Department of Medical Laboratory Analysis + Medical Microbilogy

College Health Science

University of Cihan- Sulaimaniya

Subject: Biostatistics

Course Book – Year 3/ Semester 1

Lecturer's name:

Nozad H. Mahmood

Academic Year: 2024/2025

Course Book

1. Course name	**Biostatistics**
2. Lecturer in charge	**Nozad H. Mahmood**
3. Department/ College	**Medical laboratory Analysis (MLA)**
4. Time (in hours) per week	**4 hours**
5. Office hours	**Saturday from 10:00 – 2:00**
6. Course code	**MLA 3105**
7. Teacher's academic profile	**https://uni.sulicihan.edu.krd/qa/profile/nozad.mahmood/**
8. Keywords	**Statistical descriptive, Biostatistical data analysis, t-test, Chi-square test, ANOVA, Correlation Coefficient, and Linear regression**

9. Course overview:

Biostatistics is one of the fundamental disciplines that underpins health care research at all levels, as well as health evaluation and disease prevention. It is the scientific study of describing, summarizing, and analyzing health data. An understanding of biostatistics methods is required for the design and execution of health studies. The course emphasizes the fundamental importance of biostatistics in both health research and health care practice. Biostatistics is rapidly evolving to address new areas involving the collection and analysis of large, complex data sets.

10. Course objective:

- Using basic statistical principles and applications to clinical and public health problems.
- The following statistical inference will be covered: t-tests, chi-square tests, ANOVA, and linear regression.
- Results interpretation and presentation

11. Student's obligation:

- In order to complete this course, you will need to work through each unit and all of its assigned materials.
- Students will be required to perform some calculations by hand and using a calculator.
- Keep up-to-date with all readings and assignments and seek help if you do not understand a concept or problem.
- Biostatistics is a subject in which each new concept builds on previous concepts. Thus, it is imperative that you understand every concept, or you will be unable to understand later ones.
- Start the readings and homework early, giving yourself plenty of time to attend office hours, ask questions in class, and seek outside help if necessary. I am here to help you learn this material, so I encourage you to make use of us during office hours and class time.

- All cell-phones and pages must be set to silent mode throughout the time of the class.
- Students are expected to adhere to the university attendance policy.
- If a student chooses to skip a class, it is customary to inform the instructor in advance.
- If a student chooses to skip some classes, it is student's responsibility to make up missed classes.
- Exams will be either closed book and close notes or open notes. Total exam time is selected by the University. You are allowed to use calculators for the exams.

12. Forms of teaching

- PowerPoint slides on data-show
- Whiteboard using
- Goggle Classroom using
- Case study within subgroups

13. Assessment scheme

Midterm Theory Exam	**25%**
Miterm Practice Exam	**15%**
Quizzes and Activities	**10%**
Final Theory Exam	**30%**
Final Practice exam	**20%**

14. Student learning outcome:

Upon successful completion of this course, the student will be able to:

- Familiar with basic statistical methods.
- Compute and interpret summarizing statistics, such as Mean, Median, Mode, and Standard Deviation.
- Learn basic techniques for exploring and describing data sets.
- Understand of sampling and population of the data.
- Learn some statistical graphics
- Recognize and give examples of different types of data arising in public health and clinical studies
- Provide students an appreciation of the analyses of the paired data and using the hypothesis testing
- Interpret and explain a p-value and significant levels
- Perform a two-sample t-test and interpret the results
- Chi-square test for categorical data

15. Course Reading List and References:

- **Reference:**

Prem S. Mann 1998, Introductory Statistics, 7th edn, New York, USA

https://drive.uqu.edu.sa/_/mskhayat/files/MySubjects/20178FS%20Elementary%20Statistics/Introductory%20Statistics%20(7th%20Ed).pdf

- **Useful references:**
  - http://math.tutorvista.com/statistics.html

- https://www.tutorteddy.com/statistics/statistics-solutions.php

16. The Topics:

Lecture No	Topic
1, 2	**Week 1: Lecturing-Introduction** - Introduction to Statistics and Biostatistics. - Types of Statistics (Descriptive & Inferential) - Data types (Quantitative & Qualitative)
3	**Week 2: Collection Data** - Simple Random Sampling - Stratified Sampling, - Cluster Sampling - Systematic Sampling)
4	**Week 3: Organizing and Displaying Data** - Statistical Frequency Tables (Classified and Unclassified Data) - Relative Frequency and Percentage Distribution Graphical Representation of Quantitative Data
5	**Week 4: Organizing and Displaying Data** - Statistical Frequency Tables (Classified and Unclassified Data) - Relative Frequency and Percentage Distribution Graphical Representation of Quantitative Data
6	**Week 5:** - Measures of Central Tendency Mean, Median, and Mode - Measure of Dispersion or spread Range, Variance, and Standard Deviation
7	**Week 6: Statistical Hypothesis**
8	**Week 7: t-Test and Z-Test**
	Week 8 and 9: Midterm Exam
10	**Week 10: Chi-square test**
11	**Week 11: F-test one-way ANOVA**
12,13	**Week 12: Correlation Coefficient**
14, 15	**Week 13: Regression Analysis**
Final Examination	

17. Peer review