Course Plan for Bachelor Program - Study Plan Development and Updating Procedures/ Pharmacy Department	QF02/0408-4.0E

Study Plan No.	**2021/2022**		**University Specialization**		**Bachelor of Pharmacy**	
Course No.	**0201556**		**Course Name**		**Clinical Biostatistics**	
Credit Hours	**3**		**Prerequisite *Co-requisite**		**Pharmacology (3)**	
Course Type	☐ Mandatory University Requirement	☐ University Elective Requirement	☐ Faculty Mandatory Requirement	☐ Support course family requirements	☐ Mandatory Requirement	☑ **Elective Requirement**
Teaching Style	☐ Full Online Learning		☑ **Blended Learning**		☐ Traditional Learning	
Teaching Model	☐ 1 Synchronous: 1 Asynchronous		☑ **1 Face to Face: 1 Asynchronous**		☐ 2 Traditional	

Faculty Member and Study Divisions Information *(to be filled in each semester by the subject instructor)*

Name	**Academic rank**	**Office No.**	**Phone No.**	**E-mail**	
Office Hours (Days/Time)	**Sunday, Tuesday, Thursday ()**		**Monday, Wednesday ()**		
Division number	**Time**	**Place**	**Number of Students**	**Teaching Style**	**Approved Model**
				Blended Learning	**1 Face to Face: 1 Asynchronous**

Brief Description

This course aims to introduce students to basic statistical concepts as they apply to the health sciences. Specific topics include tools for describing central tendency and dispersion of data, probability concepts, statistical hypothesis testing and its application to group comparisons, methods of sampling, and various statistical measures.

Learning Resources

Course Book Information (Title, author, date of issue, publisher ... etc)	1. Biostatistics: A Foundation for Analysis in the Health Sciences, 10th Ed., W.W. Daniel and C.L. Cross, 2013, Wiley & Sons, Inc.			
Supportive Learning Resources (Books, databases, periodicals, software, applications, others)	-			
Supporting Websites				
The Physical Environment for Teaching	☑ **Classroom**	☐ Labs	☑ **Virtual Educational Platform**	☐ Others
Necessary Equipment and Software	- PC/Laptop with microphone. - Microsoft Teams. - Zoom. - Microsoft Office. - Moodle.			

Supporting People with Special Needs	
For Technical Support	E-Learning & Open Educational Resources Center. Email: elearning@zuj.edu.jo; Phone: +962 6 429 1511 ext. 425/362.

Course learning outcomes *(K= Knowledge, S= Skills, C= Competencies)*

No.	Course Learning Outcomes	The Associated Program Learning Output Code
Knowledge **The student should be able to:**		
K1	Identify the basic concepts and terminology of biostatistics, including the various kinds of variables, measurement, and measurement scales.	**MK3**
K2	Classify and report the data accurately.	**MK3**
K3	Describe the properties of probability and probability rules.	**MK3**
K4	Recognize classical, relative frequency, and subjective probability.	**MK3**
Skills **The student should be able to:**		
S1	Select a simple random sample and other scientific samples from a population of subjects.	**MS2, MS4**
S2	Solve and infer measures of central tendency, such as the mean, median, and mode.	**MS2, MS4**
S3	Implement different statistical analysis including ANOVA and t-test	**MS2, MS4**
Competencies **The student should be able to:**		
C1	Distinguish between the different data types and conduct the appropriate statistical method.	**MC3**
C2	Formulate appropriate conclusions based on the statistical results.	**MC3**
C3	Take responsibility of personal and professional development by handing the assignments on time.	**MC3**

Mechanisms for Direct Evaluation of Learning Outcomes

Type of Assessment / Learning Style	Fully Electronic Learning	Blended Learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Midterm Exam	30%	30%	**30%**	0%
Participation / Practical Applications	0%	0%	**20%**	50%
Asynchronous Interactive Activities	20%	20%	**0%**	0%
Final Exam	50%	50%	**50%**	50%

Note 1: *Asynchronous interactive activities are activities, tasks, projects, assignments, research, studies, projects, and work within student groups ... etc, which the student carries out on his own, through the virtual platform without a direct encounter with the subject teacher.*

Note 2: *According to the Regulations of granting Master's degree at Al-Zaytoonah University of Jordan, 40% of final evaluation goes for the final exam, and 60% for the semester work (examinations, reports, research or any scientific activity assigned to the student).*

Schedule of Simultaneous / Face-to-Face Encounters and their Topics

Week	Subject	Learning Style*	Reference **
1	Introduction to biostatistics, basic statistical concepts, and design of experiments	Lecture	Chapter 1 1-18
2	Measures of central tendency	Lecture	Chapter 2 38-34
3	Measures of dispersion	Lecture	Chapter 2 43-50
4	Skewness and kurtosis	Lecture	Chapter 2 41-43
5	Basic probability concepts	Lecture	Chapter 3 65-83
6	Probability distributions	Lecture	Chapter 4 92-99
7	Binomial distribution and its applications	Lecture	Chapter 4 99-108
8	Normal distribution and its applications	Lecture	Chapter 4 116-127
9	Distribution of the sample mean Midterm Exam	Lecture	Chapter 5 136-145
10	Distribution of the difference between two sample means	Lecture	Chapter 5 145-150
11	Confidence intervals	Lecture	Chapter 6 165-171
12	Hypothesis testing	Lecture	Chapter 7 215-222
13	Introduction to regression	Lecture	Chapter 9 414-417
14	Simple linear regression	Lecture	Chapter 9 417-421
15	Introduction to correlation	Lecture	Chapter 9 445-459
16	Final Exam		

** Learning styles: Lecture, flipped learning, learning through projects, learning through problem solving, participatory learning ... etc.*
*** Reference: Pages in a book, database, recorded lecture, content on the e-learning platform, video, website ... etc.*

Schedule of Asynchronous Interactive Activities *(in the case of e-learning and blended learning)*

Week	Task / Activity	Reference	Expected Results
1	Recorded lecture	Textbook	
2	Assignment	Textbook	
3	Assignment	Textbook	

4	Assignment	Textbook	
5	Assignment	Textbook	
6	Assignment	Textbook	
7	Assignment	Textbook	
8	Presentation	Textbook	
9	Quiz	Textbook	
10	Assignment	Textbook	
11	Assignment	Textbook	
12	Assignment	Textbook	
13	Assignment	Textbook	
14	Assignment	Textbook	
15	Assignment	Textbook	
16	Final exam		