Detailed Course Description - Course Plan Development and Updating Procedures/ ..... Department	QF01/0408-3.0E

Faculty	Science	Department	Mathematics
Course number	0101140	Course title	إحصاء وإحتمالات Statistics and probability
Number of credit hours	3	Pre-requisite/co-requisite	----------

Brief course description

	Course goals and learning outcomes
Goal 1	Use statistical data to construct frequency distributions and display data graphically;
Learning outcomes	1.1 Students will be able to construct frequency distributions. 1.2 Students will be able to sketch graphical presentation of data.
Goal 2	Summarize statistical data by computing measures of centrality and dispersion; and summarize statistical data by computing measures of centrality and dispersion;
Learning outcomes	2.1 Students will be able to compute the measures of centrality. 2.2 Students will be able to compute the measures of dispersion. 2.3 Students will be able to use these measures to analysis data.
Goal 3	Compute the probability of conditional and unconditional event;
Learning outcomes	3.1 Students will be able to use the probability rules. 3.2 Students will be able to compute probability without rules.
Goal 4	Discrete and continuous probability distributions of the random variables.
Learning outcomes	4.1 Students will be able to use the probability distribution tables. 4.2 Students will be able to apply the probability distributions to real life-situations.
Textbook	1.- Principles of Statistics By Raqab, M.,Awad,A. and Azzam,M., Academic for Publishing & Distributing, 2nd Ed., 2005. 2.-
Supplementary references	**1.** Elementary Statistics,Step By Step Approach, by G. Allan, 6th Ed., 2007. **2.** Introduction to Probability and Statistics,by W. Mendenhall, 11th Ed., 2003. **3.** Elementary Statistics, by Ron Larson, 5th Ed. 4. Essentials of Statistics, Mario F. Triola, 4th Ed., 2010.

Course timeline				
Week	**Number of hours**	**Course topics**	**Pages (textbook)**	**Notes**
01	**1** **1** **1**	Population, Sample, Discrete and continuous data and variables. Raw and grouped Data. Frequency table for raw and grouped data.	1 – 7	
02	**1** **1** **1**	Symmetric and skewed data distribution. Class frequency and class length .Relative and cumulative frequency.	8 – 12	
03	**1** **1** **1**	Graphical representation for sample data: Bar chart, Pie chart, Histogram, Frequency Polygon, frequency curve.	12 – 21	
04	**1** **1** **1**	Descriptive Statistics Measures for raw and grouped data. Mean, Median, Mode	22 – 30	
05	**1** **1** **1**	Range, Inter-quartile range, Variance, standard deviation for raw and grouped data. Percentiles. Mean and variance for two pooled data sets.	30 – 37 40 – 45	
06	**1** **1** **1**	Chebychev's Rule and the Empirical Rule. Effect of coding by a linear transformation on measures of centrality and variability **First Exam 20%**	39 – 40	
07	**1** **1** **1**	Z-Score and Coefficient of Variation Measures of association between two variables, Pearson correlation coefficient	35 – 36	
08	**1** **1** **1**	Probability and random experiments, sample space, probability of an event. Quantitative and qualitative random experiments.	61 – 65	
09	**1** **1** **1**	Probability laws: event complement, events intersection and union of two events. DeMorgan laws and their associated probabilities.	66 – 73	
10	**1** **1** **1**	Conditional probability, independence of two or more events, Total probability Bayes Rule.	74 – 81	

11	**1 1 1**	Counting rules: permutations and combinations. Sampling with and without replacement and sampling at once. Using counting rules to compute probability of simple and compound events.		
12	**1 1 1**	Binomial Probability Distribution. The Binomial experiment and its assumptions. Mean ,Variance and use of Binomial Tables **Second Exam 20%**	116 – 122	
13	**1 1 1**	Hyper-geometric and Geometric Probability Distribution. Random Variables and their density function. Mean and variance of a random variable.	127 – 130	
14	**1 1 1**	Poisson probability distribution. Mean , Variance and Use of Poisson tables. Poisson approximation to Binomial distribution.	123 – 126	
15	**1 1 1**	Normal Probability Distribution. Mean ,Variance and Use of Standard Normal Tables. Normal Percentiles. Normal approximation to Binomial distribution Sampling distribution of the sample mean	142 – 154	
16	**1 1 1**	**Final Exam 50%**		

Theoretical course evaluation methods and weight	Participation = 10% First exam 20% Second exam 20% Final exam 50%	**Practical (clinical) course evaluation methods**	Semester students' work = 50% (Reports, research, quizzes, etc.) Final exam = 50%

Approved by head of department		**Date of approval**	

Extra information (to be updated every semester by corresponding faculty member)

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Office hours			
