



Course Specifications

Course Title:	Statistical Methods
Course Code:	105 STAT
Program:	Statistics
Department:	Statistics and Operations Research
College:	Science
Institution:	King Saud University

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A. Course Identification

1. Credit hours:
2. Course type
a. University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 4 / Year 2
4. Pre-requisites for this course (if any): STAT 100
5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	45
2	Laboratory/Studio	0
3	Tutorial	30
4	Others (specify)	0
	Total	75

B. Course Objectives and Learning Outcomes

1. Course Description

Statistical Methods is a course in statistics designed to provide students with the basic concepts of data analysis and statistical computing. Topics covered include sampling distributions, estimation, hypothesis testing, analysis of variance, correlation, regression, chi-square tests and introduction to nonparametric methods.

2. Course Main Objective

By the end of this course, student will be able to:

1. Understanding the concepts of the statistical inference and applications to real data.
2. Estimating the unknown parameters of the population.
3. Formulating and testing the statistical hypothesis.

4. Running the statistical tests based on a given sample and calculates the statistical measures of the sample.
5. Understand the concepts of one- and two-way analysis of variance.
6. Understand the concepts of correlation and regression.

Preparing and writing the statistical reports.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Knowledge of basic principles of the statistical data analysis.	
1.2	Memorizing statistical methods and techniques of sampling distributions.	
1.3	Implement the suitable statistical methods of the available data.	
1...	Explain the meaning of statistical inference, analysis of variance, correlation and regression.	
2	Skills :	
2.1	Ability to the capability of choosing the appropriate statistical method for a particular application	
2.2	Formulate significant research questions, analyze data and interpret the results.	
2.3	Read, evaluate, and interpret numerical, statistical and general scientific information.	
3	Values:	
3.1	Ability to write professional statistical report.	
3.2	Using statistical packages.	

C. Course Content

No	List of Topics	Contact Hours
1	Some discrete distributions: Binomial, Hyper geometric, Poisson, Uniform, Some continuous distributions: Normal, t, Chi squares, F, Probabilities, tables, Critical points.	6
2	Central limit theorem and sampling distribution of means, proportion, variance one & two populations.	9
3	Estimation: Point and interval estimation for mean, proportion, variance (one and two populations).	9
4	Hypothesis testing.	9
5	Chi-square tests.	9
6	Analysis of variance.	9
7	Analysis of correlation and regression.	6
8	Nonparametric methods.	3
Total		60

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Knowledge of basic principles of the statistical data analysis.	Lecture	Written Exam
1.2	Memorizing statistical methods and techniques of sampling distributions.	Lecture	Written Exam
1.3	Implement the suitable statistical methods of the available data.	Lecture	Written Exam
1.4	Explain the meaning of statistical inference, analysis of variance, correlation and regression.	Lecture	Written Exam
2.0	Skills		
2.1	Ability to the capability of choosing the appropriate statistical method for a particular application	Lecture	Written Exam
2.2	Formulate significant research questions, analyze data and interpret the results.	Lecture	Written Exam
2.3	Read, evaluate, and interpret numerical, statistical and general scientific information.	Lecture	Written Exam
3.0	Values		
3.1	Ability to write professional statistical report.	Lecture	Written Exam
3.2	Using statistical packages.	Lecture	Written Exam

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First Midterm Exam	9	30 %
2	Second Midterm Exam	12	30 %
3	Final Exam	16	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

For at least two hours a week, faculty and teaching staff are available to provide student consultations and academic advice.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Devore, L.J. (2007). Probability and Statistics for Engineering and the Sciences, Duxbury Press.
Essential References Materials	Freund, R.J. and Wilson, W.J. (2003). Statistical Methods, Academic Press, New York.
Electronic Materials	Web sites dedicated to statistical methods available on the internet
Other Learning Materials	Power point presentations and other handouts posted on the course web site.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom
Technology Resources (AV, data show, Smart Board, software, etc.)	Statistical Packages
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching	Students	Indirect (Survey)
Quality of learning resources	Students	Indirect (Survey)
Achievement of course learning outcomes	Faculty	Direct (Written exam)
Effectiveness of teaching	Students	Indirect (Survey)

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

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

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Course instructor/ Dr. Mohamed Abdelkader
Reference No.	
Date	03/05/2021