# Department of Kindergarten

# College of Basic Education

# Salahaddin University- Erbil

**Subject:** Introduction to Statistics

**Course Book** –Second Stage – Second Semester

**Lecturer's name**: Dr. Dler Mustafa KHIDHR

**Academic Year**: 2023-2024

# Course Book

| 1. Course name | **Statistics** |
|---|---|
| **2. Lecturer in charge** | Dr  DLER MUSTAFA KHIDHR |
| **3. Department/ College** | / **Basic Education** |
| **4. Contact** | **e-mail: dler.khidhr@su.edu.krd** |
| **5. Time (in hours) per week** | **Theory:   3** |
| **6. Office hours** | **3  hours in week** |
| **7. Course code** | |
| **8. Teacher's academic profile** | **I graduated from Salahaddin university – Hawler in 2002 college of administration & Economic \ Statistics Department. From 2003, I am working in Salahaddin Uni.  In 2007 I achieved a master's degree in the Department of Statistics college of Science of computer and mathematics, University of Mosul. I have got PhD in Applied Statistics in February 2020.  I studied the first stage students Principles of Statistics at the Department of  Mathematics department and through these years supervised Research on the graduation for students of the fourth stage in the Department of Statistics, and, so far, I am working as an assistant teacher in the Department of Mathematics.** |
| **9. Keywords** | **Descriptive statistics, method of  counting method of probability,  random variable, statistical distributions and among others.** |

**10.  Course overview:**

     In life there is no certainty about what will happen in the future but decisions still have to be taken. Therefore, decision processes must be able to deal with the  problems of uncertainty. Uncertainty creates risk and this risk must be analysed. Both qualitative and quantitative techniques for modelling uncertainty exist. In many situations large amounts of numerical data is available which requires statistical techniques for analysis.

     The application of statistical methods is very extensive and  is used in all branches of Science and Technology, Industry, Business, Finance, Economics, Sociology, Psychology, Education, Medicine etc.

Statistics is sometimes described as the science of decision making under uncertainty and can be divided into two broad areas as follows: Descriptive Statistics which includes the organisation of data, the graphical presentation of data (pie charts, bar charts, histograms etc.) and the evaluation of appropriate summary statistics (measures of average e.g. the arithmetic mean and measures of spread e.g. standard deviation). Descriptive statistics are the first step in analysing data and always precedes inferential statistics but can depending on the type of study, the only way to analyse collected data. Inferential Statistics which covers those statistical procedures used to help draw conclusions or inferences about a population based on the basis of a sample of data which they collected from the population. Sampling is necessary because measuring every member of a population is time-consuming and expensive, impractical or impossible. Important areas inferential statistics include confidence intervals, hypothesis tests, regression analysis and experimental design. Underlying inferential statistics is the idea of probability and probability distributions

## 11. Course objective:

The aim is to learn deeply the knowledge of statistics, and the coefficient of correlation and regression, and many kinds and some of the variance, and ANOVA table and F statistic.

## 12. Student's obligation

> **Student readiness is very important to learn and get a note about the lesson because you are amenable to the lesson.**

> **Is not allowed to use a _mobile phone_ in the classroom during the time of lecture until the teacher goes out of the classroom, If you use it, therefore you face legal punishment.**

## 13. Forms of teaching

White board and Data show to view the headlines, definitions and tables

## 14. Assessment scheme

Test +15 = 15

Quizzes = 5+5

the total = 40

and final exam =60

May be student have some activities and quizzes 5% as part of second exam.

## 15. Student learning outcome:

1. Describe discrete data graphically and

2-compute measures of centrality and variation

3. Compute correlation coefficient and regression lines.

## 16. Course Reading List and References:
  - ➤ **Main References:**
  - • **Murray Spiegel (Author), Larry Stephens (Author), _Schaum's Outline of Statistics_, 5th Edition (Schaum's Outlines) 2014,**
  - • **Deborah J. Rumsey   Statistics For Dummies, 2nd Edition (For Dummies (Lifestyle)) by  2016**
  - • **Jay L. Devore ((_Probability and Statistics_)) sixth edition**
    - ➤ **Secondary References:**
  - • **Douglas C. Montgomery (( _Applied Statistics and Probability for Engineers_)) ,2003, third edition, Arizona Stat University.**
  - • **Tim Sparks, (( _Statistics in Ecotoxicology_)), no.219/510**
  - • **خاشع محمود الراوي  (_(المدخل الى الاحصاء)_) ،2000 ، جامعة الموصل**

## 17. Subject

| Week | Subject |
|------|---------|
| 1-2 | Introduction, Types of data, Sampling, |
| 3 | Frequency distribution, Quiz |
| 4 | Representation data |
| 5-7 | Measures Of Central tendency +Quiz |
|  | Exam 1 |
| 8 | Measures of Variation |
| 9-10 | Coefficient of Correlation, |
| 11 | examples Spearman's rank correlation coefficient: examples |
|  | Examples Extra |
| 12 | Test Hypothesis |
|  |  |

## 18. Practical Topics (If there is any)

**19. Examinations:**

## Some question examples from the previous Exams.

(1) find the spearman's rank correlation coefficient from the following table.

| X | 90 | 73 | 56 | 73 | 89 | 91 | 65 | 73 |
|---|----|----|----|----|----|----|----|----|
| Y | 4  | 5  | 6  | 3  | 7  | 4  | 2  | 5  |

(36) find the correlation coefficient from the following data.

| X | -1 | 4 | -3 | -7 | 0  | 2 | 5 | 9 |
|---|----|----|----|----|----|---|---|---|
| Y | -3 | 5 | -6 | 3  | -1 | 4 | 7 | 3 |

(2) find the value of a and b use the least squares method from the following linear

**20. Extra notes:**

**21. Peer review**          پێداچوونەوەی هاوەڵ