



<b>Form: Course Syllabus</b>	<b>Form Number</b>	EXC-01-02-02A
	<b>Issue Number and Date</b>	2/3/24/2022/2963 05/12/2022
	<b>Number and Date of Revision or Modification</b>	
	<b>Deans Council Approval Decision Number</b>	2/3/24/2023
	<b>The Date of the Deans Council Approval Decision</b>	23/01/2023
	<b>Number of Pages</b>	09

1.	<b>Course Title</b>	<b>Principles of Statistics</b>
2.	<b>Course Number</b>	0319131
3.	<b>Credit Hours (Theory, Practical)</b>	3
	<b>Contact Hours (Theory, Practical)</b>	3
4.	<b>Prerequisites/ Corequisites</b>	None
5.	<b>Program Title</b>	B. Sc.
6.	<b>Program Code</b>	
7.	<b>School/ Center</b>	Science
8.	<b>Department</b>	Mathematics
9.	<b>Course Level</b>	College requirement
10.	<b>Year of Study and Semester (s)</b>	1 <sup>st</sup> year, all semesters
11.	<b>Other Department(s) Involved in Teaching the Course</b>	None
12.	<b>Main Learning Language</b>	English
13.	<b>Learning Types</b>	<input type="checkbox"/> Face to face learning <input type="checkbox"/> Blended <input checked="" type="checkbox"/> Fully online
14.	<b>Online Platforms(s)</b>	<input checked="" type="checkbox"/> Moodle <input checked="" type="checkbox"/> Microsoft Teams
15.	<b>Issuing Date</b>	3/10/2024
16.	<b>Revision Date</b>	

**17. Course Coordinator:**

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**18. Other Instructors:**

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**19. Course Description:**

Describing statistical data by tables, graphs and numerical measures, Chebychev's Inequality and the Empirical Rule, counting methods, combinations, permutations, elements of probability and random variables, the binomial, the Poisson, and the normal distributions, sampling distributions, elements of testing hypotheses, statistical inference about one and two populations parameters



## 20. Program Student Outcomes (SO's):

(To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

1. Identify, formulate, and solve broadly-defined technical or scientific problems by applying knowledge of Mathematics and Science and/or technical topics to areas relevant to the discipline.
2. Formulate or design a system, process, procedure or program to meet desired needs.
3. Develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
5. Reflect the impact of technical and/or scientific solutions in economic, environmental, and societal contexts.

## 21. Course Intended Learning Outcomes (CLO's):

(Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

1. Identify the population, sample, parameter and statistic, and classify types of data.
2. Construct frequency tables and graph some types of data and interpret the results.
3. Apply the measures of central tendency, variation, and positions to different life experiments and interpret the results.
4. Know the concept of probability and compute the probabilities for different life experiments by using the probability rules.
5. Identify discrete and continuous probability distributions and apply them to real life examples by using the Binomial, Poisson, and Normal distributions.
6. Construct the confidence intervals and apply the hypothesis testing for single and two population parameters and draw appropriate statistical conclusions.



Course CLOs	The learning levels to be achieved					
	Remembering	Understanding	Applying	Analysing	evaluating	Creating
CLO 1	•	•				
CLO 2		•	•	•		
CLO 3			•	•		
CLO 4	•		•			
CLO 5			•	•		
CLO 6			•	•	•	•

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Course CLO's	Program SO's							
	SO (1)	SO (2)	SO (3)	SO (4)	SO (5)	SO (6)	SO (7)	SO (8)
CLO (1)	•							
CLO (2)	•	•	•		•			
CLO (3)	•		•		•			
CLO (4)	•		•		•			
CLO (5)	•	•	•		•			
CLO (6)	•	•	•		•			



### 23. Topic Outline and Schedule:

Week	Lecture	Topic	CLO/s Linked to the Topic	Learning Types Face to Face (FF) Blended (BL) Fully Online (FO)	Platform Used	Synchronous (S) Asynchronous (A)	Evaluation Methods	Learning Resources
1	1.1	An overview of statistics	1	FO	Teams	S		Textbook
	1.2	Data classification	1	FO	Teams	S		Textbook
	1.3	Data classification	1	FO	Teams	S		Textbook
2	2.1	Distribution tables, histograms, polygons, Ogives	2	FO	Teams	S		Textbook
	2.2	Stem and leaf plot, dot plot, scatter plot, pie chart, Pareto chart, and time series chart.	2	FO	Teams	S		Textbook
	2.3	Measures of centrality: Mean, median, and mode, weighted mean and mean of grouped data. The shapes of distributions and outliers	3	FO	Teams	S		Textbook
3	3.1	Measures of centrality: Mean, median, and mode, weighted mean and mean of grouped data. The shapes of distributions and outliers	3	FO	Teams	S		Textbook
	3.2	Range, variance and standard deviation, Interpreting standard deviation, standard deviation for grouped data, Coefficient of variation, Empirical Rule and Chebyshev's Theorem	3	FO	Teams	S		Textbook
	3.3	Range, variance and standard deviation, Interpreting standard deviation, standard deviation for grouped data, Coefficient of variation, Empirical Rule and Chebyshev's Theorem	3	FO	Teams	S		Textbook
4	4.1	Range, variance and standard deviation, Interpreting standard deviation, standard deviation for	3	FO	Teams	S		Textbook



		grouped data, Coefficient of variation, Empirical Rule and Chebyshev's Theorem						
	4.2	Measures of position: Quartiles, percentiles, and fractiles. The standard score, box and whisker plot	3	FO	Teams	S		Textbook
	4.3	Measures of position: Quartiles, percentiles, and fractiles. The standard score, box and whisker plot	3	FO	Teams	S		Textbook
5	5.1	Basic concepts of probability: Probability experiments, the fundamental counting principle, types of probability, complementary events, probability applications, sample space and events, basic law of probability	4	FO	Teams	S		Textbook
	5.2	Basic concepts of probability: Probability experiments, the fundamental counting principle, types of probability, complementary events, probability applications, sample space and events, basic law of probability	4	FO	Teams	S		Textbook
	5.3	Conditional probability, independent and dependent events. the multiplication rule, Bayes' Theorem	4	FO	Teams	S		Textbook
6	6.1	Conditional probability, independent and dependent events. the multiplication rule, Bayes' Theorem	4	FO	Teams	S		Textbook
	6.2	Mutually exclusive events. The addition rule. A summary of probability	4	FO	Teams	S		Textbook
	6.3	Permutations. Combinations. Applications of counting principles	4	FO	Teams	S	1 <sup>st</sup> Exam	Textbook
7	7.1	Random variables, probability distribution, expectation and	5	FO	Teams	S		Textbook



		its properties, variance						
	7.2	Random variables, probability distribution, expectation and its properties, variance	5	FO	Teams	S		Textbook
	7.3	Random variables, probability distribution, expectation and its properties, variance	5	FO	Teams	S		Textbook
<b>8</b>	8.1	Binomial and Poisson distributions	5	FO	Teams	S		Textbook
	8.2	Binomial and Poisson distributions	5	FO	Teams	S		Textbook
	8.3	Binomial and Poisson distributions	5	FO	Teams	S		Textbook
<b>9</b>	9.1	Normal dsitribution	5	FO	Teams	S		Textbook
	9.2	Normal dsitribution	5	FO	Teams	S		Textbook
	9.3	Normal dsitribution	5	FO	Teams	S		Textbook
<b>10</b>	10.1	Normal approximation to binomial distribution		FO	Teams	S		Textbook
	10.2	The central limit theorem	5	FO	Teams	S		Textbook
	10.3	Sampling distribution	5	FO	Teams	S		Textbook
<b>11</b>	11.1	Confidence intervals for the mean ( $\sigma$ is known)	6	FO	Teams	S		Textbook
	11.2	Confidence intervals for the mean ( $\sigma$ is known)	6	FO	Teams	S		Textbook
	11.3	Confidence intervals for the mean ( $\sigma$ is unknown)	6	FO	Teams	S		Textbook
<b>12</b>	12.1	Confidence intervals for the mean ( $\sigma$ is unknown)	6	FO	Teams	S		Textbook
	12.2	Confidence intervals for the population proportion	6	FO	Teams	S		Textbook
	12.3	Confidence intervals for the variance and standard deviation	6	FO	Teams	S	2 <sup>nd</sup> Exam	Textbook
<b>13</b>	13.1	Introduction to hypothesis testing	6	FO	Teams	S		Textbook
	13.2	Hypothesis testing for the mean ( $\sigma$ is known)	6	FO	Teams	S		Textbook
	13.3	Hypothesis testing for the mean ( $\sigma$ is known)	6	FO	Teams	S		Textbook
<b>14</b>	14.1	Hypothesis testing for the mean ( $\sigma$ is unknown)	6	FO	Teams	S		Textbook
	14.2	Hypothesis testing for proportions	6	FO	Teams	S		Textbook



	14.3	Hypothesis testing for variance and standard deviation	6	FO	Teams	S		Textbook
15	15.1	Testing the difference between means (independent samples)	6	FO	Teams	S		Textbook
	15.2	Testing the difference between means (dependent samples)	6	FO	Teams	S		Textbook
	15.3	Testing the difference between proportions	6	FO	Teams	S		Textbook
16				FO	Teams	S	Final Exam	Textbook

#### 24. Evaluation Methods:

Opportunities to demonstrate achievement of the CLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	CLO/s Linked to the Evaluation activity	Period (Week)	Platform
1 <sup>st</sup> Exam	30	Chapters 1+2+3	1+2+3+4	6 <sup>th</sup> week	On Campus
2 <sup>nd</sup> Exam	30	Chapters 4+5+6	5+6	12 <sup>th</sup> week	On Campus
Final Exam	40	All course material	1+2+3+4+5+6	16 <sup>th</sup> week	On Campus

#### 25. Course Requirements:

Each student must have:

- Computer
- Internet connection
- Account on Microsoft Teams



**26. Course Policies:**

1. Students must attend all the meetings on Microsoft Teams. A student is expected to attend every class; please notify your instructor if you know you are going to be absent. All exams must be taken at the scheduled time. Exceptions will be made only in extreme circumstances, by prior arrangement with the instructor.
2. If a student is absent for more than 10% of lectures without an excuse of sickness or due to other insurmountable difficulty, then he/she shall be barred from the final examination also he/she will get a failing grade in this course.
3. Medical certificates shall be given to the University Physician to be authorized by him. They should be presented to the Dean of the Faculty within two weeks of the student's ceasing to attend classes.
4. Cheating is prohibited. The University of Jordan regulations on cheating will be applied to any student who cheats in exams or on homework.

**27. References:****A- Required book (s), assigned reading and audio-visuals:**

**Elementary Statistics** Elementary Statistics PICTURING THE WORLD GLOBAL EDITION, SEVENTH EDITION, by Ron Larson, Pearson.

**B- Recommended books, materials, and media:**

1. Introduction to Probability and Statistics, 14<sup>th</sup> edition. By W. Mendenhall, R. Beaver and B. Beaver. Publisher: Brooks/Cole 2013.
2. Introduction to Probability and Statistics, Principles and Methods, 3<sup>rd</sup> Edition. By R. A. Johnson and G. K. Bhattacharyya. Publisher: Wiley, New York 1996.

**28. Additional information:**

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Name of the Instructor or the Course Coordinator: <b>Prof. Ahmed Y. Abdallah</b>	Signature: .....	Date: 3/10/2024
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Name of the Head of Department: <b>Prof. Baha Alzalg.</b>	Signature: .....	Date: .....
Name of the Head of Quality Assurance Committee/ School of Science: <b>Prof. Emad A. Abuosba</b>	Signature: .....	Date: .....
Name of the Dean or the Director: <b>Prof. Mahmoud I. Jaghoub</b>	Signature: .....	Date: .....