

## **Stat 324 : Statistics for Engineers**

Office No. 2 B 24 Building 4

Office Hours : Wednesday 12-1 pm

### **Text Book:**

**Title :** Probability and Statistics for Engineers and Scientists

**Authors:** R. E. Walpole and R. H. Myers **Edition:** Latest available.

**Grading Policy:** Test No. 1 :25 Marks  
Test No. 2 :25 Marks  
Tutorial : 10 Marks  
Final Test : 40 Marks

**Course Delivery:** Two lectures per week plus a two-hour lab session for questions and review.

### **Homework and Testing Policies:**

University and College policies on homework and examinations will be strictly enforced. Students have to work independently on home works and tests. Biweekly home works will be given and are due a week later. They are to be handed in on time. No late home works will be accepted.

### **Course Syllabus for the Second Semester 1437/1438 H:**

- Week One ( 8/ 5 /1438) :** Introduction
- Week two( 15/ 5 /1438):** some simple concepts.Measures of Location: The Sample Mean and Median. Measures of Variability: Variance and Standard deviation.
- Week Three ( 22/ 5 /1438) :** Sample space, events, counting sample points (combinations only) , (2.1- 2.3). Probability of an event, additive rules. (2.4, 2.5)
- Week Four ( 29/ 5 /1438):** Conditional Probability, Multiplication Rule. Independent random events. Total Probability Rule, Bayes Rule (2.6-2.8).
- WeekFive ( 6/ 6 /1438):** Random Variables (R.V.) , Discrete Probability distributions (3.1, 3.2) Continuous Probability distributions (3.3).
- Week Six ( 13/ 6 /1438):** Mean of a Random Variable, Variance of a Random Variable (4.1, 4.2). Moments of a Random Variable, Mean of a linear combinations of Random Variables and Chebychev's Inequality (4.3, 4.4).
- Week Seven ( 20/ 6 /1438):** Discrete Uniform distribution. Binomial distribution (5.2, 5.3). Hypergeometric distribution. Poisson distribution (5.4, 5.5).

## First Midterm Exam will be on Sunday 27 – 6-1438 H. at 07:00 – 08:30 pm

(Till Chebyshev's Theorem which means sec 4.4 is included)

**Week Eight ( 27/ 6 /1438):** Continuous Uniform Distribution, Normaldistribution. Areas under the standard normal curve (6.1, 6.2). Applications of the normal distribution (6.3, 6.4).

**Week Nine ( 5/ 7 /1438):**

### Midterm Vacation

**Week Ten ( 12/ 7 /1438):** Exponential Distribution. Random Sampling, Some important statistics and Sampling distributions (8.1, 8.2, 8.3). Sampling distribution of the mean from normal populations (8.5).

**Week Eleven ( 19/ 7 /1438):** t-distribution (8.7). Sampling distribution of the difference between independent sample means. Sampling distribution of single sample proportion and the difference between two sample proportions.

**Week Twelve ( 26/ 7 /1438)** Statistical Inference, Classical estimation methods, Estimation of the mean (9.1, 9.2, 9.4). Standard error of a point estimate, estimating the difference between two means (9.5, 9.7)

## Second Midterm Exam will be on Thursday 1 – 8-1438 H. at 07:00 – 08:30 pm

(Till Sampling Distributions which means sec 8.7 is included)

**Week Thirteen (4/8/1438):** Estimating a proportion (9.9). Estimating the difference between two proportions (9.10)

**Week Fourteen (11/8/1438)** Testinga statistical hypothesis, One- and Two-tail tests, Types of errors (10.1, 10.3). Testing means with known population variance, Relation to confidence intervals (10.4, 10.5, 10.6).

**Week Fifteen (18/8/1438) :** Testing means with unknown population variance, Two sample testing (10.7, 10.8). Testing simple proportion and two proportions (10.11, 10.12)

**Week Fifteen (25/8/1438) :** Any leftover materials and General review.

Please note down the following:

- Attendance in the class is required. Students coming late will be regarded absent.
- Students are advised to carry the book and a scientific calculator all the times in the class.
- Programmable calculators are not allowed during examinations.
- All exams will have multiple-choice questions.
- Date and time for final examination will be announced later.