

Republic of Iraq  
Ministry of higher education and  
scientific research  
University of Warith al-aniyaa  
Collage of pharmacy



جمهورية العراق  
وزارة التعليم العالي والبحث العلمي  
جامعة وارث الأنبياء عليه اسلام  
كلية الصيدلة

# Academic Course Description of Biostatistics

## Academic Course Description

<b>1. Course Name</b>	
Biostatistics	
<b>2. Course Code</b>	
<b>3. Semester / Year</b>	
First Semester 2025-2026	
<b>4. Date of Preparation</b>	
January 28, 2026	
<b>5. Available Attendance Modes</b>	
In-person	
<b>6. Total Study Hours / Total Units</b>	
Units: 2 Theory: 30 Hours	
<b>7. Course Coordinator Name</b>	
Name: Buraq Mohammed Raheem Email:	
<b>8. Course Objectives</b>	
Course Objectives	<ol style="list-style-type: none"> <li>1.Enable students to apply mathematical statistics in pharmaceutical science.</li> <li>2.Use biostatistics in specific pharmaceutical courses, calculate the odds ratio and relative risk of an event</li> <li>3.Estimate statistical population indicators, and develop alternative hypotheses</li> </ol>
<b>9. Teaching and Learning Strategies</b>	
Strategy	These are the plans used by faculty members to develop the teaching and learning process for students; they are the plans followed to achieve learning objectives. They describe all classroom and extracurricular activities to achieve the program's learning outcomes, such as showing videos and images and holding discussion sessions.

10. Course Structure					
week	hours	Unit or Topic Name	Required Learning Outcomes	Learning Methods	Assessment Methods
1-2	4	Basics of Bio & Descriptive Statistics	Distinguish between biostatistics and descriptive statistics.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
3-4	4	Calculus	Understand geometric concepts, apply derivation rules, analyze function behavior, and calculate indefinite integrals.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
5-6	4	Area Under the Curve (AUC) Applications	Linking AUC calculations to pharmacokinetics.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
4-5	4	Medical Devices	Blood glucose monitoring, IV administration sets, measuring cardiac output.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
7-8	3	Samples and Confidence Intervals	Identify appropriate sample sizes and define null vs. alternative hypotheses.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
9	3	Dependent & Independent Variables	Identify relationships between dependent and independent variables.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
10-11	3	Correlation and Regression	Understand the difference between a sample and a standard value.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
12	3	Single and Two-Sample Tests	Calculate the difference between two samples and the significance of that difference.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
13	2	Analysis of Variance (ANOVA)	Calculate significant differences between groups.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
14	2	Parametric & Non-Parametric Tests	Parametric & Non-Parametric Tests	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.
15	2	Categorical Variable Correlation	Calculate the relationship between categorical variables.	Lectures, Presentations, Videos.	Written/Oral Exams, Reports.

## 11. Course Evaluation

The 100-point grade distribution is based on student tasks such as daily preparation, quizzes (daily/monthly), oral/written exams, and reports.

## 12. Learning and Teaching Resources

Required Textbooks	1.Introductory Biostatistics for the Health Sciences, by Michael R. Chernick 2.Introductory Statistics Using SPSS, Second Edition, by Herschel Knapp.
Main References	As mentioned above
Supportive References	As mentioned above
Electronic Resources	Google Scholar, academic websites