

Tamkang University Academic Year 108, 1st Semester Course Syllabus

Course Title	SURVIVAL ANALYSIS	Instructor	CHEN SHUN-YI
Course Class	TSMCB3A DEPARTMENT OF MATHEMATICS (SECTION OF DATA SCIENCE AND MATHEMATICAL STATISTICS), 3A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Selective ◆ 1st Semester
Departmental Aim of Education			
<ul style="list-style-type: none"> I. To teach knowledge in mathematics. II. To train teaching professionals in mathematics. III. To develop independent and creative thinking. IV. To establish ability to present oneself. V. To promote cooperative working spirit. VI. To prepare self learning ability in multiple areas. 			
Subject Departmental core competences			
<ul style="list-style-type: none"> C. To learn basics of probability and statistic.(ratio:50.00) E. To obtain the ability to collect and analyze data.(ratio:50.00) 			
Subject Schoolwide essential virtues			
<ul style="list-style-type: none"> 2. Information literacy. (ratio:50.00) 5. Independent thinking. (ratio:50.00) 			
Course Introduction	<p>This course provides a comprehensive introduction of commonly used methods for analyzing survival data. It deals with statistical methods for analyzing data derived from laboratory studies of animals, clinical and epidemiologic studies, and other appropriate applications. We will introduce definitions and interpretations of survival functions, methods for estimating and comparing these functions, and approaches to the identification of prognostic factors that are related to survival. Parametric survival model, recurrent event and competing risks survival analysis will be discussed.</p>		

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 will be able to acquire the ability of the statistical concepts and techniques of survival analysis in related problems.	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	CE	25	Lecture, Discussion	Testing, Study Assignments, Discussion(including classroom and online)

Course Schedule

Week	Date	Course Contents	Note
1	108/09/09 ~ 108/09/15	Introduction of Survival analysis	
2	108/09/16 ~ 108/09/22	Censored data	
3	108/09/23 ~ 108/09/29	Survival function and hazard function	
4	108/09/30 ~ 108/10/06	Data layout for understanding analysis	
5	108/10/07 ~ 108/10/13	Kaplan-Meier curve	
6	108/10/14 ~ 108/10/20	General features of Kaplan-Meier curve	
7	108/10/21 ~ 108/10/27	Log-rank test	
8	108/10/28 ~ 108/11/03	Alternatives to the Log-rank test	
9	108/11/04 ~ 108/11/10	The Cox proportional hazards model	
10	108/11/11 ~ 108/11/17	Midterm Exam Week	
11	108/11/18 ~ 108/11/24	Partial likelihood	

12	108/11/25 ~ 108/12/01	ML estimation of the Cox PH model	
13	108/12/02 ~ 108/12/08	Hazard ratio	
14	108/12/09 ~ 108/12/15	Checking the PH assumption	
15	108/12/16 ~ 108/12/22	Observed versus expected plot	
16	108/12/23 ~ 108/12/29	Goodness of fit test	
17	108/12/30 ~ 109/01/05	Time-dependent covariate approach	
18	109/01/06 ~ 109/01/12	Final Exam Week (Date:109/1/3-109/1/9)	
Requirement	<p>1. Students will be required to present in class on the topics they are assigned to study. 2. Evaluation and grading criteria for the course: regular attendance; steady participation in class discussions; active in group-assignment participation.</p>		
Teaching Facility	Computer, Projector		
Textbooks and Teaching Materials	Survival Analysis, A Self-Learning Text, 2nd ed., Kleinbaum & Klein (2005), Springer		
References	Survival Analysis: Techniques for censored and truncated data, Klein & Moeschberger (2003), Springer		
Number of Assignment(s)	(Filled in by assignment instructor only)		
Grading Policy	<p>◆ Attendance : 40.0 % ◆ Mark of Usual : 40.0 % ◆ Midterm Exam : % ◆ Final Exam : % ◆ Other < Reports/Presentation > : 20.0 %</p>		
Note	<p>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 .</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>		