

Tamkang University Academic Year 111, 2nd Semester Course Syllabus

Course Title	STATISTICAL THEORY	Instructor	WU SHU-FEI
Course Class	TLSXM1A MASTER'S PROGRAM, DEPARTMENT OF STATISTICS, 1A	Details	<ul style="list-style-type: none"> ◆ Blended Course ◆ Required ◆ 2nd Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education		
Departmental Aim of Education			
<ul style="list-style-type: none"> 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			
<ul style="list-style-type: none"> A. Ability to conduct research of statistical theory.(ratio:30.00) B. Data analysis skills.(ratio:15.00) C. Ability to acquire interdisciplinary knowledge.(ratio:15.00) D. Logical thinking ability.(ratio:30.00) E. Statistical consulting ability.(ratio:10.00) 			
Subject Schoolwide essential virtues			
<ul style="list-style-type: none"> 1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:10.00) 3. A vision for the future. (ratio:10.00) 4. Moral integrity. (ratio:20.00) 5. Independent thinking. (ratio:30.00) 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 focuses on the theoretical statistics. Topics include distribution theory, approximation to distributions, modes of convergence, limit theorems, statistical models, parameter estimation, comparison of estimators, confidence sets, theory of hypothesis tests, and Bayesian inference.
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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	1 Properties of a Random Sample 2 Principles of Data Reduction.(Minimum Sufficient statistic, complete sufficient statistic) 3 Theory of Point Estimation 4 Theory of Hypothesis Testing 5 Theory of Interval Estimation	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDE	12345678	Lecture, Discussion	Testing, 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	112/02/13 ~ 112/02/19	課程之介紹及修讀方式之介紹	此週請採實體教學
2	112/02/20 ~ 112/02/26	Chap.4 Multiple Random Variable	
3	112/02/27 ~ 112/03/05	Chap.4 Multiple Random Variable	

4	112/03/06 ~ 112/03/12	Chap.5 Properties of a Random Sample	Online Asynchronous Instruction
5	112/03/13 ~ 112/03/19	Chap.5 Properties of a Random Sample	Online Asynchronous Instruction
6	112/03/20 ~ 112/03/26	Chap.5 Properties of a Random Sample	
7	112/03/27 ~ 112/04/02	Chap.5 Properties of a Random Sample	Online Asynchronous Instruction
8	112/04/03 ~ 112/04/09	Chap.5 Properties of a Random Sample	
9	112/04/10 ~ 112/04/16	Chap.5 Properties of a Random Sample	Online Asynchronous Instruction
10	112/04/17 ~ 112/04/23	Midterm Exam	
11	112/04/24 ~ 112/04/30	Chap.6 Principles of Data Reduction	
12	112/05/01 ~ 112/05/07	Chap.7 Point Estimation	
13	112/05/08 ~ 112/05/14	Chap.7 Point Estimation	
14	112/05/15 ~ 112/05/21	Chap.7 Point Estimation	
15	112/05/22 ~ 112/05/28	Chap.7 Point Estimation	
16	112/05/29 ~ 112/06/04	Chap.8 Hypothesis Testing (Report)	
17	112/06/05 ~ 112/06/11	Chap.9 Interval Estimation (Report)	
18	112/06/12 ~ 112/06/18	Final Exam	
Requirement	上課不能使用Notebook. 5POINTS FOR EACH VIALATION.		
Teaching Facility	Computer, Projector		
Textbooks and Teaching Materials	Casella, G. and Berger, R. L. (2002). Statistical Inference, 2nd ed., Duxbury Press ※非法影印是違法的行為。請使用正版教科書。勿非法影印他人著作。以免觸法。		
References	1. Bickel, P. J. and Doksum, K. A. (2001). Mathematical Statistics: Basic Ideas and Selected Topics, Vol I, 2nd ed., Prentice Hall. 2. Lehmann, E. L. (1983). Theory of Point Estimation, Wiley. 3. Lehmann, E. L. (1986). Testing Statistical Hypotheses, 2nd ed., Wiley.		
Number of Assignment(s)	4 (Filled in by assignment instructor only)		
Grading Policy	◆ Attendance : 30.0 % ◆ Mark of Usual : 30.0 % ◆ Midterm Exam : 20.0 % ◆ Final Exam : 20.0 % ◆ 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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