Mansoura University

Faculty of Computers and Information Sciences

Course Specifications of

Probability Theory and Statistical Distributions (1) – UN112ST – 2017/2018

University: Mansoura University **Faculty**: Computer and Information Sciences

---

Program on which the course is given: General – First Year

Department offering the course: Department of Computer Science

Academic year/ Level: 2017-2018 – First Year

Date of specification approval:

A- Basic Information

Title : Introduction to Probability and Statistics (1) **Code:** UN112ST

Credit Hours : 3 **Lecture :** 2 **Tutorial :** 2 **Practical :** 0

B- Professional Information

1- Overall Aims of the Course

This course aims to:

- Build a main background and knowledge in probability and statistics and their fields
- Apply some probability and statistics theories and principles to practical and theoretical problems.
- Use key theoretical tools to explore properties of discrete and continuous random variables.
- Understand the basic steps of experiment design and process

- Derive different statistic summarization measurements and graph representations for data.
- Introduce the concepts of statistical interference (Hypothesis and Estimation) and how it could be applied.

2- Intended Learning Outcomes of the course (ILOs)

By completing this course successfully, the student will be able to:

a- Knowledge and Understanding

a1. Essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study.

a12. Understand the essential mathematics relevant to computer science.

a14. Demonstrate basic knowledge and understanding of a core of analysis, algebra, applied mathematics and statistics.

b- Intellectual Skills

.

b12. Perform classifications of (data, results, methods, techniques, algorithms..etc.).

b16. Establish criteria, and verify solutions.

.

c- Professional and Practical Skills

d- General and Transferable Skills

d1 Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.

3- Contents

No	Course Content	Lecture	Tutorial	Total
1	Introduction to Probability and Statistics and their Applications, Combinatorial Analysis: Counting, permutation, combination, multiple events	**2.0**	**2.0**	**4.0**
2	Introduction to the Concepts and Practice of Statistics, Data Types, Measurement level, Sampling Methods	**1.0**	**1.0**	**2.0**
3	Statistic Process, Experimental Design, Blind Experiment	**2.0**	**2.0**	**4.0**
4	Descriptive Statistics (Mean, Mode, Median, Variance,	**1.0**	**1.0**	**2.0**

	Standard Division, Percentiles, Quartiles, Range, …)			
5	Frequency Tables, Graphical Representations. Confusion Matrix, Correlation Coefficients, Regression Coefficients	**2.0**	**2.0**	**4.0**
6	Midterm Exam			
7	Concepts of Probability, Axioms, Conditional Probability, Contingency table, Bayesian theorem	**2.0**	**2.0**	**4.0**
8	Discrete Random Variable, Discrete random Variable Distribution, Continuous Random variable, Continuous Random Variable, Continuous Random Variable Distribution	**2.5**	**2.5**	**5.0**
9	Statistical Inference	**1.5**	**1.5**	**3.0**
	Total Hours	**14**		

4- Assessment Schedule

Assessment Method	No.	Description	Week No.	Weight (%)
Assignment	1	Sheet no. 1, 2	4, 11	4.00%
Written Exams	2	Midterm Exam	7	13.00%
Quiz	3	Quiz	3, 9	4.00%
Term project	4	Program Assignment	13	4.00%
Written Exams	5	Final Exam	14	75.00%
Total				100

5- List of references

5.1 Course Notes

- Slides delivered to students at the end of some lectures.

5.2 Essential Books (Text Book)

- Michael Sullivan , Statistics: Informed Decisions Using Data, Pearson, 3rd Edition, 2013
- Sheldon Ross A FIRST COURSE IN PROBABILITY, Eighth Edition, Prentice Hall, 2010
- Statistics for Business and Economics, Eight Edition,
- Dekking et al. A Modern Introduction to Probability and Statistics. 2007

6- Facilities Required for Teaching and Learning

- Data show.
- Blackboard.
- Speakers for audio and video files used to practice listening.

Course Content/ILO Matrix

Course Content	a1	a12	a14	b12	b16	d1
Introduction to Probability and Statistics and their Applications, Combinatorial Analysis: Counting, permutation, combination, multiple events	•	•	•			•
Introduction to the Concepts and Practice of Statistics, Data Types, Measurement level, Sampling Methods			•	•		
Statistic Process, Experimental Design, Blind Experiment			•	•	•	•
Descriptive Statistics (Mean, Mode, Median, Variance, Standard Division, Percentiles, Quartiles, Range, …)	•	•	•			
Frequency Tables and Graphical Representations Correlation Coefficients, Regression Coefficients	•	•	•			
Concepts of Probability, Axioms, Conditional Probability, Contingency table, Bayesian theorem						•
Discrete Random Variable, Discrete random Variable Distribution, Continuous Random variable, Continuous Random Variable, Continuous Random Variable Distribution		•	•	•		
Statistical Inference	•	•	•	•	•	

Learning Method/ILO Matrix

Course Content	a1	a12	a14	b12	b16	d1
Lectures	•	•	•	•	•	•
Tutorials	•	•	•	•	•	

Assessment Methods/ILO Matrix

	a1	a12	a14	b12	b16	d1
Assignment			•	•		•
Midterm Exam	•	•	•	•	•	•
Quizzes			•	•	•	
Term project			•			•
Final Exam	•	•	•	•	•	•

Course Coordinator: **Prof. Samir Elmougy**
Head of Department: **Prof. Samir Elmougy**
Date: **3/3/2018**