List of Lab Experiments for STAT-2202

1	Verify Fisher's Lemma using simulated data from normal distributions.
2	Generate χ^2-distributed data and analyze its properties
3	Compare t-distribution with normal distribution for small sample sizes.
4	Simulate F-distributed data and study its relationship with χ^2-distributions.
5	Generate samples from a population and study the distribution of medians and ranges.
6	Estimate population parameters (mean, variance) from sample data.
7	Demonstrate consistency by increasing sample size and observing convergence to the true parameter.
8	Compare biased and unbiased estimators (e.g., sample variance vs. population variance).
9	Calculate efficiency of estimators (e.g., sample mean vs. sample median).
10	Derive MLEs for parameters of binomial, Poisson, and normal distributions using simulated data.
11	Simulate decision-making processes using hypothesis testing.
12	Derive the best critical region for simple vs. composite hypotheses.
13	Simulate Type I and Type II errors in hypothesis testing.
14	Perform hypothesis testing step-by-step using real or simulated data.
15	Compare the power of different tests for the same hypothesis.
16	Apply Bartlett's test to compare variances across multiple groups.
17	Perform Fisher's exact test on 2×2 contingency tables.
18	Analyze three-way contingency tables using log-linear models.
19	Conduct non-parametric tests
20	Perform z-tests for large sample sizes.

Red colour indicate discarded from the list