

國立金門大學

教學綱要

部別：日間部學士班

114學年度第2學期

列印日期：2026/01/26

科目名稱：資料結構 (Data Structure) 開課班級：資工二 學分：3.0 授課時數：3.0
授課教師：馮玄明 必選修：必修

1. 教學目標

Learn the real concept of data structure Learn the detail coding skill

2. 教學綱要

- (1) Data structure concept discription
- (2) code demonstration

3. 教科書

- 書名：Data Structures: A Pseudocode Approach with C 2/e
- 1 出版日期：年 月
作者：Gilberg/Forouzan 出版社： 版本：
書名：資料結構：使用Python
 - 2 出版日期：年 月
作者：蔡明志 出版社：碁峰 版本：

無參考書資料。

※請遵守智慧財產權觀念，依著作權法規定，教科書及教材不得非法影印與使用盜版軟體。

5. 教學進度表

週次	日期	內容	備註
1	2026/02/22—2026/02/28	Introduction to Data structure	
2	2026/03/01—2026/03/07	Ch2-(1) Explain the difference between iteration and recursion ch2-(2) Design a recursive algorithm Determine when an recursion is an appropriate solution ch2-(3) Write simple recursive functions	
3	2026/03/08—2026/03/14	Ch3-(1) Explain the design, use, and operation of a stack Ch3-(2) Implement a stack using a linked list structure Ch3-(3) Understand the operation of the stack ADT Ch3-(4) Write application programs using the stack ADT	
4	2026/03/15—2026/03/21	Ch3-(5) Discuss reversing data, parsing, postponing and backtracking Ch4-(1) Explain the design, use, and operation of a queue Ch4-(2) Implement a queue using a linked list structure Ch4-(3) Understand the operation of the queue ADT	
5	2026/03/22—2026/03/28	Ch4-(4) Write application programs using the queue ADT	

		Ch4-(5) Explain categorizing data and queue simulation	
6	2026/03/29—2026/04/04	Ch5-1 Explain the design, use, and operation of a linear list Ch5-2 Implement a linear list using a linked list structure	
7	2026/04/05—2026/04/11	Ch5-3 Understand the operation of the linear list ADT Ch5-4 Write application programs using the linear list ADT Ch5-5 Design and implement different link-list structures	
8	2026/04/12—2026/04/18	Middle Exam	
9	2026/04/19—2026/04/25	Ch6-1 Understand and use basic tree terminology and concepts Ch6-2 Recognize and define the basic attributes of a binary tree Ch6-3 Process trees using depth-first and breadth-first traversals Ch6-4 Parse expressions using a binary tree	
10	2026/04/26—2026/05/02	Ch6-5 Design and implement Huffman trees Ch6-6 Understand the basic use and processing of general trees CH7-1 Create and implement binary search trees CH7-2 Understand the operation of the binary search tree ADT	
11	2026/05/03—2026/05/09	CH7-3 Write application programs using the binary search tree ADT CH7-4 Design and implement a list using a BST CH7-5 Design and implement threaded trees Ch8-1 Explain the differences between a BST and an AVL tree	
12	2026/05/10—2026/05/16	Ch8-2 Insert, delete, and process nodes in an AVL tree Ch8-3 Understand the operation of the AVL tree ADT Ch8-4 Write application programs using an AVL tree	
13	2026/05/17—2026/05/23	Ch9-1 Define and implement heap structures Ch9-2 Understand the operation and use of the heap ADT Ch9-3 Design and implement selection applications using a heap Ch9-4 Design and implement priority queues using a heap	
14	2026/05/24—2026/05/30	Ch10-1 Define and discuss multiway tree structures Ch10-2 Understand the operation and use of the B-tree ADT Ch10-3 Discuss the use and implementation of simplified B-trees Ch10-4 Compare and contrast B-trees, B*trees, and T+trees	

15	2026/05/31—2026/06/06	Ch10-5 Discuss the design and use a lexical search trees (Tries) Ch11-1 Understand and use basic graph terminology and concepts Ch11-2 Define and discuss basic graph and network structures Ch11-3 Design and implement graph and network applications	
16	2026/06/07—2026/06/13	Final Exam	
17	2026/06/14—2026/06/20	Online Self-Directed Learning	線上自主學習
18	2026/06/21—2026/06/27	Online Self-Directed Learning	線上自主學習

6. 成績評定及課堂要求

30% 期中考 30% 期末考 40% 平時(上課, 作業, 小考)
請勿吵鬧

8. 永續發展目標(SDGs): SDG9 工業化、創新及基礎建設

9. 大學社會責任(USR)關聯性: 低