Department of: Statistics and Informatic

College of: Administration and Economics

University of: University of Salahaddin-Erbil

Subject: Advance Statistics Computer Skill

Course Book : Doctoral Students (PhD)

Lecturer's name: Dr.Rizgar Maghded Ahmed

Academic Year: 2023-2024

Course Book

1. Course name	**Advance Statistics Computer Skill**
2. Lecturer in charge	Dr.Rizgar Maghded Ahmed
3. Department/ College	Statistics & Informatics /Adm. & Eco.
4. Contact	E-mail: **rizgar.ahmed@su.edu.krd**
5. Time (in hours) per week	Theory: 1 Practical: 1
6. Office hours	Monday from 11:30 AM to 1:30 PM
7. Course code	
8. Teacher's academic profile	
9. Keywords	Advanced Statistical Analysis, Advanced Hypothesis Testing, Multivariate Analysis, Time Series, Artificial Nural Network (ANN), Syntax Command

10. Teacher's academic profile:

 I graduated from Salahaddin university-Erbil in 1993 in College of Administration & Economics Statistics department. From 1993 until 2003 worked as Assistant Researcher in Statistics Department – Salahaddin University. I have earned master's degree in applied Statistics in 2005, and start as assistant lecturer teaching in Statistics department till now, and I finished my PhD degree in applied Statistics in 2012 In 2005. From 2012 till now I am working as a lecturer in Statistics Department – Salahaddin University. My main research areas lie in Multivariate Analysis, Digital image processing & principal component analysis. I have taught the following subject: ((Elementary of Statistics, SPSS, Probability, statistical survey, Computer Applications –SPSS- for post graduate students (MSc, PhD) in (Physical Education, Engineering & Basic Education college)), I am currently teaching SPSS (undergraduate & post graduate), statistical survey and doing researches as well.

-Experience of more than (20 years) in consulting and analysis of statistical data for scientific research.

-· Was Instructor more than (15) statistical training course on statistical program (SPSS) for public and private sector and from all scientific disciplines him (medical, legal, administrative, economic….)

11. Course objective:

This course aims to empower participants with a comprehensive understanding of advanced statistical methodologies while honing their practical skills in utilizing the Statistical Package for the Social Sciences (SPSS) software. The overarching objective is to equip participants with the proficiency required to conduct in-depth statistical analyses, interpret results effectively, and communicate findings adeptly.

12. Student's obligation

Students are expected to:
> ➢ Follow university policies when attending class and lab, and taking sudden quizzes and exams.
> ➢ Student should be proud of the work that he/she do in this class. Do not allow someone else to copy your homework and do not provide answers to quizzes or tests. If this does occur, credit will be lost and a referral will be written.

13. Forms of teaching

The focus will be on some forms of teaching such as classical teaching with PowerPoint presentations for the head titles, whiteboard, definitions and summary of conclusions, classification of materials and any other illustrations, solving the examples by sharing the students to get them will understand, and students should participate as much as possible in lecture's discussions.

14. Assessment scheme

The students are obliged to perform at least one closed book exam (Midterm Exam) during the academic semester. The exam has approximately 20%, besides homework, quizzes, classroom activities, and presentation as seminar about – 30%. The other 50% will be reserved for the final exam. Therefore, the final grade will be based upon the following criteria:

➢ Midterm Exam: 20%
➢ HW, quizzes, interactive activities: 30%
➢ Final Exam : 50%

15. Student learning outcome:

➢ Master SPSS Proficiency: Navigate and utilize SPSS tools confidently for data input, manipulation, and advanced statistical analyses.
➢ Apply Advanced Statistical Techniques: Effectively apply advanced statistical methods, including multiple regression, logistic regression, and factor analysis.
➢ Interpret and Communicate Findings: Interpret statistical output generated by SPSS and communicate findings clearly to diverse audiences.
➢ Practical Application Skills: Apply acquired knowledge to real-world datasets and engage in collaborative projects simulating research or professional scenarios.
➢ Variable Transformation and Automation: Transform variables effectively and utilize automation techniques in SPSS to enhance workflow efficiency.
➢ Syntax Command in SPSS.

These outcomes aim to equip students with practical skills, analytical proficiency, and the ability to effectively communicate statistical findings using the SPSS software.

16. Course Reading List and References:

1. Darren George & Paul Mallery(2022) "**IBM SPSS Statistics 27 Step by Step-A simple Guid and Reference**" - Taylor & Francis Group.
2. "Discovering Statistics Using IBM SPSS Statistics" by Andy Field.
3. Norušis, Marija. (2011). IBM SPSS Statistics 19 Advanced Statistical Procedures Companion. Upper Saddle River, NJ: Prentice.
4. "SPSS Survival Manual" by Julie Pallant.

17. The Topics of Advance Statistics Computer Skill:

		Lecturer's name
Topics	Date	
Introduction to Advanced Statistical Analysis:		Six hours a week Practical Hall
✓ Overview of SPSS and its interface ✓ Data import from various sources ✓ Data cleaning and pre-processing ✓ Variable transformations and recoding ✓ Overview of advanced statistical analysis concepts. ✓ Understanding the role of SPSS in advanced statistics.	(1+2) week	

✓ Data preparation and cleaning for advanced analysis	
Advanced Hypothesis Testing Entering and Modifying Data: 2-1	
✓ Hypothesis testing. ✓ Parametric & Non-parametric test. ✓ Multivariate Analysis of Variance (MANOVA) Analysis of Covariance (ANCOVA).	(3+4)
Regression Analysis: ✓ Multiple linear regression ✓ Logistic regression ✓ Ordinal regression	5
Multivariate Analysis: ✓ Factor analysis ✓ Cluster analysis ✓ Discriminant analysis ✓ Principal Component Analysis (PCA)	6+7
Customizing Output and Syntax: ✓ Customizing output tables and charts ✓ Writing and editing SPSS syntax-Matrix ✓ Automation using SPSS syntax	8-9
• **Time Series Analysis:** ✓ Time series data and concepts. ✓ ARIMA modelling in SPSS. Forecasting techniques.	10-11

Machine Learning: ✓ Artificial Nural Network (ANN) ✓ SVM	12-13	

18. Practical Topics (If there is any)	
SPSS+STATGRAPHICS+G*Powered Caluc	Practical Hall
19. Examinations:	
20. Extra notes:	
21. Peer review	