



The University of Jordan
Accreditation & Quality Assurance Center

-Pharmaceutical Statistics

COURSE Syllabus

1	Course title	Pharmaceutical Statistics
2	Course number	1202381
3	Credit hours	2 (theory)
	- Contact hours (theory, practical)	2 (theory)
4	Prerequisites/corequisites	Prerequisite: 0303101 (Calculus I)
5	Program title	BSc in Pharmacy
6	Program code	
7	Awarding institution	The University of Jordan
8	School	Pharmacy
9	Department	Pharmaceutics and Pharmaceutical Technology
10	Level of course	Undergraduate
11	Year of study and semester (s)	Second semester of the 3rd year
12	Final Qualification	BSc in Pharmacy
13	Other department (s) involved in teaching the course	N/A
14	Language of Instruction	English
15	Teaching methodology	<input type="checkbox"/> Blended <input checked="" type="checkbox"/> Online
16	Electronic platform(s)	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams <input type="checkbox"/> Skype <input type="checkbox"/> Zoom <input type="checkbox"/> Others.....
17	Date of production/revision	14-10-2020

18. Course instructors and coordinator:

Ahmad Bani-Jaber, PhD.
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19. Course Description:

This course covers various statistical approaches and tests used in data analysis: Data summaries, descriptive statistics, binomial distributions, normal distribution, sampling distribution of the mean, distribution of difference between two means, z-test, t-test and paired t-test.

20. Course aims and outcomes:**- A- Aims:**

1. To understand types of data, and appropriate statistical tools for their analysis
2. To choose and create effective graphical, tabular, and numerical summaries of data
3. To understand and use probability distributions.
4. To use statistics to judge on scientific data, experiments, and hypothesis.
5. To understand the notion of sampling variability and sampling distributions.
6. To calculate and interpret confidence intervals and p-values and understand their limitations.
7. To select and carry out an appropriate method of analysis to test for the mean of a population, compare the means of twopopulations, and provide an interpretation of the results.

- B- Intended Learning Outcomes (ILOs):

1. Upon successful completion of this course the student must demonstrate comprehensive knowledge and clear understanding of (learner):
- 2.
3. Principles and methods of data collection and basics of biostatistics: types of variables, , indicators of central tendency and dispersion sampling methods, central limit theorem, probability and hypotheses
4. Data organization and data summarization by tabulation, graphs and statistical methods
5. Different types of binomial and normal distributions
6. Different types of t-tests and their assumptions : single population, mean difference between two population means and paired t-test
7. Confidence intervals and p-values and understand their limitations
8. Inference about a population based on sample data

• Proactively apply statistics and data analysis in a career or higher degree (self-learner)

1. To select the right statistical test and tools in data analysis
2. To effectively present and summarize data and a properly write a summary of their statistical analysis
3. To employ thestatistical approaches in dealing with pharmaceutical, analytical and clinical data.

• Exhibit behaviors and values that are consistent with the trust given to the profession by patients, other healthcare providers, and society (professional)

1. Communicate effectively and respectfully with professors and classmates
2. Show responsibility, accountability and commitment by complying with tutor's instructions and relevant university regulations
3. Demonstrate integrity by not cheating and not committing plagiarism

21. Topic Outline and Schedule:

Week	Lec	Topic	Teaching Method (platform)	Evaluation Methods	References
1	1.1	Introduction to statistics, Basic concepts of statistics	Synchronous (MS Teams)	Exam	Textbook, handouts
			Asynchronous prerecorded lecture (MS Stream)		
	1.2	Graphical presentation of data	Synchronous (MS Teams) or	Exam/assignment	Textbook, handouts
			Asynchronous prerecorded lecture (MS Stream)		
2	2.1	Descriptive statistics: Indicators of central tendency	Synchronous (MS Teams) or	Exam/assignment	Textbook, handouts
			Asynchronous prerecorded lecture (MS Stream)		
	2.2	Descriptive statistics: Indicators of dispersion	Synchronous (MS Teams)	Exam/assignment	Textbook, handouts
			Asynchronous prerecorded lecture (MS Stream)		
3	3.1	Introduction to probability	Synchronous (MS Teams)	Exam	Textbook, handouts
			Asynchronous prerecorded lecture (MS Stream)		
	3.2	Binomial probability distribution	Synchronous (MS Teams)	Exam	Textbook, handouts
			Asynchronous prerecorded lecture (MS Stream)		
4	4.1	Standard normal distribution	Synchronous (MS Teams)	Exam	Textbook, handouts
	4.2		Asynchronous prerecorded lecture (MS Stream)		
5	5.1	Sampling distribution of the sample mean and the Central Limit Theorem	Synchronous (MS Teams)	Exam	Textbook, handouts
	5.2		Asynchronous prerecorded lecture (MS Stream)		
6	6.1	Sampling distribution of the difference between sample means	Synchronous (MS Teams)	Exam	Textbook, handouts
	6.2		Asynchronous prerecorded lecture (MS Stream)		

7	7.1	Estimating a Single Population Mean: Point Estimate and Confidence Interval	Synchronous (MS Teams)	Exam	Textbook, handouts
	7.2		Asynchronous prerecorded lecture (MS Stream)		
8	8.1	Estimating a Single Population Mean: The t-distribution	Synchronous (MS Teams)	Exam	Textbook, handouts
	8.2		Asynchronous prerecorded lecture (MS Stream)		
9	9.1	Hypothesis Testing: A Single Population Mean	Synchronous (MS Teams) or	Exam/ assignment	Textbook, handouts
	9.2				
10	10.1		Asynchronous prerecorded lecture (MS Stream)		
	10.2				
11	11.1	Hypothesis Testing: Difference between two population means	Synchronous (MS Teams)	Exam/ assignment	Textbook, handouts
	11.2				
12	12.1		Asynchronous prerecorded lecture (MS Stream)		
	12.2				
13	13.1				
	13.2				
14	14.1	Paired comparisons	Synchronous (MS Teams)	Exam	Textbook, handouts
	14.2		Asynchronous prerecorded lecture (MS Stream)		

22. Course Requirements:

Students should have:

- Computer
- Internet connection
- Webcam
- Active university account on Moodle (e-learning) website
- Active university account on Microsoft Teams

23. Evaluation Methods

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Activity	Points	Platform
Data analysis using Excel (Assignments)	20	Moodle (e-learning)
Midterm Exam	30	On campus
Final Exam	50	On campus

23. Course Policies:

A- Attendance policies:

- As per the applicable university regulations

B- Absences from exams and handing in assignments on time:

- As per the applicable university regulations

C- Health and safety procedures:

- N/A

D- Honesty policy regarding cheating, plagiarism, misbehavior: As per the applicable university regulations

E- Grading policy:

- Semester work (20%)
- Mid exam (30%)
- Final exam (50%)

F- Available university services that support achievement in the course:

- University libraries
- Student computer labs
- University website (including E-Learning and faculty member websites)

25. References:

1. Biostatistics: a foundation for analysis in the health sciences, 10th edition, Wayne Daniel

Name of Course Coordinator: -Ahmad Bani-Jaber---Signature: -- Ahmad Bani-Jaber

- Date: --14/10/2020

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File