



Course Specification

— (Bachelor)

Course Title: **Statistical Methods**

Course Code: **STS132**

Program: **Applied Statistics & Data Management**

Department: **Mathematics**

College: **College of Science**

Institution: **Majmaah University, Saudi Arabia**

Version: **2023**

Last Revision Date: **19/09/2023**



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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: 3rd Level 2nd Year

4. Course general Description:

Some Statistical distributions - Sampling distributions - Central limit theorem - Chebychev's inequality - Interval estimation - Testing hypotheses (two populations case) - Introduction to experimental designs (CRD and RBD)- Analysis of variance (one and two ways) - Regression (simple) - Correlation (Pearson and Spearman) - Chi square tests and application - Some nonparametric tests.

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

STS 121 Introduction of Statistics

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

7. Course Main Objective(s):

1. Students should be familiar with the terminology and special notation of statistical analysis.
2. Students should learn how statistical techniques fit into the general process of science.

2. Teaching mode (mark all that apply)

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



No	Mode of Instruction	Contact Hours	Percentage
	<ul style="list-style-type: none"> Traditional classroom E-learning 		
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	Apply mathematical and statistical formulate method Some Statistical distributions-Sampling distributions - Central limit theorem - Chebychev's inequality - Interval estimation - Testing hypotheses	K1	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning	<ul style="list-style-type: none"> Homework Quiz Midterms Final Exams
1.2	Appropriate Commuting interpretation of statistical and scientific terms Introduction to experimental designs (CRD and RBD).	K3	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning.	<ul style="list-style-type: none"> Homework Quiz Midterms Final Exams



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	Apply the notion of Regression and correlation (Pearson and Spearman) to solve some statistical problem.			
2.0	Skills			
2.1	Apply numerical methods principles to formulate models and systems relevant to computer sciences Regression (simple) - Correlation (Pearson and Spearman) - Chi square tests and application - Some nonparametric tests.	S2	Direct teaching: Lectures Aimed teaching: Discovery and oral questions Indirect teaching: Cooperative Learning.	<ul style="list-style-type: none"> · Homework · Quiz · Midterms · Final Exams
3.0	Values, autonomy, and responsibility			

C. Course Content

No	List of Topics	Contact Hours
1.	Some Statistical distributions - Sampling distributions.	6
2.	Central limit theorem.	6
3.	Chebychev's inequality - Interval estimation.	6
4.	Testing hypotheses (two populations case).	6
5.	Introduction to experimental designs (CRD and RBD).	6
6.	Analysis of variance (one and two ways).	6
7.	Regression (simple).	6
8.	Correlation (Pearson and Spearman).	6
9.	Chi square tests and application.	6
10.	Some nonparametric tests.	6
Total		60



D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	Week 4 and Week 9	10%
2.	Assignments/Exercises	Every Week	10%
3.	Mid Term Exam 1	Week 6	15%
4.	Mid Term Exam 2	Week 12	15%
5.	Final Exam	Week 16	40%
6.	E-exam	Week 14	10%

*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	Probability & Statistics for Engineers & Scientists.
Supportive References	Probability & Statistics for Engineers & Scientists Walpole, R. H. Myers, S. L. Myers and K. Ye. Eighth Edition 2005.
Electronic Materials	https://faculty.ksu.edu.sa/sites/default/files/probability_and_statistics_for_engineering_and_the_sciences.pdf
Other Learning Materials	

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		



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

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

