Tamkang University Academic Year 113, 2nd Semester Course Syllabus

Course Title	DATA STRUCTURES	Instructor	KAO CHIUN HOW
Course Class	TLSAM1A MASTER'S PROGRAM IN DATA SCIENCE, DEPARTMENT OF STATISTICS, 1A	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Cultivate cross-field data science analyst who integrate statistics and information science to provide effective decision-making methods and strategies in different professional fields, thereby creating the greatest application value of data.

Subject Departmental core competences

A. Data analysis ability.(ratio:30.00)

B. Information application ability.(ratio:30.00)

C. Logical reasoning ability.(ratio:20.00)

D. Ability to integrate knowledge in various fields.(ratio:20.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:15.00)
2. Information literacy. (ratio:30.00)
3. A vision for the future. (ratio:5.00)
4. Moral integrity. (ratio:5.00)
5. Independent thinking. (ratio:15.00)
6. A cheerful attitude and healthy lifestyle. (ratio:5.00)
7. A spirit of teamwork and dedication. (ratio:20.00)
8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	This course offers a study of data structures, including stacks, recursion, queues, lists, trees, graphs, sorting and searching. Students taken this course can understand the data structure and designing logic in the developed programs or softwares.

The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.
II.Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.
III.Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	To understand stacks, recursion, queues and link lists.	Cognitive
2	To understand the advanced data structures as trees and graphs.	Cognitive
3	To understand the sorting and searching algorithms.	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCD	12345678	Lecture	Testing, Study Assignments
2	ABCD	12345678	Lecture	Testing, Study Assignments
3	ABCD	12345678	Lecture	Testing, Study Assignments

Course Schedule

Week	Date	Course Contents	Note
1	114/02/17 ~ 114/02/23	Introduction	
2	114/02/24 ~ 114/03/02	Preliminaries & Basic Concepts	

3	114/03/03 ~ 114/03/09	Complexity and Performance	
4	114/03/10 ~ 114/03/16	Linked Lists	
5	114/03/17 ~ 114/03/23	Linked Lists	
6	114/03/24 ~ 114/03/30	Linked Lists	
7	114/03/31 ~ 114/04/06	Holiday	
8	114/04/07 ~ 114/04/13	Trees	
9	114/04/14 ~ 114/04/20	Midterm Exam Week	
10	114/04/21 ~ 114/04/27	Trees	
11	114/04/28 ~ 114/05/04	Trees	
12	114/05/05 ~ 114/05/11	Graphs	
13	114/05/12 ~ 114/05/18	Graphs	
14	114/05/19 ~ 114/05/25	Graphs	
15	114/05/26 ~ 114/06/01	Sorting	
16	114/06/02 ~ 114/06/08	Sorting	
17	114/06/09 ~ 114/06/15	Final Exam Week	
18	114/06/16 ~ 114/06/22	Flexible Teaching Week	

Key capabilities	
Interdisciplinary	
Distinctive teaching	
Course Content	Logical Thinking

Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Presentations
References	Fundamentals of Data Structures in C, Horowitz, 松崗代理 Data Structure & Algorithm in Java, Fifth Edition, Michaei T. Goodrich, 新月代理
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual：20.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 40.0 % ◆ Other〈 〉： %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**