**Stat 324**

**Probability and Statistics for Engineers**

**Textbook: *Probability and Statistics for Engineers and Scientist*s,
By: Walpole, R. E.; Myers, R. H. and Myers, S. L., 6th edition, Prentice Hall, 1998.**

**OUTLINE**

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| **Week** | **Sections** | **Subjects** |
| **1** | **1.1, 1.3, 1.4** | **Introduction to Statistics & Data Analysis** |
| **2** | **2.1, 2.2, 2.3, 2.4, 2.5** | **Sample Space, Events, Counting Sample Points (only Theorem 2.8), Probability of an Event, Additive Rules** |
| **3** | **2.6, 2.7, 2.8** | **Conditional Probability, Independent Events, Multiplicative Rules, Bayes’ Rule** |
| **4** | **3.1, 3.2,3.3** | **Concept of Random Variable, Discrete Probability Distributions, Continuous Probability Distributions** |
| **5** | **4.1, 4.2, 4.3, 4.4** | **Mean of a Random Variable, Variance, Means & Variances of a Linear Combination of Random Variables (for independent variables), Chebyshev’s Theorem** |
| **6** | **5.2, 5.3, 5.4, 5.6** | **Discrete Uniform Distribution, Binomial Distribution, Hypergeometric Distribution, Poisson Distribution** |
| **7** | **6.1, 6.2, 6.3****6.4** | **Continuous Uniform Distribution, Normal Distribution, Areas Under the Normal Curve, Applications of the Normal Distribution** |
| **8** | **6.6, 8.1, 8.2** | **Exponential Distribution, Random Sampling, Some Important Statistics, Sampling Distributions, Sampling Distribution of Means, t-Distribution** |
| **9** | **8.4, 8.5, 8.7** | **Sampling Distributions, Sampling Distribution of Means, t-Distribution** |
| **10** | **9.1, 9.2, 9.4, 9.5** | **Introduction to Estimation, Statistical Inference, Estimating the Mean, Standard Error** |
| **11** | **9.7, 9.9, 9.10** | **Estimating the Difference Between Two Means, Estimating a Proportion, Estimating the Difference between Two Proportions** |
| **12** | **10.1, 10.2** | **Review, Statistical Hypotheses, Testing a Statistical Hypothesis** |
| **13** | **10.3, 10.5, 10.7** | **One- and Two-Tailed Tests, Tests Concerning a Single Mean, Tests on a Single Mean when variance is unknown** |
| **14** | **10.8, 10.11, 10.12** | **Tests on Two Means, Test on a Single Proportion, Test on two Proportions** |
| **15** | **11.1, 11.2** | **Simple Linear Regression, Properties of the Least Squares Estimation** |
| **16** | **11.3, 11.4** | **Inference Concerning the Regression Coefficients, Correlation**  |