Tamkang University Academic Year 114, 1st Semester Course Syllabus

Course Title	APPLICATION OF BIG DATA ANALYTICS IN BUSINESS	Instructor	MENG-IA CHUNG
Course Class	TLGBM1A MASTER'S PROGRAM IN BUSINESS AND MANAGEMENT, DEPARTMENT OF MANAGEMENT SCIENCES (ENGLISH-TAUGHT PROGRAM), 1A	Details	◆ General Course ◆ Selective ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG8 Decent work and economic growth SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Ⅰ. Develop a business and management perspective for students.

Ⅱ. Train the professionals in the integrated fields of business and management.

Ⅲ. Cultivate the talents with both theory and practices in business and management.

Subject Departmental core competences

A. Provide the basic knowledge of both theory and practices.(ratio:30.00)

B. Enhance the practical training for the current trends.(ratio:20.00)

C. Cultivate the ethics in business and management.(ratio:20.00)

D. Obtain the ability of analyzing industrial and business problems.(ratio:30.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:10.00)

2. Information literacy. (ratio:30.00)

3. A vision for the future. (ratio:20.00)

4. Moral integrity. (ratio:10.00)

5. Independent thinking. (ratio:10.00)

6. A cheerful attitude and healthy lifestyle. (ratio:5.00)

7. A spirit of teamwork and dedication. (ratio:10.00)

8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	This course serves as an introductory exploration of big data analysis. It is divided into three main sections. Firstly, we will delve into fundamental concepts of probability and statistical inference. Secondly, we will explore the practical implementation of the general linear model for data analysis. Finally, we will dive into the application of various machine learning algorithms for data analysis. Throughout the course, we will utilize R, Python, and SPSS software to facilitate our learning process.

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	The objective of this course is to assist students in acquiring knowledge, comprehension, and proficiency in various statistical methods and machine learning algorithms for big data analytics.	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

Course Schedule

Week	Date	Course Contents	Note
1	114/09/15 ~ 114/09/21	Introduction	
2	114/09/22 ~ 114/09/28	Probability and statistical inference for big data analysis I	
3	114/09/29 ~ 114/10/05	Probability and statistical inference for big data analysis II	
4	114/10/06 ~ 114/10/12	Unsupervised learning I	

5	114/10/13 ~ 114/10/19	Unsupervised learning II	
6	114/10/20 ~ 114/10/26	Unsupervised learning III	
7	114/10/27 ~ 114/11/02	Unsupervised learning VI	
8	114/11/03 ~ 114/11/09	Review 1	
9	114/11/10 ~ 114/11/16	Midterm	
10	114/11/17 ~ 114/11/23	Supervised learning I	
11	114/11/24 ~ 114/11/30	Supervised learning II	
12	114/12/01 ~ 114/12/07	Supervised learning III	
13	114/12/08 ~ 114/12/14	Supervised learning IV	
14	114/12/15 ~ 114/12/21	Supervised learning V	
15	114/12/22 ~ 114/12/28	General Linear Models I	
16	114/12/29 ~ 115/01/04	General Linear Models II	
17	115/01/05 ~ 115/01/11	Review 2	
18	115/01/12 ~ 115/01/18	Final Exam	

Key capabilities	
Interdisciplinary	
Distinctive teaching	
Course Content	Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking AI application
Requirement	

Textbooks and Teaching Materials	Self-made teaching materials:Presentations, Handouts
References	1. The Elements of Statistical Learning: Data Mining, Inference, and Prediction 2. Pattern Recognition and Machine Learning
Grading Policy	◆ Attendance： % ◆ Mark of Usual： % ◆ Midterm Exam： % ◆ Final Exam： % ◆ Other〈2 assignments〉：100.0 %
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at https://web2.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. ※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.