

BA329 – Probability and Statistics
C O U R S E I N F O R M A T I O N

Course Title: Probability and Statistics

Code: BA329

Contact Hours (hours/week): Lecture – 2 Hrs. Tutorial – 2 Hrs. Credit – 3.

Prerequisite: BA224 (Math. 4)

Course Coordinator: Dr. Mohamed Fathy Emam

G R A D I N G

Class Performance/Attendance: 10%

Midterm # 1/Assignments – (7th Week): 30%

Midterm # 2/Assignments – (12th Week): 20%

Final Exam: 40%

C O U R S E D E S C R I P T I O N

Elementary probability, Conditional probability– Independent and dependent events, Bayes Theorem – Combinatorial analysis – Discrete probability distribution, density function – Continuous probability distribution, density function – Mathematical expectation, mean and variance – Moments skewness kurtosis and moments generating function – Special discrete distribution Bernoulli – Geometric and Poisson distributions – Special continuous distribution : Uniform – negative exponential – Normal distribution – Failure time distributions – The exponential model in reliability – The exponential model in life testing.

T E X T B O O K

WALPLE, MYERS, MYERS, YE, Probability & Statistics for Engineers & Scientists, 9th edition, 2012

C O U R S E A I M

This course provides a straightforward introduction on the Statistical analysis and the theory of probability without burdening the student with a great deal of measure theory. In particular, a principal purpose of the course is to help to build up the important skills necessary for problems solving.

C O U R S E O B J E C T I V E S

The course has four main objectives. The first is how to make statistical analysis and calculating statistical measurements using computer programs like the minitabobIntroduction basic cost concepts and economic environment.

Through this course the student gets to know how:

- To make statistical analysis and calculating statistical measurements.

- To introduce the basic ideas of probability and conditional probability and its dependence. It is assumed that the student has some knowledge of elementary set theory.
- To introduce discrete and continuous random variable and for this need knowledge of the simpler techniques of calculus desirable.
- To introduce the joint distribution in order to study simple application to random process and signal principles.

COURSE OUTLINE

- Week Number 1:* Elementary probability – Conditional probability.
- Week Number 2:* Independent and dependent events – Bayes' Theorem.
- Week Number 3:* Combinatorial analysis.
- Week Number 4:* Discrete probability distribution – density function.
- Week Number 5:* Continuous probability distribution – density function.
- Week Number 6:* Mathematical expectation, mean and variance.
- Week Number 7:* Moments skewness kurtosis and moments generating function, 7th week Exam.
- Week Number 8:* Special discrete distribution Bernoulli.
- Week Number 9:* Geometric and Poisson distributions .
- Week Number 10:* Special continuous distribution : Uniform – negative exponential.
- Week Number 11:* Normal distribution.
- Week Number 12:* Failure – time distributions 12th week Exam.
- Week Number 13:* The exponential model in reliability.
- Week Number 14:* The exponential model in life testing.
- Week Number 15:* General worked Examples.
- Week Number 16:* Final Exam.

Final Exam