

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education		وزارة التعليم العالي
Syrian Virtual University		الجامعة الافتراضية السورية

Course Description: Probability & Statistics

1- Basic Information:

Course Name	Probability & Statistics
Course ID	GMA402
Contact Hours (Registered Sessions)	24
Contact Hours (Synchronized Sessions)	24
Mid Term Exam	-
Exam	75 min
Registered Sessions Work Load	36
Synchronized Session Work Load	24
Credit Hours	5
Course Level	4

2- Pre-Requisites: None

Course	ID

3- Course General Objectives:

The purpose of this course is to teach students basic concepts in statistics and the importance of this science as the science whose basic material is the data, the student will identify the types of data and methods of collection and representation and display and describe them in tabular form or drawings and curves or described in a digital way using measures of central tendency and variation, To give an idea of the basic concepts of probability, including events and test and how to calculate the possibilities, Identify the discontinuous and continuous probability distributions and their practical applications. The methods of detecting and mathematical representation of the relationships between the variables as well as the time series, how they are analyzed and used in predicting the values of dependent variable, Finally, the student will learn about the index numbers , methods of calculation and practical applications.

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4- Intended Learning Outcomes (ILO): After studying the course successfully, the student is expected to:

Code	Intended Learning Outcomes
ILO1	Learn about statistics and its importance, data types and sources, and learn methods of collecting data and summarizing them in tabular and graphical terms.
ILO2	He was able to describe the data numerically by measures of central tendency ,and variation.
ILO3	Learn basic concepts in probabilities and processes on probabilities.
ILO4	It distinguishes between random variables and their probability distributions and can be applied in the economy and management.
ILO5	Learn how to detect the correlation between variables and represent the relationship mathematically.
ILO6	It can analyze time series data and use it to estimate and predict.
ILO7	Understand the meaning of the indices and how they are built and their applications.

5- Course Syllabus

- **RS:** Recorded Sessions; **SS:** Synchronized Sessions;

ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1	• Basic concepts: statistics - data types, data sources, methods of data collection and presentation of data, tabular and graphically	4	4	✓ Exercises	
ILO2	• Data description: central tendency measures , mean, mode, geometric mean ,and location measures median, quartiles ,percentiles . Variation measures: range, quartiles deviation , variance, Standard deviation	6	6	✓ Exercises	
ILO3	• probability: events, tests, operations on events, addition and multiplication probabilities, , total and conditional probability.	2	2	✓ Exercises	
ILO4	• Random variables and discontinuous and continuous probability distribution: regular, binary, Poisson, normal.	4	4	✓ Exercises	
ILO5	•Correlation of qualitative variables: coupling coefficient and	4	4	✓ Exercises	

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	Spearman. •Correlation of quantitative variables: scatter plot and Pearson coefficient. • linear regression .				
ILO6	• Time series and how to analyze and use them by forecasting	2	2	✓ Exercises	
ILO7	• Index numbers, how to construct them and their applications: simple, cumulative and aggregated numbers weighted.	2	2	✓ Exercises	

6- Assessment Criteria (Related to ILOs)

ISC	Interactive Synchronized Collaboration	Ex	Exams	Rpt	Reports
PF2F	Presentations and Face-to-Face Assessments	PW	Practice Work		

ILO Code	ILO	Intended Results	Assessment Type				
			ISC	PW	Ex	PF2F	Rpt
ILO1	Learn about statistics and its importance, data types and sources, and learn methods of collecting data and summarizing them in tabular and graphical terms.	-Knowing the types of variables. -Formulation of questionnaire for data collection. -Construct of statistical tables. - View data in the form of graphs and charts.	✓		✓		
ILO2	He was able to describe the data numerically by measures of central tendency ,and variation.	-Calculation of central tendency measures. -Calculation of variation measures. - Ability to employ	✓		✓		

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		these measures.					
ILO3	Learn basic concepts in probabilities and processes on probabilities.	<ul style="list-style-type: none"> -Calculate the probability of a simple, complex and conditional events. - calculate total probability and conditional probability . 	✓		✓		
ILO4	It distinguishes between random variables and their probability distributions and can be applied in the economy and management.	<ul style="list-style-type: none"> -Determining the probability and cumulative distribution of a non-continuous variable. -Determination of the probability and cumulative distribution of a continuous variable -Calculation of mathematical expectation and dispersion of variable. - Use the table of area under the normal curve. 	✓		✓		
ILO5	Learn how to detect the correlation between variables and represent the relationship mathematically.	<ul style="list-style-type: none"> -Determination of the type of relationship and its strong between two variables. - Find a linear regression equation and how to use. 	✓		✓		

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ILO6	It can analyze time series data and use it to estimate and predict.	-Time series components. -Study the trend. -Study of the season. -Study of periodic and random changes. - Predicting time series values.	✓		✓		
ILO7	Understand the meaning of the indices and how they are built and their applications.	-Calculation of the index numbers. - How to use of the index numbers.	✓		✓		

7- Practice Tools:

Tool Name	Description

7. References in English:

1 - Deborah Rumsey,(2010)" Statistics Essentials For Dummies" Wiley. 2- Freund, J.E. ,Modern elementary statistics. Prentice-Hall, 2001. 3- Johnson, R.A. & Bhattacharyya, G.K.(2009), Statistics: Principles and Methods, 6nd Edition. Wiley. 4 - Groebner David F., Shannon Patrick W. and Fry Phillip C. (2017)," Business Statistics :A Decision-Making approach", 10 th Edition. person. 5- Weiss, N.A.(1999), Introductory Statistics. Addison Wesley.

8. References in Arabic:

- أبو صالح، محمد صبحي؛ عوض، عدنان محمد ، 1990 - مقدمة في الإحصاء - مركز الكتب الأردني. 1- أبو عمرة، عبد الرحمن، راضي، الحسني عبد البر، الهندي، محمود إبراهيم، 1995، الإحصاء والاحتمالات، الرياض، جامعة الملك سعود. 2- الصياد،جلال،سمرة، عادل، 2001، مبادئ الإحصاء، دار حافظ. 3- حميدان، عدنان؛ الجاعوني، فريد؛ ناصر آغا، عمار؛ العواد، منذر، 2003، مبادئ الإحصاء، منشورات جامعة دمشق. 4- حسام، كمرجي، 2011 - الاحتمال والاحصاء - جامعة دمشق - كلية الهندسة الميكانيكية والكهربائية .
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- 5- كنجو، انيس، 2000، الاحصاء والاحتمالات – مكتبة العبيكان .
- 6- مخول، مطانيوس، غانم، عدنان، 2006 مبادئ الإحصاء، كلية الآداب والعلوم الإنسانية، قسم المكتبات، جامعة دمشق.
- طبيه، احمد عبد السميع، 2008-مبادئ الاحصاء- دار البداية .