Tamkang University Academic Year 109, 1st Semester Course Syllabus

Course Title	STATISTICAL THEORY	Instructor	WU SHU-FEI
Course Class	TLSXM1A MASTER'S PROGRAM, DEPARTMENT OF STATISTICS, 1A	Details	◆ General Course ◆ Required ◆ 1st Semester

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:80.00)

D. Logical thinking ability.(ratio:20.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:10.00)

4. Moral integrity. (ratio:20.00)

5. Independent thinking. (ratio:70.00)

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.

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	Students are able to understand the distribution,Laws of Large Numbers, the Central Limit Theorem and some important limit theorems. Students are able to understand the concepts of sufficiency and completeness of a statistic. theory.	Cognitive
2	Students know how to find the UMVUE of a model parameter and construct different kinds of estimators such as moment estimator, MLE, Bayes estimator, etc. Students know how to construct an optimal confidence interval for a model parameter. Students know how to make a null hypothesis and how to construct an optimal test for hypotheses testing. Large Numbers, the Central Limit Theorem and some important limit theorems.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	AD	145	Lecture	Testing
2	AD	145	Lecture	Testing

Course Schedule

Week	Date	Course Contents	Note
1	109/09/14 ~ 109/09/20	Introduction of this course	
2	109/09/21 ~ 109/09/27	Probability Theory	
3	109/09/28 ~ 109/10/04	Probability Theory	
4	109/10/05 ~ 109/10/11	Speech	

5	109/10/12～ 109/10/18	Transformations and Expectations	線上非同步教學
6	109/10/19～ 109/10/25	Transformations and Expectations	線上非同步教學
7	109/10/26～ 109/11/01	Transformations and Expectations	線上非同步教學
8	109/11/02～ 109/11/08	Common Families of Distributions	
9	109/11/09～ 109/11/15	Common Families of Distributions	
10	109/11/16～ 109/11/22	期中考試	
11	109/11/23～ 109/11/29	Multiple Random Variables	
12	109/11/30～ 109/12/06	Multiple Random Variables	
13	109/12/07～ 109/12/13	Multiple Random Variables	
14	109/12/14～ 109/12/20	Properties of a Random Sample	
15	109/12/21～ 109/12/27	Properties of a Random Sample	
16	109/12/28～ 110/01/03	Properties of a Random Sample	
17	110/01/04～ 110/01/10	Properties of a Random Sample	
18	110/01/11～ 110/01/17	期末考試	

Requirement	上課不可使用notebook, Ipad 或其他電腦設備(除非老師要求), 違反規定者總分扣十分
Teaching Facility	Computer, Projector, Other (黑板)
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： 20.0 % ◆ Mark of Usual：20.0 % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ 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.**