Future Academy
Higher Future Institute for Specialized Technological Studies
Course Specification

1- Course information:	
Course Code:	BSC 212
Course Title:	Probability and Statistics and Statistical Analysis
Year/level	2nd
Academic Programs	Computer Science Program (B.Sc.)
Contact hours/ week	Theoretical 2 hrs / Tutorial 2 hrs = Total 3 hrs

2- Course aims:

This course aims to provide students to carry out descriptive and inferential statistical analysis. And statistical skills for advanced work in the functional areas of data science and analytics.

3- Intended learning outcomes of the course (ILOs):

a- Knowledge and understanding:

On successful completion of this course, the student should be able to:
a1. recognize the fundamental probability and statistics concepts, principles and theories.
a2. utilize the appropriate mathematical tools and understanding of the concepts of statistics.

b- Intellectual skills:

On completing this course, the student should be able to:
b. 1 realize and evaluate the statistical techniques to solve big problems dedicated for computer science.
b.2 compare between different statistical methods.
b.3 classify the different statistical approaches used in computing thinking.

c- Professional and practical skills:

At the end of this course, the student will be able to:
c. 1 handle a large amount of data, and come up with results.
c. 2 use technological repositories, internet resources, and library-based materials to acquire a variety of basic research skills in statistics and probability.

d- General and transferable skills:

On successful completion of this course, the student should be able to:
d1. display the skills (think logically and critically to solve problems, explain conclusions, and evaluate evidence or critique the thinking of self and others) necessary to manage one's learning.
d. 2 demonstrate abilities in work effectively as a member of a development team.

d. 3 respect the ethical, legal, and social responsibilities of scientist teamwork.

4- Course contents

Week No.	Topics/units	Number of hours		ILO's
		Lecture hours	Tutorial hours	
1	Frequency tables	2	2	a1,b1,c1, d1
2	Measure of tendency (Mean, Median, and Mode) Ungroup and Grouped data	2	2	a1, a2, b1, b3, c1, d1
3	Measures of variations for Ungrouped data	2	2	a1, a2, b1, b3, c1, d1
4	Measures of variations for Grouped data	2	2	a1, a2, b1, b3, c1, d1
5	Moments, Skewness & Kurtosis	2	2	a2, b2, b3, c1, d1
6	Midterm Exam	2	2	a1, a2, b1. b2. b3, c1, d1,
7	Correlation & regression analysis	2	2	a1, a2, b1, b2, c2, d2
8	Sets and elementary Probability	2	2	a1, a2, b1,b2. c1, d1
9	Discontinuous probability Distributions, Binomial Distribution	2	2	a1,a2, b2, c1, d1
10	Discontinuous probability Distributions, Poisson Distribution + Quiz 2	2	2	a1,a2, b1,b2, c1,c2 d1
11	continuous probability Distributions, normal Distribution	2	2	a1,a2, b2, c1, d1
12	Sampling theory& index number	2	2	a1, a2, b1, b3, c1, c2, d1
13	Test of hypothesis	2	2	a1, a2, b1, b3, c1, c2, d1
14	Time series analysis	2	2	a1, a2, b1, b3, c1, c2, d1, d2

5- Teaching and learning methods

Methods	ILO's																			
	a1	a2	a3	a4	a5	b1	b2	b3	b4	b5	c1	c2	c3	c4	c5	d1	d2	d3	d4	d5
Lectures	√	√				√	√	√			√	√				√	√	√		
Tutorial / Practical sections																				
Self-learning																				

Assays and reviews	√	√				√	√	√			√	√				√	√	√	√	√
Discussion groups																				
Brainstorming																				

6- Teaching and learning methods for Low-achieving students

- Extra teaching hours for those who need help
- More quizzes to assess their ability for understanding the course
- Encourage the team work for those students with other advanced ones to increase their participation and understanding

7- Student assessment

Assessment method	Time	Grade weight (%)	Week	ILOs
Course Work (Tutorial Exercise and Assignments)		15	Every week	a1,a2, b1, b2, b3, c1, c2
Quiz 1		5	Week#4	a1,a2, b1, b2, b3, c1, c2,
Mid-term exam		15	Week#7	a1,a2, b1, b2, b3, c1, c2
Quiz 2		5	Week#11	a1,a2, b1, b2, b3, c1, c2
Final Written exam		60		a1,a2, b1, b2, b3, c1, c2

8-List of references

8.1. Student notebooks:

Comprehensive instructor notes are available on the course web page (google Classroom).

8.2. Essential textbooks:

Statistical Techniques in Business, Lind Marchal, 2021.

8.3. Recommended textbooks:

Schaum's Outline of Statistics, Sixth Edition, Larry J Stephens and Murray R. Spiegel, 2018.

8.4. Journals, Periodical and Reports ……..etc.

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8.5. Websites

STatistics Education Web (STEW)

Course Coordinator: *Dr. Amira Eldesokey*

Head of department: *Prof. Dr. Yasser F. Ramadan*

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