## Tamkang University Academic Year 111, 1st Semester Course Syllabus

Course Title	ourse Title STATISTICAL THEORY		WU SHU-FEI			
Course Class	TLSXM1A MASTER'S PROGRAM, DEPARTMENT OF STATISTICS, 1A	Details	<ul> <li>General Course</li> <li>Required</li> <li>1st Semester</li> </ul>			
Relevance to SDGs	SDG4 Quality education SDGs					
Departmental Aim of Education						
I. Cultiva	te students with ability to conduct research on statistical theory	<u> </u>				
II. Cultiva	te students with ability for statistical programming.					
III. Cultiva	te students to become statistical professionals with manageme	nt capabilities.				
IV. Cultiva	te students with international perspectives.					
	Subject Departmental core competences					
A. Ability to	o conduct research of statistical theory.(ratio:30.00)					
B. Data ana	B. Data analysis skills.(ratio:15.00)					
C. Ability to	C. Ability to acquire interdisciplinary knowledge.(ratio:15.00)					
D. Logical t	hinking ability.(ratio:30.00)					
E. Statistical consulting ability.(ratio:10.00)						
	Subject Schoolwide essential virtues					
1. A globa	l 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)						

Ir	Course ntroduction	This co theory, statistic sets, th	ourse focuses on the theo , approximation to distri cal models, parameter en leory of hypothesis tests	pretical statistics. Topics include distributi butions, modes of convergence, limit the stimation, comparison of estimators, con , and Bayesian inference.	ion orems, fidence
	The	correspo	ndences between the c	ourse's instructional objectives and the	cognitive, affective,
	-		and	d psychomotor objectives.	, , , , , , , , , , , , , , , , , , ,
Di	fferentiate the	e various o	objective methods amor	ng the cognitive, affective and psychomot	tor
do	omains of the	course's ii	nstructional objectives.		
I.	Cognitive : E	mphasis u	pon the study of various	s kinds of knowledge in the cognition of	
_	the	e course's	veracity, conception, pro	ocedures, outcomes, etc.	
II.	Affective : Em	phasis up trals_attitu	on the study of various l	kinds of knowledge in the course's appea	,
III	.Psychomoto	r: Emphas	is upon the study of the	course's physical activity and technical	
	ma	inipulatio	n.		
			Teaching Ob	jectives	objective methods
No.					
1	Students are	e able to			Cognitive
	understand the distribution,Laws of Large Numbers, the Central				
	Limit Theore	em and so	me important limit theo	rems. Students are	
	able to unde	erstand th	e concepts of sufficiency	y and completeness of	
	a statistic.				
	theory.				
2	Students know how to find the UMVUE of a model parameter and Cognitive				Cognitive
	construct di	fferent kir	nds of estimators such as	s moment estimator,	
	MLE, Bayes estimator, etc. Students know how to construct an				
	optimal confidence interval for a model parameter. Students know				
	how to mak	e a null hy	pothesis and how to co	nstruct an optimal test	
	for hypotheses testing.				
	Large Numbers, the Central				
	Limit Theorem and some				
	important limit theorems.				
	The	correspond	lences of teaching objectives	: core competences, essential virtues, teaching me	thods, and assessment
No.	Core Compe	etences	Essential Virtues	Teaching Methods	Assessment

1	ABCDE		12345678	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online)		
2	ABCDE		12345678	Lecture	Testing, Study Assignments, Discussion(including classroom and online)		
	1			Course Schedule			
Week	Date	Date Course Contents			Note		
1	111/09/05~ 111/09/11	Introdu	Introduction of this course				
2	111/09/12~ 111/09/18	Probab	Probability Theory				
3	111/09/19~ 111/09/25	Probab	bility Theory				
4	111/09/26~ 111/10/02	Transfo	線上非同步教學				
5	111/10/03~ 111/10/09	Transfo	ormations and Expect	線上非同步教學			
6	111/10/10~ 111/10/16	Transfo	Transformations and Expectations				
7	111/10/17~ 111/10/23	Transfo	Transformations and Expectations 線上非同步教學				
8	111/10/24~ 111/10/30	Comm	Common Families of Distributions 線上非同步教學				
9	111/10/31~ 111/11/06	Comm	Common Families of Distributions				
10	111/11/07~ 111/11/13	期中考	期中考試				
11	111/11/14~ 111/11/20	Multip	Multiple Random Variables				
12	111/11/21~ 111/11/27	Multip	Multiple Random Variables				
13	111/11/28~ 111/12/04	Multip	Multiple Random Variables				
14	111/12/05~ 111/12/11	Properties of a Random Sample					
15	111/12/12 ~ 111/12/18	Proper	Properties of a Random Sample				
16	111/12/19~ 111/12/25	Proper	Properties of a Random Sample				
17	111/12/26~ 112/01/01	Proper	ties of a Random Sam	nple			
18	112/01/02~ 112/01/08	期末考					
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 Requirement				·····································			

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	<ol> <li>Bickel, P. J. and Doksum, K. A. (2001). Mathematical Statistics: Basic Ideas and Selected Topics, Vol I, 2nd ed., Prentice Hall.</li> <li>Lehmann, E. L. (1983). Theory of Point Estimation, Wiley.</li> <li>Lehmann, E. L. (1986). Testing Statistical Hypotheses, 2nd ed., Wiley.</li> </ol>
Number of Assignment(s)	2 (Filled in by assignment instructor only)
Grading Policy	<ul> <li>♦ Attendance: 20.0 % ◆ Mark of Usual: 30.0 % ◆ Midterm Exam: 20.0 %</li> <li>♦ Final Exam: 20.0 %</li> <li>♦ Other ⟨online quiz⟩: 10.0 %</li> </ul>
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at <u>http://info.ais.tku.edu.tw/csp</u> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <u>http://www.acad.tku.edu.tw/CS/main.php</u> . <b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime</b> <b>to improperly photocopy others' publications.</b>
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