



Course Specifications

Course Title:	Statistical Packages	
Course Code:	STAT 328	
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:
4. Pre-requisites for this course (if any): MATH 244
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	30
2	Laboratory/Studio	30
3	Tutorial	
4	Others (specify)	
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description

Using the statistical tools and the program codes in the statistical software packages, including Excel, Minitab, SPSS and R. Topics include creating and managing data files, graphical presentation – summary statistics, hypotheses testing, regression and correlation analysis, ANOVA.

2. Course Main Objective

Students after completing the course will have:

- To familiarize students with basic Statistical packages such as EXCEL, MINITAB, SPSS and R.
- To illustrate the importance of the Statistical packages and how to use it to calculate several statistical computations.
- To study the properties of each package, show the statistical tools and the differences between them.

To illustrate how to use each package for analyzing different data sets and explain how can interpret the results and write the statistical reports

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	How to analyze quantitative and qualitative data.	K1
1.2	The use of statistical packages in data analysis.	K2
1.3	How to use statistical packages to write simple programs to be used to solve some statistical and mathematical problems such as the average mean and average variance of means of several groups of data.	K3
1.4	How to generate random sample from different statistical distributions.	K4
1.5	How to use continuous distributions to compute integrals.	K5
1.6	How to use discrete distributions to compute sums and partial sums of numerical series.	K6
1.7	How to use statistical packages to deal with the mathematical manipulations of matrices.	K7
1.8	How students can compare different packages in describing a given set of data.	K8
1.9	How to use continuous distributions to compute integrals.	K9
2	Skills :	
2.1	Data management.	S1
2.2	Descriptive statistics, hypotheses testing, regression analysis, probability calculations, and writing the statistical reports	S2
2.3	To have understanding about the use of different techniques in the data analysis and their underlying assumptions under different situations.	S3
3	Values:	
3.1	Work independently and as part of team during the class and discussion outside the class.	C1
3.2	Participatory discussions in the class in order to develop their own views on some problems of interest and exchange of views.	C2
3.3	Developing the communication skills through writing comments, summarizing findings and participatory interpersonal sharing of knowledge	C3
3.4	Use the computer for analyzing and processing the real data.	C4

C. Course Content

No	List of Topics	Contact Hours
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1	Part I: Provide general concepts on the course and an overview of statistical programs.	4
2	Part I: Introduction to statistical analysis using excel. Part II: Some mathematical functions in Excel.	4
3	Part I: Statistical functions in excel. Part II: logical functions in excel.	4
4	Part I: Descriptive statistics using excel. Part II: Statistical tests using excel.	4
5	Part I: Correlation and regression using excel. Part II: Sampling and random number generation in excel.	4
6	Part I: Introduction to Minitab. Part II: Descriptive statistics using Minitab.	4
7	Part I: Statistical distributions in Minitab.	4
8	Part I: Statistical tests using Minitab. Part II: Correlation and regression using Minitab.	4
9	Part I: Introduction to SPSS.	4
10	Part I: Descriptive statistics using SPSS. Part II: Statistical tests using SPSS.	4
11	Part I: Correlation and regression using SPSS.	4
12	Part I: Introduction to R. Part II: Statistical and mathematical functions in R.	4
13	Part I: Descriptive statistics using R. Part II: Statistical distributions in R.	4
14	Part I: Statistical tests using R. Part II: Correlation and regression using R.	4
15	Part I: Applications, Programming and simulation.	4
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	How to analyze quantitative and qualitative data.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
1.2	The use of statistical packages in data analysis.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
1.3	How to use statistical packages to write simple programs to be used to solve some statistical and mathematical problems such as the average mean and average variance of means of several groups of data.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
1.4	How to generate random sample from different statistical distributions.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
1.5	How to use continuous distributions to compute integrals.	Lecture+ Laboratory/Studio	Project+ Exam+

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.6	How to use discrete distributions to compute sums and partial sums of numerical series.	Lecture+ Laboratory/Studio	Homework Project+ Exam+ Homework
1.7	How to use statistical packages to deal with the mathematical manipulations of matrices.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
1.8	How students can compare different packages in describing a given set of data.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
1.9	How to use continuous distributions to compute integrals.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
2.0	Skills		
2.1	Data management.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
2.2	Descriptive statistics, hypotheses testing, regression analysis, probability calculations, and writing the statistical reports	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
2.3	To have understanding about the use of different techniques in the data analysis and their underlying assumptions under different situations.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
2.4	Data management.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
3.0	Values		
3.1	Work independently and as part of team during the class and discussion outside the class.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
3.2	Participatory discussions in the class in order to develop their own views on some problems of interest and exchange of views.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
3.3	Developing the communication skills through writing comments, summarizing findings and participatory interpersonal sharing of knowledge	Lecture+ Laboratory/Studio	Project+ Exam+ Homework
3.4	Use the computer for analyzing and processing the real data.	Lecture+ Laboratory/Studio	Project+ Exam+ Homework

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	First Exam	7	30%
2	Project	15	10%
3	Homework	11	20%

#	Assessment task*	Week Due	Percentage of Total Assessment Score
4	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 five 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	<ol style="list-style-type: none"> 1. Minitab Guide, Second Edition Desmond J. Higham and Nicholas J. Higham A-Jin Publishing Company. Latest version 2. Excel 2010 guide to accompany understanding basic statistics sixth edition. 3. SPSS Guide to Data Analysis by Marija Nourse's. . Latest version. 4. Hector Guerrero. Excel Data Analysis: Modeling and Simulation, Springer. . Latest version. 5. SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS. Latest version. <p>Alain F. Zuur Elena N. Ieno Erik H.W.G. Meesters. A Beginner's Guide to R, Springer. Latest version.</p>
Essential References Materials	
Electronic Materials	Websites on the internet that are relevant to the topics of the course.
Other Learning Materials	Multi-media associated with the text book and the relevant websites

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Computer room containing at least 40 systems
Technology Resources (AV, data show, Smart Board, software, etc.)	Microsoft Office Excel 2016, Minitab, SPSS, and R Programs software
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 (Oral questions)
Quality of learning resources	Students	Indirect (Oral questions)
Achievement of course learning outcomes	Faculty	Direct (Written exams + Project)

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. Majdi Naji Ahmed Ramadan
Reference No.	
Date	1/5/2021 – 19/10/1442