



**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

1	Course title	Pharmaceutical Statistics
2	Course number	1202381
3	Credit hours (theory, practical)	2 (theory)
	Contact hours (theory, practical)	2 (theory)
4	Prerequisites/corequisites	Prerequisite: 0303101 (Calculus I)
5	Program title	PharmD, Pharmacy
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Pharmacy
9	Department	Pharmaceutics and Pharmaceutical Technology
10	Level of course	undergraduate
11	Year of study and semester (s)	First semester of the 3 <sup>th</sup> year
12	Final Qualification	PharmD, BSc in Pharmacy
13	Other department (s) involved in teaching the course	
14	Language of Instruction	English
15	Date of production/revision	31 January 2016

#### 16. Course Coordinator:

Dr. Sharif Abdelghany, PhD.  
<http://eacademic.ju.edu.jo/s.abdelghany/default.aspx>  
 Office 225  
 Phone 535 5 000, Ext. 23346.  
 E-mail: s.abdelghany@ju.edu.jo  
 Office hours to be announced

#### 17. Other instructors:

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#### 18. Course Description:

This course comprise the two branches of statistics; descriptive statistics, and inferential statistics.

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

- Understanding types of data, and appropriate statistical tools for their analysis
- Choose and create effective graphical, tabular, and numerical summaries of data
- Understanding and using probability distributions.
- Using statistics to judge on scientific data, experiments, and hypothesis.
- Understanding the notion of sampling variability and sampling distributions.
- To calculate and interpret confidence intervals and p-values and understand their limitations.
- Selecting and carrying out an appropriate method of analysis to compare the means or proportions of two or more populations, and provide an interpretation of the results of such an analysis.

**B- Course Intended Learning Outcomes (ILOs):** Upon successful completion of this course students will be able to

**A. Knowledge and understanding:**

- A1) Understanding the Kinds of statistical studies and presentation of data.  
 A2) Understanding the concept of sampling distributions and their use in hypothesis testing.  
 A3) Understanding the Central Limit Theorem and its use in sampling distributions

**B. Intellectual skills:**

- B1) Analysis and statistical conclusions based on experimental design.  
 B2) Differentiate between data derived from samples or populations and their effect on the method of analysis.  
 B3) Choosing appropriate statistical techniques of evaluation of data and significance of its content.

**C. Subject-specific skills:**

- C1: use statistical tools to describe a body of data and deduce a useful information  
 C2: use statistical analysis to infer about a large population from a small random sample

**D. Transferable skills:**

- D1) Effective presentation of data.  
 D2) Communicating the results of data analysis.

**C- Program Competencies Achieved in This Course:**

- Demonstrate the ability to perform pharmaceutical calculations
- Recognize the principles of drug safety and efficacy evaluation

**20. Topic Outline and Schedule:**

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
1. Introduction to statistics, Basic concepts of statistics	1	Dr Abdelghany	A1	Exams, Quizes	Specified in each lecture. General references provided below

Graphical presentation of data	2	Dr Abdelghany	A1	Exams, Quizes	Same as above
Descriptive statistics: Indicators of central tendency	3	Dr Abdelghany	A1, B1, C1	Exams, Quizes	Same as above
Descriptive statistics: Indicators of dispersions	4	Dr Abdelghany	A1, B1, C1	Exams, Quizes	Same as above
Introduction to probability	5	Dr Abdelghany	A1-3, B1, C1	Exams, Quizes	Same as above
Probability distributions (Binomial, Poisson, Normal, Standard)	6	Dr Abdelghany	A1-3, B1, C1	Exams, Quizes	Same as above
<b>Midterm Exam</b>					
Sampling distribution of the sample mean and the Central Limit Theorem	7	Dr Abdelghany	A1-3, B1-3, C1	Exams, Quizes	Same as above
Estimating a Single Population Mean: Point Estimate and Confidence Interval	8	Dr Abdelghany	A1-3, B1-3, C1	Exams, Quizes	Same as above
Estimating a Single Population Mean: The t-distribution	9	Dr Abdelghany	A1-3, B1-3, C2	Exams, Quizes	Same as above
Estimating The Difference between Two Population Means (z, t and t' distributions)	10	Dr Abdelghany	A1-3, B1-3, C2	Exams, Quizes	Same as above
Hypothesis Testing: Introduction	11	Dr Abdelghany	A1-3, B1-3, C2	Exams, Quizes	Same as above
Hypothesis Testing: A Single Population Mean	12	Dr Abdelghany	A1-3, B1-3, C2	Exams, Quizes	Same as above
Hypothesis Testing: The Difference Between Two Population Means, Paired test	13	Dr Abdelghany	A1-3, B1-3, C2	Exams, Quizes	Same as above
epidemiology	14	Dr Abdelghany	A1-3, B1-2, C1-2	Exams, Quizes	Same as above

<b>Final Exam</b>	15				
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### 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

#### Teaching Methods

- ✓ Lectures
- ✓ Assignments.

#### Learning skills:

- ✓ Critical thinking
- ✓ Manuscript statistical analysis
- ✓ Problem-solving skills
- ✓ Self-directed learning

### 22. Evaluation Methods and Course Requirements:

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

- ✓ Exams
- ✓ Quizzes

### 23. Course Policies:

A- Attendance policies:

***Attendance: Mandatory.***

***First warning*** – with 4 absences

***Last warning*** – with 5 absences

Failing in the subject – with 6 absences

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

Will result in zero achievement unless health report or other significant excuse is documented.

C- Health and safety procedures:

NA

D- Honesty policy regarding cheating, plagiarism, misbehavior:

The participation, the commitment of cheating will lead to applying all following penalties together

- 1) Failing the subject he/she cheated at
- 2) Failing the other subjects taken in the same course
- 3) Not allowed to register for the next semester. The summer semester is not considered as a semester

E- Grading policy:

Exams and Quizzes.

Mid Exam:	40 points
Quizz:	10 points
Final Exam:	50 points
Total	100 points

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

Classrooms

#### 24. Required equipment:

Datashow and internet connection

#### 25. References:

1. Biostatistics: a foundation for analysis in the health sciences, 6<sup>th</sup> or 7<sup>th</sup> edition, Wayne Daniel
2. Introductory statistics 3<sup>rd</sup> edition, Weiss/Hassett,1991

#### 26. Additional information:

Name of Course Coordinator: Nailya Bulatova -Signature: ----- Date: Jan, 31, 2016

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

Head of Department: Nailya Bulatova Signature: -----

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

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

Copy to:

Head of Department

Assistant Dean for Quality Assurance

Course File