees and tree processing, graphs and graph processing, searching, sorting, and using specific data structures to analysis different Algorithms.

Required Textbook(s)

Fundamentals of Algorithmics, 1st ed., Gilles Brassard, Paul Bratley, Prentice Hall. ISBN-13: 978-0133350685

Prerequisites

0701M240 Introduction to Discrete Mathematics and 0806C135 Introduction to Computer Science II

Course Schedule

Please note that the schedule is meant to give an overview of the major concepts of this course. Changes may occur in this calendar as needed to aid in the student`s development.

Week1

- Introduction to the course and review
- Average and worst-case analyses
- Asymptotic notation
- Average-case analysis
- Amortized analysis

Week 2

- Arrays, stacks and queues
- Lists
- Graphs
- Trees
- Associative tables
- Heaps

Week 3

- Binomial heaps
- Greedyalgorithms
- Divide-and-conquer
- Dynamic programming
- The principle of optimality
- Midterm Exam

Week 4

- Backtracking
- The eight queens problem
- Branch-and-bound
- Monte carlo algorithms
- Las vegas algorithms

Week 5

- Computational complexity
- Adversary arguments
- Polynomial reductions
- A menagerie of complexity classes
- Approximate algorithms
- Final Exam

Grading Policy

Type	Percentage
Homework/Lab Programming Assignments	40%
Midterm Exam	25%
Final Exam	25%
Participation	10%

Grading Scale

The instructor will use the grading system as applied by JNU:

Definition	Letter Grade	Score
Excellent	A	90~100
Good	B	80~89
Satisfactory	C	70~79
Poor	D	60~69
Failed	E	Below 60

Academic Integrity

As members of the Jinan University academic community, students are expected to be honest in all of their academic coursework and activities. Academic dishonesty, includes (but is not limited to) cheating on assignments or examinations; plagiarizing, i.e., misrepresenting as one's own work any work done by another; submitting the same paper, or a substantially similar paper, to meet the requirements of more than one course without the approval and consent of the instructors concerned; or sabotaging other students` work within these general definitions. Instructors, however, determine what constitutes academic misconduct in the courses they teach. Students found guilty of academic misconduct in any portion of the academic work face penalties that range from the lowering of their course grade to awarding a grade of E for the entire course.