Ministry of Higher Education and Scientific

Department of International Relations

College of Political Science

Salahaddin University-Erbil

Subject: principle of statistics.

Course Book- 1st Year

Lecturer's name: Amira Wali Umer (MSc.)

Academic Year: 2023-2024

Ministry of Higher Education and Scientific

Course Book

1. Course name	**Principle of statistics**
2. Lecturer in charge	**Amira Wali Umer**
3. Department/ College	**International Relations / Political Science**
4. Contact	**e-mail: amira.omer@su.edu.krd** **Tel: (optional)**
5. Time (in hours) per week	**Theory: 4 hours** **Practices: 2 hours**
6. Office hours	**2 hours per week**
7. Course code	**PSIR2104**
8. Teacher's academic profile	Amira Wali Umer – Statistics teacher Statistics teacher work in college of Administration &Economics - Kurdistan region-Iraq, Erbil *Current*: Salahaddin University college of Administration &Economics, Statistics department. *Education*: M.Sc. in Statistics. *Summary*: In 2010 I obtained a master's degree in the Department of Statistics college of Administration and Economy, University of Sulaimany, I am working as an assistant lecture in the Department of Statistics. I am a native Kurdish speaker and graduate from Salahaddin who is working towards to rise Scientific title
9. Keywords	**elementary of statistics , central of tendency , dispersion , correlation , and regression**

10. Course overview:

Statistics is an attractive and useful subject, every time you open a website newspaper read and article or listen to a new report you can find examples of statistics in your everyday world. most students find elementary of statistics subject very interesting and are pleasantly surprised at how different it is from other courses

This course is designed primarily for first class student in order to have basic information about statistics, providing a good foundation for students intending to do further coursework and research involving the use of statistics analysis. There will be a heavy emphasis on applications of basic statistical concepts to a wide variety of problems encountered in many fields. The focus will be on understanding how to use and interpret the statistical procedures commonly used in quantitative and qualitative researches .the use of computer packages for

assisting in data analysis will be emphasized throughout the course if there will be enough time and the student's registration will start soon.students who have this course could find good works in real life even during the study period , because statistics and data are present in everywhere (institutions , organizations , factories ,
hospitals … etc)

11. Course objective:

The general purpose of this course is to study the basic concept of statistic in order to help student understand the value of statistics in acquiring knowledge, so that Preparing them with in depth learning principles of descriptive statistics and probability some statistical methods. After taking this course, students will be able to use basics statistical instruments, including statistical tables and charts to perform simple statistical analysis for small samples, solve simple probabilistic problems and they will be prepared studying statistical subjects in academic classes. Topics include displaying and describing definition of statistics. Levels of measurements, methods of sampling various charts types, measures of central tendency and dispersion. the normal distributions , techniques of counting , scatterplots , concepts of probability

12. Student's obligation

The student commitment the lecture times.

- Commitment to the rules of the class.
- Solve the homework of which was given.

13. Forms of teaching

A course with a large proportion of its teaching taking place in lectures will need to have a high level of essential interest to students to keep them engaged. There are a lot of talks about what is good teaching technique in academic circle, they often come out with different forms such as. Classical teaching with blackboard. Power point presentations for the head titles and definitions and summary of conclusions, classification of materials and any other illustrations, students will be asked to prepare reports on statistical topics and they should participate as much as possible in

Lectures discussions.

14. Assessment scheme

Allocation of degree examinations as follows: -

1) 40 degree of yearly seek (20 per exam)

The first course (15) degree to action examination

(5) degree to absences & conducting quiz.

The second course (15) degree to action examination

(5) degree to absences & conducting quiz.

2) 60 degree final exam (first round or the second)

16. Course Reading List and References:

1- Mashhadani, Dr. Mahmoud Hassan and Hormuz, Amerihna (Principles of Statistics), Press Higher Education, House of Wisdom, University of Baghdad, 1990

2- Hussein and Sardar Oussman (Benhamakani Zanesti Ihamar), Dakhbani Shehab, Huller, 2011.

3- Kirk, R. E.(2008):(An Introduction Statistics). 5th Edition, Thomson ,Baylor University, New York ,U.S.A.

4- Weiss,N. A.(2012):(Introdctory STATISTICS). 5th Edition,Pearson Education,Arizona State University, New York ,U.S.A.

5- Montgomery,D. C.(2003):(Applied Statistics and for Enginnering). 3th Edition,John Wiley & Sons,inc,Arizona State University, New York ,U.S.A.

6- Bluman , Allan G .Elementary statistics (A step by step approach), McGraw – Hill pub, 8th ed , 2012

17. The Topics:		Lecturer's name
	Subject	**Lecturer's name** Amira Wali Umer **3hours a week**
Week 1	• Introduction in Statistics • Definitions: Statistics • Types of statistics 1. Descriptive statistics 2. Inferential statistics Population Sample • Variable • Types of Variables • Types of Quantitative Variable • Types of Qualitative Variable	
Week 2	• Data • Sources of collecting the data. • Methods of collecting the data. • Types of Samples 1. Random samples 2. Non random Samples • Types of Random Samples 1. Simple random sampling 2. Stratified random sampling	
Week 3	3. Systematic random sampling 4. Multistage random sampling • Types of Non Random Samples • Presentation of data 1- Frequency distribution (Tabular	

	presentation) • Frequency distribution for qualitative data.		
Week 4	Frequency distribution for quantitative data. Relative frequency distribution. Cumulative frequency distribution.		
Week 5	2- Graphical presentation Graphical presentation for qualitative data 1- Line chart 2- Bar chart 3- Pie chart		
Week 6	Graphical presentation of quantitative data 1- Histogram 2- Frequency polygon • Summation		

Week 7	• Notation • Measures of central tendency 1- Arithmetic mean	
Week 8	2- Weighted mean 3- Median	
Week 9	4- Mode • Measures of dispersion (variation) First: Measures of absolute variation 1- Range	
Week 10	2- Mean deviation 3- Variance	
Week 11	4- Standard deviation Second: Measures of relative variation 1- Coefficient of dispersion based on range	
Week 12	2- Coefficient of dispersion based on standard deviation (Coefficient of variation) • Correlation Analysis • Simple Linear Correlation	
Week 13	1- Scatter Plot 2- Simple Linear Correlation Coefficient (Person)	
Week 14	3- Spearman's Rank Correlation Coefficient ➢ Regression Analysis ➢ Linear Regression	
Week 15	➢ Simple Linear Regression ➢ Multiple Linear Regression	
18. Practical Topics (If there is any)		

19. Examinations:

Q1\\ Define Quantitative Variable

1. **Quantitative variables:** They are numerical in nature and can be ordered or ranked. For example, the variable “Age” is numerical, and people can be ranked in order according to the value of their ages. Quantitative variables can be classified as:

A- **Discrete variables:** A variable is discrete if its range can assume only a finite or infinite number of values that is countable. For example, the number of children in a family.

B- **Continuous variables:** A variable is continuous if its range is uncountable.

For example, the weights of students in a class.

Q2\\ : find the variance of following table .

Classes	0-10	10 - 20	20 – 30	40 - 30	40-50	60-50
Fr	**12**	**18**	**27**	**20**	**17**	**6**

Class	fi	xi	fixi	$(xi-\bar{x})$	$(xi-\bar{x})^2$	$fi(xi-\bar{x})^2$
0_	12	5	60	-23	529	6348
10_	18	15	270	-13	169	3042
20_	27	25	675	-3	9	243
30_	20	35	700	7	49	980
40_	17	45	765	17	289	4913
50_60	6	55	330	27	729	4374

$$\bar{x}=\frac{2800}{100}=28$$

$$s^2=\frac{\sum_{i=1}^{n} fi(xi-\bar{x})^2}{\sum_{i=1}^{n} fi}=\frac{19960}{100}=199$$

20. Extra notes:

review Peer 21.

.