Detailed Syllabus of Unit 3

1.	**Unit: 3** **Sampling and Estimation** **T1: Chapter 4 4.9 – 4.11; Chapter 5 5.1-5.4, 5.7**	Principles of Point Estimation : **Measuring the Goodness of an Estimator** Mean squared error(4.9)+ (Handout)
2.		Maximum likelihood estimate (4.9)+(Handout)
3.		Maximum likelihood estimate (4.9)+(Handout) **Desirable Properties of Maximum Likelihood Estimators**
4.		Normal Probability Plot (4.10)(Demo) **Interpreting Probability Plots**
5.		**Sampling concepts :** The Central Limit Theorem and its applications(4.11)
6.		The Central Limit Theorem Applications.(4.11) **Normal Approximation to the Binomial** **The Continuity Correction** **Accuracy of the Continuity Correction** **Normal Approximation to the Poisson** **Continuity Correction for the Poisson Distribution**
7.		**Confidence Intervals :** Introduction, Interval estimates for mean of large samples.(5.1) **More About Confidence Levels** **Probability versus Confidence**
8.		Interval estimates for mean of large samples.(5.1)(Demo) **Determining the Sample Size Needed for a Confidence Interval of Specified Width** **One-Sided Confidence Intervals** **Confidence Intervals Must Be Based on Random Samples**
9.		Interval estimates for proportion of large samples. (5.2)(Demo) (Excluding The Traditional Method)
10.		Confidence intervals for mean of Small Samples.(5.3) Student's t Distribution(Demo) **Don't Use the Student's *t* Statistic If the Sample Contains Outliers** **Confidence Intervals Using the Student's *t* Distribution** **How Do I Determine Whether the Student's *t* Distribution Is Appropriate?** **Use *z*, Not *t*, If σ Is Known**
11.		Confidence Intervals for the Difference Between Two Means for large samples(5.4)
12.		Confidence Interval estimates for paired data.(5.7)
13.		Factors affecting Margin of Error.(Handout)(Demo)