

Ministry of Higher Education and Scientific research



Department of Statistics and Information

College of Administration and Economics.

University of ... Salahaddin.

Subject: SPSS Programm

Course Book : Four Stage

Lecturer's name: Esraa Awni Haydier

Academic Year: 2023– 2024 (First Semester )

# Course Book

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| 1. Course name   | SPSS program   |
| 2. Lecturer in charge  | ESRAA AWNI HAYDIER   |
| 3. Department/ College   | Department of statistics and information / College of Administration and Economics.  |
| 4. Contact   | E-mail: esraa.haydier@Su.edu.krd<br>Tel: 075044942027  |
| 5. Time (in hours) per week  | For example Theory: 4 hours<br>Practical: 2  |
| 6. Office hours  | 6 hours per week   |
| 7. Course code   |  |
| 8. Teacher's academic profile  | I graduated from Saladdin university-Erbil in 2005 in College of Administration & Economics ,Statistics department. I have earned master's degree in applied Statistics in 2013, and I start as assistant lecturer teaching in Statistics department till now, I have been teaching in Statistics Department at Salahaddin University since 2013. I have taught (Principle of Statistics, Computer Applications(Matlab program)) |
| 9. Keywords  | Data entry , data analysis (central tendency , variation measurement , T tests , chi square )  |
| <p>10. Course overview:</p> <p>Statistics is an enjoyable and useful subject. Every time you open a website, read a newspaper article, or listen to a news report, you can find examples of statistics in your everyday life.</p> <p>From this perspective, the application of statistical methods on computers (data analysis) becomes a critical and advanced tool for performing the necessary statistical analyses required to interpret and thoroughly analyze research data. The significance of statistics is especially apparent in the applied sciences, particularly in the field of scientific research, where it plays a pivotal role. In fact, statistics is of great importance in a wide variety of fields, including economic, medical, and social research, making it an indispensable component of many studies.</p> |  |
| <p>11. Course objective:</p> <p>The main goal of this course is to explore the essential principles of statistical analysis. This can be outlined in the following objectives:</p> <ol style="list-style-type: none"> <li>1. Give students with the skills to gather relevant data for their research and to design effective questionnaire forms.</li> <li>2. Teach students how to manage data, define variables, and accurately input data.</li> <li>3. Provide instruction on how to transform and prepare data for statistical analysis.</li> <li>4. Guide students in the techniques of data analysis.</li> </ol>  |  |

5. Develop students' comprehension of how to analyze and explain statistical outputs.

## 12. Student's obligation

It is expected of students to:

- Comply with university policies when completing quizzes and exams, as well as in class and the lab.
- Bring school supplies.
- Ensure you bring a laptop and scientific calculator to class.
- Arrive to class promptly!
- The student need to take pride in the job they accomplish in this class. Don't give quiz or test answers to anyone, and don't let anybody else copy your assignments. In the event that this happens, a referral will be made and credit will be forfeited.

## 13. Forms of teaching

The course objectives will be accomplished through a variety of instructional strategies, including power point presentations for the headings, definitions, and conclusion summaries, material classification, and any additional illustrations. There will be discussions in class, and the lecture will provide sufficient background information for result translation, analysis, and interpretation.

## 14. Assessment scheme

Students are required to complete at least four closed-book exams, encompassing both theoretical and practical aspects, during the academic year. The distribution of grades will be as follows:

- **Homework and Classroom Activities:** 10%
- **Theoretical and Practical Exams:** 30% (15% for each component)
- **Final Exam:** 60% (35% for the theoretical section and 25% for the practical section)

As a result, the final grade will be based on these criteria.

## 15. Student learning outcome:

During their BSc studies, students who take this course will have great opportunities for part-time work as data collectors, data entry clerks, and data analysts in various organizations. It's important to cover all the topics in this course because without it, students may struggle with future subjects.

This course will help students understand the principles of statistics and how to apply statistical methods in real life. Essentially, they will learn to effectively work with any data they receive.

## 16. Course Reading List and References:

1. Perry, Brownlow, McMurray & Bob Cozens (2005):" Explained SPSS"

This edition published in the Taylor and Francis e-Library, USA.

2. Sheridan J. Coakes (2014) "SPSS Version 20.0 for Windows :Analysis without Anguish with SPSS V20" Willy, ISBN: 978-1-118-33776-9. 296 pages.UK.

1- التحليل الإحصائي الأساسي باستخدام SPSS , د.محفوظ جودة , جامعة العلوم التطبيقية , الطبعة الأولى , 2008

|  |  |                                   |
|--|--|-----------------------------------|
| <b>17. The Topics:</b>   |  | <b>Lecturer's name:</b>           |
|  |  | Esraa Awni Haydier<br>ex: (6 hrs) |
| <b>Week 1</b>  | <b>Introduction to SPSS and review</b> <ul style="list-style-type: none"> <li>• Overview of SPSS and its applications</li> <li>• Importance of statistical analysis in research</li> </ul>   |                                   |
| <b>Week 2</b>  | <b>Getting Started with SPSS</b> <ul style="list-style-type: none"> <li>• Navigating the SPSS interface</li> <li>• Understanding data files: .sav, .por, and .csv formats</li> </ul>   |                                   |
| <b>Week 3</b>  | <b>Data Management</b> <ul style="list-style-type: none"> <li>• Data entry and editing</li> <li>• Defining variables: types, labels, and values</li> <li>• Handling missing data</li> <li>• Recoding variables and creating new variables</li> </ul> |                                   |
| <b>Week 4</b>  | <b>Storing and retrieving data files</b>   |                                   |
| <b>Week 5</b>  | <b>Description of data Methods of analysis and questionnaire</b>   |                                   |
| <b>Week 6</b>  | <b>Split file- Merge Files-select case-weighted case</b>   |                                   |
| <b>Week 7</b>  | <b>Define multiple response set and other submenus</b>   |                                   |
| <b>Week 8</b>  | <b>Transformations menu (Compute variable-Recode- Visual binning....etc.)</b>  |                                   |
| <b>Week 9</b>  | <b>Applied Statistics using SPSS (Freq.-descriptive statistics</b>   |                                   |
| <b>Week 10</b>   | <b>Explore , crosstab</b>  |                                   |
| <b>Week 11</b>   | <b>One sample T test and independent sample T test</b>   |                                   |
| <b>Week 12</b>   | <b>Paired and one way ANOVA</b>  |                                   |
| <b>18. Practical Topics (If there is any)</b>  |  |                                   |
| In this section, the lecturer will outline all the practical topics that will be addressed throughout the term. Each topic will include a short description of its objectives, as well as the date and time for the corresponding lecture. |  |                                   |
| <b>19. Examinations: Explain result</b>  |  |                                   |

**Statistical Analysis Questions with Answers**

**1. What is the purpose of descriptive statistics?**

- o *Answer:* The purpose of descriptive statistics is to summarize and present data in a way that helps to understand the main characteristics of the data set.

**2. When is a t-test used?**

- o *Answer:* A t-test is used when we want to compare the means of two independent groups to see if there is a significant difference between them.

**3. What is the benefit of ANOVA?**

- o *Answer:* ANOVA is useful when comparing the means of three or more groups to identify whether there are statistically significant differences.

**4. How is correlation used in research?**

- o *Answer:* Correlation is used to study the relationship between two variables, such as education level and income, to understand how they influence each other.

**5. What is regression, and why is it used?**

- o *Answer:* Regression is used to analyze the relationship between a dependent variable and one or more independent variables, helping predict values based on the data.

Q2\ IF we have the following data?

|        |        | Sport Preference |        |         |     |
|--------|--------|------------------|--------|---------|-----|
|        |        | Archery          | Boxing | Cycling |     |
| Gender | Female | 35               | 15     | 50      | 100 |
|        | Male   | 10               | 30     | 60      | 100 |
|        |        | 45               | 45     | 110     | 200 |

Required \ Find Chi-Square Analysis?

To report a chi-square output in an APA-style results section, always rely on the following template:

$\chi^2$  (degrees of freedom, N = sample size) = chi-square statistic value,  $p = p$  value .

**“The association is statistically significant,  $\chi^2(4) = 54.50, p = 0.000$ ”**

| Chi-Square Tests             |                     |    |                                   |
|------------------------------|---------------------|----|-----------------------------------|
|                              | Value               | df | Asymptotic Significance (2-sided) |
| Pearson Chi-Square           | 54.504 <sup>a</sup> | 4  | .000                              |
| Likelihood Ratio             | 59.758              | 4  | .000                              |
| Linear-by-Linear Association | 25.597              | 1  | .000                              |
| N of Valid Cases             | 183                 |    |                                   |

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.96. 1

In the case of the above example, the results would be written as follows:

A chi-square test of independence showed that there was a significant association between gender and post-graduation education plans,  $\chi^2(4, N = 101) = 54.50, p < .001$ .

20. Extra notes:

21. Peer review