## 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	Details	<ul><li>General Course</li><li>Selective</li><li>One Semester</li><li>3 Credits</li></ul>
Relevance to SDGs	PROGRAM), 1A 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.
- ${\rm I\hspace{-.1em}I\hspace{-.1em}I}$ . 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.			objective methods		
1	·		ts in acquiring n various statistical	Cognitive	
	•	•	e learning algorithms for		
	The c	orrespond	lences of teaching objectives	: core competences, essential virtues, teaching me	thods, and assessment
No.	Core Compet	ences	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			
4	114/10/06 ~ 114/10/12	Unsupervised learning I			

8         114/36/23 - 144/36/23         Unsupervised learning II         Image: Image	S	5		Unsupervised learning II	
144/1072	10	5		onsupervised learning if	
14411/02	7   114/11/02	6		Unsupervised learning III	
14/11/09   Neview   1   14/11/10   Midterm	8	7		Unsupervised learning VI	
14/11/12	9	8		Review 1	
10	10   114/11/24   114/11/24   Supervised learning II   114/11/20   Supervised learning II   114/12/07   Supervised learning III   114/12/08   Supervised learning IV   114/12/08   Supervised learning IV   114/12/15   Supervised learning V   114/12/15   Supervised learning V   114/12/12   General Linear Models I   114/12/29   General Linear Models II   115/01/02   Review 2   115/01/02   Final Exam   Final Exam   Final Exam   Course Content   Computer programming or Computer language (students have hands-on experience in related projects)   Logical Thinking   Logical Thinking	9 114/11/10~		Midterm	
11	11 14/12/01 Supervised learning III 11 14/12/01 Supervised learning III 11 14/12/08 Supervised learning IV 11 14/12/15 Supervised learning V 11 14/12/15 Supervised learning V 11 14/12/29 General Linear Models I 16 114/12/29 General Linear Models II 17 115/01/05 Review 2 115/01/12 Final Exam  Key capabilities  Interdisciplinary  Distinctive teaching  Course Content  Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking	10 114/11/17~		Supervised learning I	
12   144/12/07   Supervised learning III   13   144/12/15   Supervised learning IV   14   144/12/15   Supervised learning V   15   114/12/22   General Linear Models II   16   114/12/23   General Linear Models II   17   115/01/05   Review 2   18   115/01/12   Final Exam    Key capabilities    Interdisciplinary    Distinctive teaching    Course Content    Course Content    Course Content    Course Content    Course Content    Course Content    Supervised learning IV    Supervised learning IV    General Linear Models II    Final Exam    Distinctive teaching    Computer programming or Computer language (students have hands-on experience in related projects)    Logical Thinking    Al application	12   114/12/08 -   114/12/14   Supervised learning IV   14   114/12/12   Supervised learning V   15   114/12/22   General Linear Models I   16   114/12/29   General Linear Models II   17   115/01/05   115/01/12   Review 2   18   115/01/12   Final Exam    Key capabilities    Interdisciplinary    Distinctive teaching    Course Content    Course Content    Course Content    Supervised learning IV    Supervis	11		Supervised learning II	
13   14/12/14   Supervised learning IV  14   114/12/15-   114/12/25   Supervised learning V    15   114/12/29-   General Linear Models I    17   115/01/05-   Review 2    18   115/01/12   Final Exam    Key capabilities    Interdisciplinary    Distinctive teaching    Course Content   Computer programming or Computer language (students have hands-on experience in related projects)   Logical Thinking At application    14   114/12/25-   115/01/12   Thinking At application    15   114/12/25-   115/01/12   Thinking At application    16   114/12/25-   115/01/12   Thinking At application    17   115/01/12   Thinking At application    18   115/01/12   Thinking At application    19   115/01/12   Thinking At application    10   114/12/25-   Thinking At application    10   114/12/25-   Thinking At application    10   114/12/25-   Thinking At application    11   115/01/25-   Thinking At application    11   115/01/25-   Thinking At application    12   115/01/25-   Thinking At application    13   114/12/25-   Thinking At application    14   115/01/25-   Thinking At application    15   114/12/25-   Thinking At application    16   114/12/25-   Thinking At application    17   115/01/25-   Thinking At application    18   115/01/25-   Thinking At application    18   115/01/25-   Thinking At application    19   115/01/25-   Thinking At application    10   115/01/25-   Thinking At application    10   115/01/25-   Thinking At application    10   115/01/25-   Thinking At application    11   115/01/25-   Thinking At application    12   115/01/25-   Thinking At application    13   115/01/25-   Thinking At application    14   115/01/25-   Thinking At application    15   115/01/25-   Thinking At application    16   115/01/25-   Thinking At application    17   115/01/25-   Thinking At application    18   115/01/25-   Thinking At application    18   115/01/25-   Th	14/12/14   Supervised learning IV	12		Supervised learning III	
14   14/12/21   Supervised learning V   15   114/12/22 - 114/12/23   General Linear Models I   16   114/12/29 - 115/01/04   General Linear Models II   17   115/01/15   Review 2   18   115/01/12 - 115/01/15   Final Exam    Key capabilities    Interdisciplinary    Distinctive teaching    Course Content    Computer programming or Computer language (students have hands-on experience in related projects)    Logical Thinking    Al application	14 114/12/22   Supervised learning V  15	13		Supervised learning IV	
15   114/12/28   General Linear Models II   16   114/12/29	15   114/12/28   General Linear Models II    16   114/12/29~   I15/01/04   Review 2    17   115/01/12   Final Exam    Key capabilities    Interdisciplinary    Distinctive teaching    Course Content    Course Co	14		Supervised learning V	
16   115/01/04   General Linear Models II   115/01/05   115/01/12   Review 2	15/01/04   General Linear Models II	15		General Linear Models I	
17   115/01/12   Review 2  18   115/01/12   Final Exam  Key capabilities  Interdisciplinary  Distinctive teaching  Course Content  Course Content  Course Content  All application  Review 2  Final Exam  Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking All application	115/01/12   Final Exam	16		General Linear Models II	
Rey capabilities	Rey capabilities	17		Review 2	
Interdisciplinary  Distinctive teaching  Course Content  Course Content  Course Content  Course Content  Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking Al application	Interdisciplinary  Distinctive teaching  Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking	18		Final Exam	
Distinctive teaching  Computer programming or Computer language (students have hands-on experience in related projects) Logical Thinking AI application	Distinctive teaching  Computer programming or Computer language (students have hands-on experience in related projects)  Logical Thinking	Key capabilities			
teaching  Computer programming or Computer language (students have hands-on experience in related projects)  Logical Thinking  AI application	Computer programming or Computer language (students have hands-on experience in related projects)  Logical Thinking	Interdisciplinary			
Course Content related projects) Logical Thinking AI application	related projects) Course Content Logical Thinking				
Requirement		Course Content		related projects) Logical Thinking	
	Requirement	Requirement			

Textbooks and	Self-made teaching materials:Presentations, Handouts	
Teaching Materials		
References	The Elements of Statistical Learning: Data Mining, Inference, and Prediction 2.  Pattern Recognition and Machine Learning	
Grading Policy	<ul> <li>◆ Attendance: % ◆ Mark of Usual: % ◆ Midterm Exam: %</li> <li>◆ Final Exam: %</li> <li>◆ Other ⟨2 assignments⟩ : 100.0 %</li> </ul>	
Note	This syllabus may be uploaded at the website of Course Syllabus Management System <a href="https://web2.ais.tku.edu.tw/csp">https://web2.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload pos on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a> .  **"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.	

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