هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد
NCAAA

2024
TP-153

Course Specification
(Bachelor)

Course Title:	**Statistical Software**
Course Code:	**STA 1241**
Program:	**Bachelor of Science in Applied Statistics**
Department:	**Mathematics and Statistics**
College:	**Science**
Institution:	**Imam Mohammad Ibn Saud Islamic University**
Version:	**2024 – V1**
Last Revision Date:	**None**

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A. General information about the course:

1. Course Identification

1. Credit hours:					
3 (1 Lectures, 2 Lab, 2 Tutorial)					
2. Course type					
A.	☐University	☐ College	☒ Program	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: Level 4 / Year2					
4. Course general Description:					
Students need a statistical software program to work on their data. There are several software packages available for their use (Microsoft Excel, SPSS, SAS, MINITAB, S-Plus or R-GNU,...). This lecture is dedicated to learning how to know the different screens and setup of one of the previous statistical package, open files, view and explore data, create new variables, work with do-files, make simple tables and statistics, etc...					
5. Pre-requirements for this course (if any):					
STA 1102					
6. Co-requisites for this course (if any):					
None.					
7. Course Main Objective(s):					
By the end of this course, the students are expected to learn: • To navigate SPSS program. • How to Summarize numeric data by computing descriptive statistics (e.g., mean, variance) and by creating tables and graphs in SPSS. • How to analyze tables, graphs and other outputs generated by SPSS. • How to run different statistical tests including t-test, ANOVA, Chi-square, etc.					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	***Traditional classroom***	75	100%
2	***E-learning***	0	0%
3	***Hybrid*** • Traditional classroom • E-learning	0	0%
4	***Distance learning***	0	0%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	***Lectures***	15
2.	***Laboratory/Studio***	30
3.	***Field***	0
4.	***Tutorial***	30

5.	***Others (specify)***	**0**
Total		**75**

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	**To describe the appropriate software packages (IBM SPSS, R-project).**	**K1, K2**	**4 lecture hours per week**	**Direct:** Lab exam Assignements
1.2	**To define how to access information from a variety of data sources.**	**K1, K3**	**2 tutorial hours per week Self-study**	**Direct:** Lab exam Assignements
2.0	**Skills**			
2.1	**To combine, transform, and manipulate data sets.**	**S3**	**Self-study Real-life problems**	**Direct:** Participations Short Quizzes Lab exam
2.2	**To summarize and interpret information from small to very large data sets.**	**S3**	**Real-life problems**	**Direct:** Short Quizzes Lab exam Mini project
2.3	**To create informative graphs.**	**S3**	**Self-study**	**Direct:** Participations Lab exam Mini project
2.4	**To analyze data using standard and advanced statistical techniques.**	**S3**	**Use of statistical software, Lecturing, Interactive learning.**	**Direct:** Lab Exam, Assignments, Practical exam
3.0	**Values, autonomy, and responsibility**			
3.1	**To employ ethical concepts and rules to determine viable alternatives in any given situation.**	**V1, V2**	**Personal questions**	**Direct:** Participations Lab exam Mini project
3.2	**To show findings and discuss the results with others.**	**V1, V2**	**Teamwork and class discussions.**	**Direct:** Homework and Mini projects

C. Course Content

No	List of Topics	Contact Hours
1.	**The Nature of SPSS**: Getting Started with SPSS for Windows. Managing Data and Files. Transforming Variables and Data Files. Missing Values. Examining and Printing Output. Using SPSS Syntax.	**12**
2.	**Summarizing Data**: Summarizing Data Graphically. Measures of Central Tendency. Measures of Variability. Box-and-Whisker Plots. Standard Scores.	**12**

No	List of Topics	Contact Hours
3.	**Summarizing Multivariate Data**: Association Between Numerical Variables. Association Between Categorical Variables.	**12**
4.	**Probability and Sampling Distributions**: Probability in Terms of Equally Likely Cases. Random Sampling; Random Numbers. Family of Standard Normal **Distributions, Finding Probability for a Given *z*-Value**. Finding a *z*-Value for a Given Probability, Sampling from a Population, Sampling Distribution of a Sum and of a Mean, The Normal Distribution of Sample Means, The Central Limit Theorem.	**12**
5	**Inferential Statistics**: An Interval of Plausible Values for a Mean. Testing a Hypothesis About a Mean, Conducting the Hypothesis Test, Testing Hypotheses About a Proportion. Paired Measurements. Comparison of Two Independent Means, Tests of Goodness of Fit, Chi-Square Tests of Independence, Measures of Association .	**14**
6	**Regression Analysis and Analysis of Variance**: Regression Analysis, One-Way Analysis of Variance.	**13**
Total		**75**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	**HomeWorks, Quizzes, Mini projects**	**During the term**	**10%**
2.	**First Midterm (LAB)**	**Week 5-6**	**25%**
3.	**Second Midterm (LAB)**	**Week 10-11**	**25%**
4.	**Final Exam**	**Week 16-17**	**40%**

*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	1. ***Using SPSS For Windows Data Analysis and Graphics***, 2nd Edition, Susan B. Gerber, Kristin Voelkl Finn, Springer Verlag, 2005. **(Main Reference) ISBN-13: 978-0387-40083-9** 2. ***An Introduction to Statistical Methods and Data Analysis***, 5th Edition, R. Lyman Ott, Michael Longnecker, Duxbury Press, 2001. ISBN-13: 9780534251222.
Supportive References	3. ***Discovering Statistics Using IBM SPSS Statistics***, 4th Edition, Andy Field, SAGE, 2013. 4. ***SPSS for Starters***, Ton J. Cleophas, Aeilko H. Zwinderman, Springer Verlag, 2010. 5. ***Doing Data Analysis with MINITAB™ 14***, 2nd Edition, Robert H. Carver Duxbury Press, 2004. 6. ***Applied Statistics and the SAS Programming Language***, 5th Edition, R. Cody, J. K. Smith, Prentice Hall, 2006.

	7. ***Statistics and Probability for Engineering Applications: With Microsoft Excel***, William J. Decoursey, Newnes, 2003.
Electronic Materials	**None**
Other Learning Materials	**None**

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	▪ **Each class room should be equipped with a whiteboard and a projector.** ▪ **Laboratories should be equipped with computers and an internet connection.**
Technology equipment (projector, smart board, software)	▪ **The rooms should be equipped with data show and Smart Board.** ▪ **All computers should be equipped with the following software:** ▪ **Microsoft Excel** ▪ **IBM SPSS** ▪ **R-Project** ▪ **MATLAB**
Other equipment (depending on the nature of the specialty)	**See the Attached File**

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	**Student and teaching staff**	**Surveys and Questionnaires**
Effectiveness of Students assessment	**Course Coordinator**	**Peer Reviews**
Quality of learning resources	**Students and teaching staff**	**Classroom Observations**
The extent to which CLOs have been achieved	**Student Representatives**	**Student Performance Evaluations (exams, projects)** **CLOs Excel sheet.**
Other	**None**	

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**MATHEMATICS AND STATISTICS DEPARTMENT COUNCIL**

REFERENCE NO.	8/1446
DATE	(08/10/2024) 05/04/1446