Faculty: Pharmacy	
Department: Pharmaceutical Sciences	**Program: MSc.**
Semester: 1st	**Academic year: 2021-2022**

Course Plan

First: Course Information

Course Number: **1101708**	***Course Name:*** **Biostatistics**	***Credit Hours: 2***
Prerequisite: **None**	***Section Number:*** **1**	***Lecture Time:*** **4:30-6:30 pm (Wed)**
Course Nature:	☐ ***University Obligatory Requirements*** ☐ ***Faculties Obligatory Requirements*** ☐ ***Department Obligatory Requirements*** ☐ ***Department Elective Requirements*** ■ ***Specialization Elective Requirements***	
Type of Education:	■ **Fully Direct (fully Face-to-Face Education)** ☐ **Blended Learning (2 Face-to-Face + 1Asynchronous)** ☐ **Fully Electronic Education (2 Synchronous + 1 Asynchronous)**	

Second: Instructor's Information

Name: **Dr. Mohammed Abu Assab**	***Academic Rank: Assistant Professor***	
Office Number: **225 D**	***Phone Number:*** **1447**	***Email:*** **mabuassab@zu.edu.jo**
Office Hours:	**Sunday, Tuesday, Thursday: 12-1 pm Monday: ___** **Wednesday: 3:30 – 4:30 pm**	

Third: Short Description of the Course

The purpose of this course is to enhance students in 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 to apply the suitable statistical analysis in various circumstances according to study type and methodology under investigation.

Fourth: Learning Source

Designated Book:	**Biostatistics:** A foundation for Analysis in the Health Sciences. 11th ed.	
Author: Daniel, W. W.	***Print:*** John Wiley& Sons.	***Year:*** **2014**
Additional Sources: ***Website:***	Dawn Hawkins, Bio measurement, A Student's Guide to Biological Statistics, 3rd edition, Oxford University Press; 2014	
Teaching Type:	■ ***Classroom*** ☐ ***Laboratory*** ☐ ***Workshop*** ☐ **MS Teams** **Moodle** ■	

Fifth: Learning Outcomes

Number	*Course learning output*	*Associated Program Outcome Code*
	Knowledge	
***K1**	To learn health sciences relevant statistical analyses and their research applications.	****P.K1**
K2	To integrate and to apply health sciences statistical analyses knowledge in evaluation of scientific literature, and explanation of various phenomena.	**P.K2**
	Skills	
***S1**	To collect and interpret information from medical research papers either as independent researchers or within teams.	****P.S1**
S2	To actively participate and to engage with colleagues in teams and to demonstrate mutual respect, understanding, and values of others.	**P.S2**
S3	To present data in a scientific format and to effectively communicate when interacting with others in various settings.	**P.S3**
	Competences	
***C1**	Constructing data sets and analyzing them as well as using statistical soft wares.	****P.C1**
C2	To identify criteria of which statistical analysis to apply based on the experimental design and needs.	**P.C1**
C3	To read research papers and analyze the rationale behind using certain statistical analysis.	**P.C1**
C4	Suggest research ideas and determine the most effective and enduring statistical tools in writing research proposals.	**P.C2**

***K: knowledge, S: skills, C: competencies.**
**** P.K: Program Learning Outcome Knowledge, P.S: Program Learning Outcome Skill,**
P.C: Program Learning Outcome Competence.

Sixth: Course Structure

Lecture Date	Learning Outcome	Topics	*Learning Procedures	***Teaching Methods	***References
Wed 20/10/2021	K1	Introduction, Review syllabus, understanding biostatistics, Basic concepts	Direct	Lecture	Text B 1-17
Wed 27/10/2021	K1, C1	Descriptive Statistics: Graphical and Numerical presentation of data	Direct	Lecture	Text B 19-37
Wed 3/11/2021	K1, K2, S1, C1	Central tendency measures, Dispersion measures	Direct	Lecture	Text B 38-60
Wed 10/11/2021	K1, K2, C1	Probability distributions, normal distribution	Direct	Lecture	Text B 92-96
Wed 17/11/2021	K1, K2, S1, S2, C1	Normal Distribution and its applications	Direct	Lecture	Text B 116-130
Wed 24/11/2021	K1, K2, S1, S2, S3, C1, C2, C3, C4	Sampling distribution of the mean and the proportion	Direct	Lecture	Text B 134-155
Wed 1/12/2021	K1, K2, S1, S2, S3, C1, C2, C3, C4	Estimation concepts, point estimation, interval estimation of the mean	Direct	Lecture	Text B 160-171
Wed 8/12/2021	K1, K2, S1, S2, S3, C1, C2, C3, C4	t- distribution, Interval estimation of proportion, sample size determination for the mean and proportion	Direct	Lecture	Text B 172-193
Wed 15/12/2021	K1, K2, S1, S2, S3, C1, C2, C3, C4	Hypothesis testing, types of errors	Direct	Lecture	Text B 214-221
Wed 22/12/2021	K1, K2, S1, S2, S3, C1, C2, C3, C4	Hypothesis testing for the mean, critical value approach P value approach, Relation with Confidence interval	Direct	Lecture	Text B 222-253
Wed 29/12/2021	K1, K2, S1, S2, S3, C1, C2, C3, C4	Hypothesis testing for proportion	Direct	Lecture	Text B 257-260
Wed 5/1/2022	K1, K2, S1, S2, S3, C1, C2, C3, C4	ANOVA concepts and applications	Direct	Lecture	Text B 304-320
Wed 12/1/2022	K1, K2, S1, S2, S3, C1, C2, C3, C4	Correlation and simple linear regression	Direct	Lecture	Text B 413-462
Wed 19/1/2022	K1, K2, S1, S2, S3, C1, C2, C3, C4	Applications of correlation and regression, Chi-square distribution and applications	Direct	Lecture	Text B 463-467, 600- 622
Sun 23/1/2022		Final Exams			

Learning procedures: (Direct, synchronous, asynchronous).
* * Teaching methods: (Lecture, video…..).
** * Reference: (Pages of the book, recorded lecture, video….).

Seventh: Assessment methods

Methods	Fully Electronic Education	Integrated Teaching	Direct Teaching	Material Output to be measured
First Exam	0	0	0	
Second Exam	0	0	0	
Mid-term Exam	0	0	30	**K1, K2, C1, C2**
Participation	0	0	30	**K1, K2, S1, S2, S3, C1, C2, C3, C4**
Asynchronous Meetings	0	0	0	
Final Exam	0	0	40	**K1, K2, C1, C2, C3**

Eighth: Course Polices

- 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 in front of the camera with the proper background.
- University regulations for attendance and absence from lectures and examinations are in force.
- Academic Integrity: Fraud or moral impersonation are unacceptable and are punishable according to university regulations and instructions.

Approval	Name	Date	Signature
Head of Department	Dr. Farah Al-Mamory		
Faculty Dean	Dr. Ahlam Al-Kelani		