

Tamkang University Academic Year 108, 2nd Semester Course Syllabus

Course Title	STATISTICAL COMPUTING	Instructor	HSIEH, AI-RU
Course Class	TLSXM1A MASTER'S PROGRAM, DEPARTMENT OF STATISTICS, 1A	Details	<ul style="list-style-type: none"> ◆ Blended Course ◆ Selective ◆ One Semester ◆ 3 Credits
D e p a r t m e n t a l A i m o f E d u c a t i o n			
<p>I . Cultivate students with ability to conduct research on statistical theory.</p> <p>II . Cultivate students with ability for statistical programming.</p> <p>III . Cultivate students to become statistical professionals with management capabilities.</p> <p>IV . Cultivate students with international perspectives.</p>			
Subject Departmental core competences			
<p>B. Data analysis skills.(ratio:80.00)</p> <p>D. Logical thinking ability.(ratio:20.00)</p>			
Subject Schoolwide essential virtues			
<p>1. A global perspective. (ratio:20.00)</p> <p>2. Information literacy. (ratio:80.00)</p>			
Course Introduction	To learn about: SAS/R function,statistical analysis in SAS/R program.		

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 enable students to use the statistical principles learned in class and cooperate with statistical analysis software to improve their self-application analysis ability, in order to facilitate students' future skills or employment needs.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	BD	12	Lecture, Discussion, Publication, Practicum	Testing, Study Assignments, Discussion(including classroom and online), Practicum, Report(including oral and written)

Course Schedule

Note for Blended Course : When utilizing weekly digital instruction, please fill in "Online Asynchronous Instruction".

Week	Date	Course Contents	Note
1	109/03/02 ~ 109/03/08	Introduction	
2	109/03/09 ~ 109/03/15	Probability and Statistics Review	
3	109/03/16 ~ 109/03/22	Probability and Statistics Review	
4	109/03/23 ~ 109/03/29	Methods for Generating Random Variables	
5	109/03/30 ~ 109/04/05	Methods for Generating Random Variables	
6	109/04/06 ~ 109/04/12	Visualization of Multivariate Data	
7	109/04/13 ~ 109/04/19	Bootstrap and Jackknife	
8	109/04/20 ~ 109/04/26	Bootstrap and Jackknife	

9	109/04/27 ~ 109/05/03	Midterm exam	
10	109/05/04 ~ 109/05/10	Permutation Tests	
11	109/05/11 ~ 109/05/17	Permutation Tests	
12	109/05/18 ~ 109/05/24	Preparing to model the data	
13	109/05/25 ~ 109/05/31	Decision trees	Online Asynchronous Instruction
14	109/06/01 ~ 109/06/07	Model evaluation	
15	109/06/08 ~ 109/06/14	Neural networks	Online Asynchronous Instruction
16	109/06/15 ~ 109/06/21	Clustering	
17	109/06/22 ~ 109/06/28	Final exam	
18	109/06/29 ~ 109/07/05	Dimension reduction	Online
Requirement			
Teaching Facility	Computer, Projector		
Textbooks and Teaching Materials	Statistical computing with R, Maria L. Rizzo Data Science Using Python and R, Chantal D. Larose, Wiley & Sons, Inc.		
References			
Number of Assignment(s)	5 (Filled in by assignment instructor only)		
Grading Policy	◆ Attendance : 10.0 % ◆ Mark of Usual : 10.0 % ◆ Midterm Exam : 40.0 % ◆ Final Exam : 40.0 % ◆ Other () : %		

Note	<ol style="list-style-type: none">1. This syllabus may be uploaded at the website of the Course Syllabus Management System at https://info.ais.tku.edu.tw/csp or through the link of the Course Syllabus Upload posted on the home page of the TKU Office of Academic Affairs http://www.acad.tku.edu.tw/CS/main.php2. According to the Implementation regulations of distance education for junior college and above are prescribed pursuant to Article 2, "The distance learning course referred to in these Measures refers to more than one-half of the teaching hours in each subject."3. According to the regulations of Tamkang University Enforcement Rules for digital teaching, Paragraph 2 and Article 3, the distance learning course of our school must be "The course of digital teaching with distance learning platform or synchronous video system in our school. Teaching Hours include course lectures, teacher-student interaction discussions, quizzes and other learning activities."4. If there are any temporary course changes (including time changes and classroom changes of distance learning courses, blended courses), please make out an application according to regulations to the Office of Academic Affairs. <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>
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