

Sub.	Course Description – توصيف مقرر دراسي	الموضوع	 كلية المعرفة ALMAAREFA COLLEGE
Date		التاريخ	

Course Code & No	STAT 103	103 احص	رقم المقرر ورمزه
Course Name	Statistical Methods	الطرق الإحصائية	اسم المقرر
Credit Hours	3 (3 + 0 + 1)	(1 + 0 + 3) 3	عدد الساعات المعتمدة
Pre-requisite	MATH 101	101 رياض	المتطلب السابق


General Description	توصيف عام
<p>This course is intended to introduce students to the basic concepts of study design, data collection, data analysis and statistical inference. Topics include: Descriptive statistics, elementary probability theory; laws of probability, random variables, discrete and continuous probability models, functions of random variables, mathematical expectation. Statistical inference; point estimation, interval estimation, and tests of hypotheses. Other statistical methods; linear regression and correlation, ANOVA, nonparametric statistics, use of statistical computing packages</p>	

Course Objectives	أهداف المقرر
<ul style="list-style-type: none"> Understand the main features of traditional and modern statistics and develop a mature awareness of the nature and value of statistics, including its ability to draw meaningful conclusions in the face of uncertainty; Analyze statistical data properly; Develop interest and aptitude in applying this area of mathematics to issues from many areas of human inquiry; perform a solid understanding of the principles and theory underlying statistical interpretation, descriptive statistics, statistical distribution, statistical estimation, inferential 	

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<p>statistics, correlation and regression, and the role of probability as a theoretical base for much of statistics;</p> <ul style="list-style-type: none"> • Develop the ability to perform accurate calculations and evaluations using tools and techniques from probability, descriptive statistics, statistical estimation, statistical distribution, inferential statistics, correlation, and regression; • Develop a sound, critical approach to interpreting statistics, including an awareness of both the legitimate uses and possible misuses of statistical information; • Develop facility with technological tools (especially calculators and Excel or SPSS) for displaying data and calculating statistical measures; • Develop an ethical perspective concerning the practice of statistics; • Develop improved proficiency in the art of clearly presenting a statistical argument, in both written and oral form. 	
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Course Outlines	مفردات المقرر
<ul style="list-style-type: none"> • Study Design <ul style="list-style-type: none"> ○ Types of data, sampling, simple random samples, surveys and observational studies, simple comparative experiments • Graphical Descriptive Statistics <ul style="list-style-type: none"> ○ Frequency distributions, bar charts, pie charts; Histograms, dot plots, stem plots. • Numerical Descriptive Statistics <ul style="list-style-type: none"> ○ Mean, median, standard deviation, variance, range, and inter-quartile range, box plots. 	

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<ul style="list-style-type: none"> • Probability <ul style="list-style-type: none"> ○ Definition of probability as relative frequency, basic properties of probability, estimating probabilities empirically. • Random Variables and Probability Distributions <ul style="list-style-type: none"> ○ Definition of random variable, using probability distributions of random variables as models, the normal distribution • Sampling Distributions <ul style="list-style-type: none"> ○ Sampling distribution of mean and population proportion, Central Limit Theorem • Confidence Intervals <ul style="list-style-type: none"> ○ Point estimation, confidence intervals for the population mean and population proportion • Hypothesis Testing <ul style="list-style-type: none"> ○ Test procedures, errors, and large sample test for population mean and population proportion • Bivariate Data Analysis <ul style="list-style-type: none"> ○ Scatter plots, Pearson Correlation Coefficient, simple linear regression 	
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References	المراجع
Devore and Peck, <i>Statistics: The Exploration and Analysis of Data</i> , 4 th edition, Duxbury Publishers	