

Faculty: Pharmacy	
Department: Pharmaceutical Sciences	Program: MSc.
Academic year: 2023-2024	Semester: 1st



Course Plan

First: Course Information

Course No. 1101708	Course Title: Biostatistics	Credit Hours: 3	Theoretical: 3	Practical: NA
Prerequisite: None	Section No.: 1	Lecture Time: 4:30-7:30 pm (Wed)		
Level in JNQF	9	Virtual hours in the JNQF	120h	
Type Of Course:	<input type="checkbox"/> Obligatory Faculty Requirement <input type="checkbox"/> Elective University Requirement <input type="checkbox"/> Obligatory University Requirement <input type="checkbox"/> Faculty Requirement <input type="checkbox"/> Elective Specialty Requirement <input checked="" type="checkbox"/> Obligatory Specialization requirement <input type="checkbox"/> Ancillary Course			
Type of Learning:	<input checked="" type="checkbox"/> Face-to-Face Learning <input type="checkbox"/> Blended Learning (2 Face-to-Face + 1Asynchronous) <input type="checkbox"/> Online Learning (2 Synchronous+1 Asynchronous)			

Second: Instructor's Information

Course Coordinator:					
Name:		Academic Rank:			
Office Number:		Ext. Number:		E-mail:	
Course Instructor:					
Name: Dr. Mohammad Abu Assab		Academic Rank: Associate Professor			
Office Number: 229 D		Ext. Number: 1550		E-mail: mabuassab@zu.edu.jo	
Office Hours:	Sunday 1-2 pm	Monday 1-2 pm	Tuesday 1-2 pm	Wednesday 1-2 pm	Thursday 1-2 pm

Third: Course Description

This course introduces students to the field of applying statistical tools and approaches in scientific research. Specific topics include tools for describing central tendency and variability in data; methods for performing inference on population means and proportions via sample data; statistical hypothesis testing and its application to group comparisons; issues of power and sample size in study designs; and random sample and other study types. While there are some formulae and computational elements to the course, the emphasis is on applications, interpretation, communication, and decision-making.

Fourth: Course objectives

The purpose of this course is to enhance students in the fields of organizing and summarizing data, sampling methods, statistical distributions, estimation, hypotheses testing, analysis of variance, correlation and regression analysis, and Chi-square tests. In addition to the ability to choose and apply suitable statistical analysis in various circumstances according to the study type and methodology under investigation.

Fifth: Learning Outcomes

<i>Level descriptor according to (JNQF)</i>	<i>CILOs Code</i>	<i>CILOs</i> If any CLO will not be assessed in the course, mark NA.	<i>Associated PILOs Code</i> <i>Choose one PILO for each CILO*</i>	<i>Assessment method</i> <i>Choose at least two methods</i>	<i>Scores out of 100</i> State the total score identified for each CILO	<i>Minimum acceptable Score/percentage (%)</i> <i>The percentage should not be less than 70% **</i>
Knowledge	K1	Learn health sciences relevant statistical analyses and their research applications.	PK1	Mid-exam Assignments Final exam	15	10.5
	K2	Integrate and apply health sciences statistical analyses knowledge in the evaluation of scientific literature and explanation of various phenomena.		Mid-exam Assignments Final exam	15	10.5
Skills	S1	Solve research problems using various statistical tools and approaches.	PS1	Mid-exam Final exam Assignments	10	7
	S2	Apply various statistical tools and approaches pertinent to collection, summarization, analysis, interpretation, and presentation of research data.	PS2	Mid-exam Final exam Assignments	30	21
	S3	Analyze research problems using various statistical tools and approaches.	PS1	Mid-exam Final exam Assignments	10	7
Competencies	C1	Construct decisions related to research problems based on statistical analysis.	PC3	Mid-exam Final exam Assignments	10	7
	C2	Communicate the statistical results effectively.	PC1	Mid-exam Final exam Assignments	10	7

*For each CILO, the PILO could be the same or different. Refer to document (CC-2023-02) and page 2 in document (CC-2023-01).

**80% of the students must achieve the minimum acceptable percentage or higher for each CILO.

** Refer to document (CC-2023-05).

Sixth: Learning Source

Main Reference:	Biostatistics: A foundation for Analysis in the Health Sciences. 11th ed.		
Author: Daniel, W. W.	Issue No.:	Print: John Wiley & Sons.	Publication Year: 2018
Additional Sources & Websites:	A Textbook of Research Methodology and Biostatistics for Pharmacy Students, Pharmamed Press; March 1, 2021		
Teaching Type:	<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Laboratory <input checked="" type="checkbox"/> Workshop <input checked="" type="checkbox"/> MS Teams <input checked="" type="checkbox"/> Moodle		

Seventh: Course Structure

Lecture Date	Intended Teaching Outcomes (CILOs)	Topics	Teaching Procedures*	Teaching Methods**	References***
Wed 18/10/2023	K1	Introduction, Review syllabus, understanding biostatistics, Basic concepts	Face to Face	Lecture	Text B 1-17
Wed 25/10/2023	K1, C1	Descriptive Statistics: Graphical and Numerical presentation of data	Face to Face	Lecture	Text B 19-37
Wed 01/11/2023	K1, K2, S1, C1	Central tendency measures, Dispersion measures	Face to Face	Lecture	Text B 38-60
Wed 08/11/2023	K1, K2, C1	Probability distributions, normal distribution	Face to Face	Lecture	Text B 92-96
Wed 15/11/2023	K1, K2, S1, S2, C1	Normal Distribution and its Applications	Face to Face	Lecture	Text B 116-130
Wed 22/11/2023	K1, K2, S1, S2, C1, C2	Sampling distribution of the mean and the proportion	Face to Face	Lecture Workshop	Text B 134-155
Wed 29/11/2023	K1, K2, S1, S2, S3, C1, C2	Estimation concepts, point estimation, interval estimation of the mean	Face to Face	Lecture	Text B 160-171
Wed 06/12/2023	K1, K2, S1, S2, S3, C1, C2	t- t-distribution, Interval estimation of proportion, sample size determination for the mean and proportion	Face to Face	Lecture	Text B 172-193
Wed 13/12/2023	K1, K2, S1, S2, S3, C1, C2	Hypothesis testing, types of errors	Face to Face	Lecture	Text B 214-221
Wed 20/12/2023	K1, K2, S1, S2, S3, C1, C2	Hypothesis testing for the mean, critical value approach, P value approach, Relation with Confidence interval	Face to Face	Lecture	Text B 222-253
Wed 27/12/2023	K1, K2, S1, S2, S3, C1, C2	Hypothesis testing for proportion	Face to Face	Lecture	Text B 257-260



Wed 03/1/2024	K1, K2, S1, S2, S3, C1, C2	ANOVA concepts and applications	Face to Face	Lecture Workshop	Text B 304-320
Wed 10/1/2024	K1, K2, S1, S2, S3, C1, C2	Correlation and simple linear regression	Face to Face	Lecture	Text B 413-462
Wed 17/1/2024	K1, K2, S1, S2, S3, C1, C2	Applications of correlation and regression, Chi-square distribution and applications	Face to Face	Lecture	Text B 463-467, 600- 622
Sun 20/1/2024		Final Exams			

Education procedures: (**Face to Face**, synchronous, asynchronous). * * Teaching methods: Lecture, video.....). ***
Reference: Pages of the book, recorded lecture, video....)

Eighth: Assessment methods

Methods	Online Learning	Blended Learning	Face-To-Face Learning	Measurable Course (CILOs); Specific Course Output to be measured							
				K1	K2	K3	S1	S2	S3	C1	C2
Mid-term Exam			30	8	7	NA	0	10	5	0	0
Final Exam			40	5	5		5	10	5	5	5
Quizzes	NA										
Assignments			30	2	3	NA	5	10	0	5	5
Group presentation	NA										
Total out of 100			100	15	15	NA	10	30	10	10	10

*Refer to document (CC-2023-03)

Ninth: Course Policies

- All course policies are applied on all teaching patterns (online, blended, and face-to-face Learning) as follows:
 - a. Punctuality.
 - b. Participation and interaction.
 - c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).
- Meeting the deadline for the lecture.
- Commitment to interaction and participation.
- Interactive lectures will be given through a platform (MS Teams).
- Duties and tests will be given through a platform (Moodle).
- Commitment to the right appearance with the proper background in front of the camera.
- University regulations for attendance and absence from lectures and examinations are in force.
- Academic Integrity: According to university regulations and instructions, fraud or moral impersonation is unacceptable and punishable.

Approval	Name	Date	Signature
Head of Department	Dr. Hana Abu Swan		
Faculty Dean	Dr. Ahlam Zeid Al-Kelani		