

College/Department :	College of Science and Humanitarian Studies, Department of Mathematics
Course title	Elementary Probability and Statistics
Course number	Stat 1080
Credit Hours	3(3,1,0)
Beneficiary Colleges	Mathematics
Course Coordinator	Dr. Mansour Yassen Ali

Course Outline (Brief):

Descriptive statistics, statistical data classification, measures of central tendency, measures of dispersion. Basic probability concepts, conditional probability, Bayes law, random variable and probability distribution. Some discrete distributions, some continuous distributions and its applications. Sampling distribution of the mean, central limit theorem, estimation of the population mean and proportion, testing hypotheses about population mean and proportion.

Course Objectives:

This course aims to help students to be able to summarize the data and to describe it. Also to understand the basic probability and counting techniques, study some probability distributions, and make some inferences about population means and proportions.

Method of teaching: Theoretical lectures and tutorials.

Method of evaluation

First Mid-Exam	15 marks	6 week
Second Mid-Exam	15 marks	12 week
homework's, attendance and participation	10 marks	
Final exam	60 marks	

Course Outline

Week	Subjects
1	The Nature of Probability and Statistics <ul style="list-style-type: none"> • Descriptive and Inferential Statistics • Variables and Types of Data • Data Collection and Sampling Techniques
2	Frequency Distributions and Graphs <ul style="list-style-type: none"> • Introduction • Organizing Data • Categorical Frequency Distributions • Grouped Frequency Distributions
3	Frequency Distributions and Graphs <ul style="list-style-type: none"> • Cumulative frequency distributions • Histograms, Frequency Polygons, and Ogives • Other Types of Graphs
4	Data Description <ul style="list-style-type: none"> • Introduction • Measures of Central Tendency
5	Data Description <ul style="list-style-type: none"> • Measures of Variation • Measures of Position
6	Probability and Counting Rules <ul style="list-style-type: none"> • Introduction • Sample Spaces and Probability • The Addition Rules for Probability
7	Probability and Counting Rules

	<ul style="list-style-type: none"> • The Multiplication Rules and Conditional Probability • Counting Rules • Probability and Counting Rules
8	Discrete Probability Distributions <ul style="list-style-type: none"> • Introduction • Probability Distributions • Mean, Variance, Standard Deviation, and Expectation • The Binomial Distribution
9	Discrete Probability Distributions <ul style="list-style-type: none"> • Poisson Distribution • Geometric distribution • Hyper-geometric distribution
10	Continuous Probability Distributions <ul style="list-style-type: none"> • Introduction • Probability Distributions • Mean, Variance, Standard Deviation, and Expectation • The Normal Distribution
11	Continuous Probability Distributions <ul style="list-style-type: none"> • Applications of the Normal Distribution • The Central Limit Theorem
12	<ul style="list-style-type: none"> • The Normal Approximation to the Binomial Distribution • Other Types of continuous Distributions
13	Confidence Intervals and Sample Size <ul style="list-style-type: none"> • Introduction • Confidence Intervals and Sample Size for the Mean • Confidence Intervals and Sample Size for Proportions
14	Hypothesis Testing <ul style="list-style-type: none"> • Introduction • Steps in Hypothesis Testing—Traditional Method • z Test for a Mean • t Test for a Mean • z Test for a Proportion
15	Revision

Text book:

Elementary Statistics A Step by Step Approach, 8th Edition, 2012. Allan G. Bluman, McGraw-Hill Inc.

Main references:

1. Ron Larson and Betsy Farber, Elementary Statistics, Picturing the World 5th Edition, 2012, Prentice Hall.
2. Neil A. Weiss, Ph.D., Elementary Statistics, 8th Edition, 2012, Addison-Wesley
3. Michael Baron, Probability and Statistics for Computer Scientists, 2007, Chapman & Hall/CRC, Taylor & Francis Group.