Form (A)

Course Specifications

General Information

Course name	Biostatistics
Course number	STAT4322
Faculty	
Department	
Course type	Major Needs
Course level	4
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1. Explain general principles of study design and its implications for valid inference when, for example, identifying risk factors for disease, isolating targets for prevention, and assessing the effectiveness of one or more interventions

2. Assess data sources and data quality for the purpose of selecting appropriate data for specific research questions

3. Translate research objectives into clear, testable statistical hypotheses

4. Describe basic principles and the practical importance of key concepts from probability and inference, inductive versus deductive reasoning, including random variation, systematic error, sampling error, measurement error, hypothesis testing, type I and type II errors, and confidence bounds

5. Apply numerical, tabular, and graphical descriptive techniques commonly used to characterize and summarize public health data

6. Identify appropriate statistical methods to be applied in a given research setting, apply these methods, and acknowledge the limitations of those methods

7. Evaluate computer output containing statistical procedures and graphics and interpret it in a public health context

Intended Learning Outcomes

Knowledge and Understanding	
	* Understand the utility of probability theory to data analysis
	* Use figures to summarize data
	* Determine the most appropriate descriptive and analytic techniques to represent data
	* Use descriptive analytic techniques to summarize data
	* Use inferential methods to assess statistical relationships between specified variables

Course Contents

1 - Introduction to Biostatistics
2 - Descriptive Statistics and Graphical Displays
3 - Introduction to Probability
4 - Discrete Probability Distributions
5 - Normal Probability Distributions
6 - Sampling Distributions and Estimators
7 - Point Estimates, Confidence Intervals
8 - Hypothesis Testing
9 - Correlation and Regression
10 - Contingency Tables
11 - Analysis of Variance

Teaching and Learning Methods

1 - Course documents, lectures and active classroom based discussion
2 - Interactive teaching methods
3 - Lab practical work and experiential learning through in class small groups work
4 - Cooperative leaning through student led presentations
5 - Take-home assignments
6 - Office hours
7 - Computer: Each student will need to have access to a computer or laptop to use Statistical software to complete homework assignments and print off notes and readings

Students Assessment

Assessment Method	TIME	MARKS
First Exam	The Fifth Week	15%
Second Exam	Twelfth Week	15%
Assignments		10%
Final Exam	The Sixteenth Week	60%

Books and References

Course note	محاضرات من اعداد المحاضر
Recommended books	Rosner, B Fundamentals of Biostatistics, Seventh Edition Brooks/Cole Cengage Learning 2011
	Triola MM and Triola MF Biostatistics for the Biological and Health Sciences Pearson Addison Wesley 2006