



ATTACHMENT 5.

T6. COURSE SPECIFICATIONS

STATISTICAL PACKAGES

STAT 328



هيئة تقويم التعليم
Education Evaluation Commission

Course Specifications

Institution: King Saud University	Date: 10/2/2018
College/Department : College of Science / Department of Statistics and O. R.	

A. Course Identification and General Information

1. Course title and code: STATISTICAL PACKAGES (stat 328)			
2. Credit hours: 3(2+0+2)			
3. Program(s) in which the course is offered. Statistics and Operations Research			
4. Name of faculty member responsible for the course: Prof. Khalaf S. Sultan			
5. Level/year at which this course is offered: 4th Level (Statistics) , 4th (Operation Research) and 4th (Actuarial and Financial Mathematics) and Elective for Mathematic			
6. Pre-requisites for this course (if any): Stat 105 + CSC 111			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus:			
9. Mode of Instruction (mark all that apply):			
a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="66.7%"/>
b. blended (traditional and online)	<input type="checkbox"/>	What percentage?	<input type="text"/>
c. e-learning	<input checked="" type="checkbox"/>	What percentage?	<input type="text" value="33.3%"/>
d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments: Teaching 2 hours' classroom and 2 hours' computer lab.			

B. Objectives

1. What is the main purpose for this course?

- 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

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- Electronic materials and computer based programs have been utilized to support the lecture course material.
- The course material was posted on the WebCT that could be accessed by the students enrolled in the course only.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

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 and Monte Carlo simulation.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
General introduction and Data file managements	1	4
statistical analysis using excel including, Mathematical, statistical and logical functions and descriptive statistics in excel, Hypotheses testing using Excel ANOVA, Correlation and regression.	2	8

Use the statistical package Minitab: How to use the commands in statistical data analysis, including, mathematical and statistical functions, descriptive statistics in excel, hypotheses testing, ANOVA, correlation, regression, chi square tests and simulated random variates from different statistical distributions.	4	16
Use procedures in SPSS package for qualitative and quantitative variables such as descriptive and frequency procedures. Also, some different statistical topics including, the statistical summary, cross tabulations, hypotheses testing, chi-square tests, ANOVA, correlation and regression	4	16
Introduction to R language, including the probability calculations, summary statistics, hypotheses testing, ANOVA, correlation and regression and programing commands in Mathematics, statistics, probability and simulation.	4	16

2. Course components (total contact hours and credits per semester):							
		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	Planned	30			30		60
	Actual	30			30		60
Credit	Planned	45			15		60
	Actual	45			15		60
3. Additional private study/learning hours expected for students per week.							4

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and

flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)			
Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	How to analyze quantitative and qualitative data.	In-class lecturing where the previous knowledge is linked to the current and future topics	class short quizzes
1.2	The use of statistical packages in data analysis.	Homework assignments	Major and final exams
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.	Tutorial discussions	Major and final exams
1.4	How to generate random sample from different statistical distributions.	Homework assignments	Major and final exams
1.5	How to use continuous distributions to compute integrals.	Homework assignments	Major and final exams
1.6	How to use discrete distributions to compute sums and partial sums of numerical series.	Homework assignments	Major and final exams
1.7	How to use statistical packages to deal with the mathematical manipulations of matrices.	Homework assignments	Major and final exams
1.8	How students can compare different packages in describing a given set of data.	Homework assignments	Major and final exams
2.0	Cognitive Skills		
2.1	Data management.	Assignments	Questions and answers and problem solving in the class
2.2	Descriptive statistics, hypotheses testing, regression analysis, probability calculations, and writing the statistical reports	Problem solving in the class	Midterm and Final Examinations

2.3	To have understanding about the use of different techniques in the data analysis and their underlying assumptions under different situations.	Discussion on real life problems with specific strategies	Assignments
3.0	Interpersonal Skills & Responsibility		
3.1	Work independently and as part of team during the class and discussion outside the class.	Discussion on the key issues of data analysis using different software, comparisons and limitations of the different packages.	Grading homework assignments
3.2	Participatory discussions in the class in order to develop their own views on some problems of interest and exchange of views.	Sharing and exchanging of views during on key features to increase the level of understanding	Discussion on the problems and comments from other students
3.3	Developing the communication skills through writing comments, summarizing findings and participatory interpersonal sharing of knowledge	Providing practical examples and solving relevant problems through participatory approach and projects	Grading the projects
4.0	Communication, Information Technology, Numerical		
4.1	Use the computer for analyzing and processing the real data	Incorporating the use and utilization of computer in the course requirements through some assignments	Grading homework assignments
4.2	Use computational tools	Projects	Grading the projects
5.0	Psychomotor		
5.1	Not applicable	Not applicable	Not applicable

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Class activates (in class quizzes, and homework)	weekly	12%

2	Major exams I	6	24%
3	Major exams II	12	24%
4	Final exam	16	40%

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- Office hours 3 hr/ week
- Help through emails/discussions/consultations

E Learning Resources

1. List Required Textbooks

1. Isaac Newton, (2014). *Minitab Cookbook*, Packt Publishing.
2. Sabine Landau and Brian S. Everitt (2004). *A handbook of statistical analyses using SPSS*, CHAPMAN & HALL/CRC.
3. Hector Guerrero (2010). *Excel Data Analysis: Modeling and Simulation*, Springer .
4. Alain F. Zuur Elena N., Ieno Erik and H.W.G. Meesters (2009). *A Beginner's Guide to R*, Springer.

2. List Essential References Materials (Journals, Reports, etc.)

- 1- Rudolf Freund William Wilson, *Statistical Methods*, Latest version
- 2- Walpole, R. E.; Myers, R. H. and Myers, S. L , *Probability and Statistics for Engineers and Scientists*, (Latest Edition), Prentice Hall.

3. List Electronic Materials, Web Sites, Facebook, Twitter, etc.

- Websites on the internet that are relevant to the topics of the course
- Online help in R
- Online Excel help

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

- Multi-media associated with the text book and the relevant websites

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access, etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) <ul style="list-style-type: none"> • Computer room containing at least 40 systems
2. Technology resources (AV, data show, Smart Board, software, etc.) <ul style="list-style-type: none"> • Data show • Smart Board • Statistical packages MINITAB, SPSS, SPSS and R.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching <ul style="list-style-type: none"> • Course evaluation by student • Students- faculty meetings
2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department <ul style="list-style-type: none"> • Peer consultation on teaching • Departmental council discussions • Discussions within the group of faculty teaching the course
3. Processes for Improvement of Teaching <ul style="list-style-type: none"> • Conducting workshops given by experts on the teaching and learning methodologies • Periodical departmental revisions of its methods of teaching • Monitoring of teaching activates by senior faculty members
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) <ul style="list-style-type: none"> • Providing samples of all kind of assessment in the departmental course portfolio of each course • Assigning group of faculty members teaching the same course to grade same questions for various students. Faculty from other institutions are invited to review the accuracy of the grading policy

- Conducting standard exams such as the American Mathematical Society exams or others

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- The course material and learning outcomes are periodically reviewed and the changes to be taken are approved in the departmental and higher councils.
- The head of department and faculty take the responsibility of implementing the proposed changes.

Name of Course Instructor: __Prof. Khalaf Sultan_____

Signature: Khalaf Sultan Date Specification Completed: 10/2/2018

Program Coordinator: _____

Signature: _____ Date Received: _____