The University of Jordan

Faculty: Pharmacy Department: Pharmaceutics and Pharmaceutical technology
Program: BSc and PharmD Academic Year/ Semester 2013/2014
Pharmaceutical Statistics (1202381)

Credit hours	**2**	**Level**	**3**	**Pre-requisite**	**Calculus (0303101)**
Coordinator/ Lecturer		**Office number**		**Office phone**	
Course website		**E-mail**		**Place**	

Office hours					
Day/Time	**Sunday**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**
10-11					
11-12					

Course Description

Pharmaceutical statistics provides an introduction to selected important topics in biostatistical concepts. This course represents an introduction for undergraduate students to the field and provides knowledge for kind of statistical studies and their graphical presentation. 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 Objectives

1) Understanding types of data, and appropriate statistical tools for their analysis.
2) Describing data using tables, graphs, or numbers.
3) Understand and use probability distributions.
4) Using statistics for generalizations and decision making.
5) Evaluate statistical conclusions based on experimental design.

Intended Learning Outcomes (ILOs):

Successful completion of the course should lead to the following outcomes:

A. Knowledge and Understanding: Student is expected to

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 Analytical and Cognitive Skills: Student is expected to

B1) Analysis of 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: Student is expected to

C1) Fitting concentration time profiles and estimating pharmacokinetic parameters.

C2) Using Wagner-Nelson method to evaluate absorption.

C3) Design of dosing regimens in case of renal and hepatic dysfunction.

D. Transferable Key Skills: Students is expected to

D1) Effective presentation of data.

D2) Communicating the results of data analysis.

ILOs: Learning and Evaluation Methods

ILO/s	**Learning Methods**	**Evaluation Methods**
	Lectures and Discussions, Homework and Assignments, case studies.	**Exam, Quiz, assignments, ...**

Course Contents

Content	Reference	Week	ILO/s
1 Introduction	Biostatistics 7th edition, Wayne Daniel	**1st week**	
2 Basic concepts	Biostatistics 7th edition, Wayne Daniel	**2nd week**	
3 Kinds of statistical studies	Biostatistics 7th edition, Wayne Daniel	**2nd and 3rd week**	
4 Graphical presentation of data	Biostatistics 7th edition, Wayne Daniel	**4th week and 5th week**	
First Quiz 5th week			
5 Measures of Central tendency	Biostatistics 7th edition, Wayne Daniel	**5th week**	
6 Measures of spread (dispersion)	Biostatistics 7th edition, Wayne Daniel	**6th week**	
7 Probability concepts	Biostatistics 7th edition, Wayne Daniel	**7th week**	
Midterm exam 8th week			
8 Discrete distributions-The binomial distribution	Biostatistics 7th edition, Wayne Daniel	**8th week**	
9. Continuous distributions-The normal distribution	Biostatistics 7th edition, Wayne Daniel	**9th week**	

10	The sampling distribution of the mean	Biostatistics 7th edition, Wayne Daniel	**10th week**	
11	Hypotheses testing (parametric and nonparametric)	Biostatistics 7th edition, Wayne Daniel	**11th week**	
12	Comparing several groups	Biostatistics 7th edition, Wayne Daniel	**12th and 13th week**	
Assignment due 13th week				
13	Sampling methods	Biostatistics 7th edition, Wayne Daniel	**14th week**	
14	Biostatistical measures	Biostatistics 7th edition, Wayne Daniel	**15th week**	
Final exam 16th week				

Learning Methodology

1) Lectures.
2) Demos.
5) Case Studies.

Projects and Assignments

Statistics problems to be assigned for students

Evaluation

Evaluation	Point %	Date
Midterm Exam	**30%**	**8th week**
Assignments	**10%**	**13th week**
Quizzes	**10%**	**5th week**
Final Exam	**50%**	**16th week**

Main Reference/s:

- Biostatistics: a foundation for analysis in the health sciences, 6th or 7th edition, Wayne Daniel

Other References:

- Introductory statistics 3rd edition, Weiss/Hassett,1991