

Syllabus: STAT 5360.01 Special Topics in Statistics (Survival Analysis), Fall -2017

Instructor:	Ram C. Kaffle, Ph.D.
Contact:	rck020@shsu.edu, (936-294-3925)
Class Hours:	MWF 10:00 AM - 10:50 AM in LDB 407
Office Hours:	MW 8:00 AM - 10:00 AM, Friday 11:00 AM-1:00 PM in LDB 439F or by appointment

Textbook and Materials:

Survival Analysis: Techniques for Censored and Truncated Data by John P. Klein and Melvin L. Moeschberger, ISBN 038794829 5, Springer.

References:

- Applied Survival Analysis: Regression Modeling of Time to Event Data, 2nd Edition by David W. Hosmer, Jr., Stanley Lemeshow, Susanne May.
- The Statistical Analysis of Failure Time Data (2nd Edition) by John D. Kalbfleisch and Ross L. Prentice (Wiley Series in Probability and Statistics, 2002)
- Survival Analysis Using SAS: A Practical Guide, 2nd edition by Paul D. Allison (SAS Press, 2012).
- Survival Analysis Using S: Analysis of Time-to-Event Data (Chapman & Hall/CRC Texts in Statistical Science) 1st Edition by Mara Tableman and Jong Sung Kim

Course Objectives:

Survival Analysis is a branch of Statistics that deals about the analysis of time-to-event data. The main objective of this course is to provide students the fundamental concepts, models, methods, theories and applications of Survival Analysis. Students will develop basic skills to solve problems in survival analysis. We focus in the design and analysis of cohort and case-control studies. We use different available statistical software (mostly R and SAS) to fit the different survival models and analyze the data.

Course Description:

Topics include introduction to Survival Analysis and time-to-event data (notation, censoring, and truncation), survival and hazard functions, parametric methods (common parametric models, likelihood theory), nonparametric methods for one sample estimation (Product-limit Estimator, Nelson Cumulative Hazard Estimator), and Two Sample Tests (Logrank Test, Weighted Tests, Stratified Tests, Tests for Trend), Semiparametric Proportional Hazards Regression (fixed covariates, time-dependent covariates, Stratified Proportional Hazards Models), Additive Hazards Regression Models, Regression Diagnostics, and Inference for Parametric Regression Models.

Homework:

Homework problems offer practices for applying course materials and it is an effective way for mastering the course materials. Homework from text and homework based on statistical software will be assigned for each chapter. Some additional homework problems may be assigned during the lecture based on the content of the course materials. Only selected problems will be graded for credits. Late homework will not be entertained.

Quizzes:

Quizzes are given at the beginning of the quiz day for about 15-20 minutes. All quizzes will be closed book and closed notes. There will be no make-up quizzes. Please refer to the academic calendar given at the last page of this syllabus for tentative quiz dates.

Exams:

There will be one midterm exam. Please refer to the academic calendar given at the last page of this syllabus for tentative exam date.

Project:

Project topics will be given during the mid semester. Each student will be assigned one topic and the student will be working on that with a real world problem. The project will be graded based on the statistical analysis, clarity in reporting, and presentation. The detail descriptions of the project will be posted in Blackboard during the mid-semester.

Grading Policy:

Homework	25 %
Quizzes	25 %
Midterm	30 %
Project	20 %
Total	100 %

Grading Scale:

90% or above	A
80%-89%	B
70%-79%	C
60%-69%	D
Below 60%	F

Important Dates:

Semester	Aug 23- Dec 01
Final Exam Week	Dec 04- Dec 07
Holiday (No classes)	Sept 04,
Last day to drop Full Term Courses without Q and 100% refunds	Sept 11
Last day to drop Full Term course with Q	Nov 10
Thanksgiving holidays	November 22 -24

Attendance:

Attendance at class meeting is essential to academic success. Full time attendance to every class is strongly recommended. You are responsible to cover or collect the course materials for any class you missed.

Make up Exam Policy:

Make-up exams will only be given for excused absences. Reasons for excused absences include documented illness, deaths in the immediate family and other documented crises, call to active military duty, court-imposed legal obligations (e.g., jury duty and subpoenas), religious days, special requirements of other courses and university sponsored events (e.g., performances, games/meets, judging trips, field trips), and severe weather conditions. Students must notify their instructors in writing of scheduled absences (for approved reasons as noted above) at the beginning of each academic term. Pointing out specific conflicts with scheduled examinations or other scheduled assignments/activities should be part of this notification. In the event of an emergency unscheduled absence (as described above), students must contact their instructors as soon as possible and provide documentation.

Academic Dishonesty:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. The university policy and procedures in case of alleged academic dishonesty is explained in Academic Policy Statement 810213:

<http://www.shsu.edu/dotAsset/728eec25-f780-4dcf-932c-03d68cade002.pdf>

Incomplete Grade Policy:

An "X" grade indicates incomplete coursework and may be awarded students. See full policy at <http://www.shsu.edu/gradcat/scholasticrequirements.html>

Student Disability Policy:

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be

developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. See the university policy at:

<http://www.shsu.edu/dotAsset/7ff819c3-39f3-491d-b688-db5a330ced92.pdf>

Religious Holidays:

University policy states that a student who is absent from class for the observance of a religious holiday must be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. Students must be excused to travel for observance of a religious holiday. A student who wishes to be excused for a religious holy day must present the instructor with a written statement describing concerning the holy day(s) and the travel involved. The instructor should provide the student with a written description of the deadline for the completion of missed exams or assignments. See the university policy for religious holidays at:

<http://www.shsu.edu/dotAsset/0953c7d0-7c04-4b29-a3fc-3bf0738e87d8.pdf>

Academic Policy Manual:

For a complete listing of the university policy, see

<http://www.shsu.edu/dept/academic-affairs/aps/aps-students.html>

Academic Calendar:

	August	September	October	November	December
Mon			2		
Tue					
Wed			4	1	
Thur					
Fri		1	6	3	1 (Presentation)
Mon		4(Holiday)	9	6	
Tue					
Wed		6	11	8	
Thur					
Fri		8	13 (Quiz)	10	
Mon		11 (Quiz)	16	13 (Quiz)	
Tue					
Wed		13	18	15	
Thur					
Fri		15	20	17	
Mon		18	23 (Midterm)	20	
Tue					
Wed	23	20	25	Thanksgiving Break	
Thur					
Fri	25	22	27		
Mon	28	25 (Quiz)	30	27	
Tue					
Wed	30	27		29	
Fri		29			