Tamkang University Academic Year 110, 2nd Semester Course Syllabus

Course Title	APPLIED LINEAR MODEL	Instructor	WU SHU-FEI
Course Class	TLSXM1A MASTER'S PROGRAM, DEPARTMENT OF STATISTICS, 1A	Details	◆ General Course ◆ Selective ◆ One Semester
Relevance to SDGs	SDG4 Quality education		

Departmental Aim of Education

Ⅰ. Cultivate students with ability to conduct research on statistical theory.

Ⅱ. Cultivate students with ability for statistical programming.

Ⅲ. Cultivate students to become statistical professionals with management capabilities.

Ⅳ. Cultivate students with international perspectives.

Subject Departmental core competences

A. Ability to conduct research of statistical theory.(ratio:60.00)

B. Data analysis skills.(ratio:20.00)

D. Logical thinking ability.(ratio:20.00)

Subject Schoolwide essential virtues

2. Information literacy. (ratio:60.00)

5. Independent thinking. (ratio:40.00)

Course Introduction	The linear model involves the simplest and seemingly most restrictive statistical properties: independence, normality, constancy of variance, and linearity. However, the model and the statistical is veryversatile and robust. The linear model is very very important training of any statistician, applied or theoretical.

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	Train students to be familar with the basic theory of linear models for regression, analysis-ofvariance, analysis–of–covariance, and linear mixed models.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABD	25	Lecture, Discussion	Testing, Discussion(including classroom and online), Report(including oral and written)

Course Schedule

Week	Date	Course Contents	Note
1	111/02/21 ~ 111/02/25	Chap 1: Introduction of regression models and ANOVA models	
2	111/02/28 ~ 111/03/04	Chap2: Matrix Algebra	
3	111/03/07 ~ 111/03/11	Chap2: Matrix Algebra	
4	111/03/14 ~ 111/03/18	Chap2: Matrix Algebra--Generalized Inverse	
5	111/03/21 ~ 111/03/25	3 Random Vectors and Matrices	
6	111/03/28 ~ 111/04/01	3 Random Vectors and Matrices	
7	111/04/04 ~ 111/04/08	4 Multivariate Normal Distribution	
8	111/04/11 ~ 111/04/15	4 Multivariate Normal Distribution	
9	111/04/18 ~ 111/04/22	Chap5:Distribution of Quadratic Forms in y	
10	111/04/25 ~ 111/04/29	Midterm exam	

11	111/05/02～111/05/06	Chap5:Distribution of Quadratic Forms in y	
12	111/05/09～111/05/13	7 Multiple Regression: Estimation	
13	111/05/16～111/05/20	8 Multiple Regression: Tests of Hypotheses	
14	111/05/23～111/05/27	8 Multiple Regression: Tests of Hypotheses	
15	111/05/30～111/06/03	9 Multiple Regression: Model Validation and Diagnostics	
16	111/06/06～111/06/10	12 Analysis-of-Variance Models	
17	111/06/13～111/06/17	12 Analysis-of-Variance Models	
18	111/06/20～111/06/24	Finar report	

Requirement	
Teaching Facility	Computer, Projector
Textbooks and Teaching Materials	LINEAR MODELS IN Statistics, 2ed. Alvin C. Rencher and G. Bruce Schaalje 華泰書局
References	
Number of Assignment(s)	22 (Filled in by assignment instructor only)
Grading Policy	◆ Attendance： 30.0 ％ ◆ Mark of Usual： ％ ◆ 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.**