

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

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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)	Biostatistics: A Foundation for Analysis in the Health Sciences, 10 th 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	- Microsoft Office. - Moodle.			
Supporting People with Special Needs				
For Technical Support	E-Learning & Open Educational Resources Center. Email: ellearning@zuj.edu.jo ; Phone: +962 6 429 1511 ext. 425/362.			

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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	Construct tables and graphs to represent data appropriately.	MK3
K3	Describe the properties of probability and probability rules.	MK3
K4	Apply 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
S2	Interpret measures of central tendency and dispersion	MS2
S3	Analyze datasets using t-tests and one-way ANOVA	MS2
Competencies		
The student should be able to:		
C1	Justify treatment and prevention decisions based on interpretation of effect sizes, confidence intervals, and absolute risks.	MC1
C2	Communicate statistical findings in plain language for clinicians and patients using absolute risk, risk difference, NNT/NNH, and clear visuals.	MC2
C3	Produce a documented, reproducible analysis workflow that supports reflective improvement.	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%	30%	60%
Asynchronous Interactive Activities	30%	30%	0%	0%
Final Exam	40%	40%	40%	40%

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).

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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.

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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		