Course Specification
— (Bachelor)

Course Title:	**Survival Analysis**
Course Code:	**STS 333**
Program:	**Applied Statistics & Data Management**
Department:	**Mathematics**
College:	**College of Science**
Institution:	**Majmaah University, Saudi Arabia**
Version:	**2023**
Last Revision Date:	18/09/2023

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (.........)
3 (2+2)

2. Course type

A.	□University	□College	☒Department	□Track	Others
B.	☒Required			□Elective	

3. Level/year at which this course is offered: (6)

4. Course general Description:

Description of survival distributions - survival and hazard function - their relationship - Problems of inference - Estimation and comparison of survival curves (Kaplan-Meier and life-table estimates - ...) - Estimation under complete and censored data (type I - type II - progressive - ...). Hypothesis testing - Life testing - Parametric regression models - Cox proportional models.

5. Pre-requirements for this course (if any):

- Introduction to Statistical Inference-STS322
- Linear models-STS311

6. Co-requisites for this course (if any):

N/A

7. Course Main Objective(s):

- Compute and interpret a hazard ratio.
- Interpret coefficients in Cox proportional hazards regression analysis.
- Graph survival data, and the Kaplan – Meier curve.
- Specify and fit the Cox Proportional Hazards model.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	50 %
2	E-learning		
3	Hybrid • Traditional classroom • E-learning	30	50 %
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	
3.	**Field**	
4.	**Tutorial**	30
5.	**Others (specify)**	
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Define the definite integration, fundamental theorem of calculus, mean value theorem, area under a curve.	K1	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning	. Homework · Quiz · Midterms · Final Exams
1.2	The students will explain and interpret a general knowledge of important mathematical concepts.			
...				
2.0	**Skills**			

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.1	Enable students to analyses the mathematical problems.	S1	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning	. Homework · Quiz · Midterms · Final Exams
2.2	Acquiring skill in the use of various methods of integration.	S1	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning	. Homework · Quiz · Midterms · Final Exams
...				
3.0	**Values, autonomy, and responsibility**			
3.1	State the physical problems by mathematical method.	V4	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning	. Homework · Quiz · Midterms · Final Exams
3.2	Suggest the appropriate tool	V4	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning	. Homework · Quiz · Midterms · Final Exams
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Survival Data	6
2.	their relationship Survival and hazard function	6
3.	Problems of inference	12
4.	Estimation and comparison of survival curves	6
5.	Estimation under complete and censored data	6

6.	Hypothesis testing	12
7.	Life testing	6
8.	Parametric regression models	6

Total		**60**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Midterm1	6	15
2.	Midterm1	12	15
3.	Homework	Through of semester	5
4.	Project -Presentation	15	10
5.	Quizzes	Through of semester	10
6.	E-Tests	14	5
7.	Final Examination	16	40
...	TOTAL		100

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Survival Analysis: A Practical Approach, 2nd Edition David Machin, Yin Bun Cheung, Mahesh Parmar ISBN: 978-0-470-87040-2 May 2006 278 Pages
Supportive References	Survival Analysis: A Practical Approach
Electronic Materials	https://archive.org/details/survivalanalysis0000parm
Other Learning Materials	Survival Analysis: A Practical Approach, 2nd Edition David Machin, Yin Bun Cheung, Mahesh Parmar ISBN: 978-0-470-87040-2 May 2006 278 Pages

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom.
Technology equipment (projector, smart board, software)	Smart Board, Projector.
Other equipment (depending on the nature of the specialty)	Laboratory.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students assessment	Peer Reviewer	Direct
Quality of learning resources	Faculty	Direct
The extent to which CLOs have been achieved	Peer Reviewer	Direct
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	