

Please read the instructions carefully:

- a) Submit your do files and your graphical output.
- b) Your commands should be described in your do file. Put an * and then you can mention your comment/description (see my do-files for reference).
- c) Last date of submission is 6th December (10 PM). No late submissions will be entertained.

1. Show that Chebyshev's inequality holds for a Normal distribution.

Show this for $\mu \pm 2\sigma$ and $\mu \pm 3\sigma$.

Specifications: Create a dataset of 1000 observations. This dataset should have a random variable which follows a normal distribution with mean 25 and standard deviation 5.

Hints: a) Use summary command in STATA, b) create Maximum and Minimum cut-off values for defining "Zone 2"

[10]

2. Show that Chebyshev's inequality holds for a Poisson distribution.

Show this for $\mu \pm 2\sigma$.

Specifications: Create a dataset of 1000 observations. This dataset should have a random variable which follows a poisson distribution with $\lambda = 25$.

Hints: a) Use summary command in STATA, b) create Maximum and Minimum cut-off values for defining "Zone 2"

[5]

3. Show that Central Limit holds for Poisson distribution.

Specifications: Create a dataset of 1000 observations. This dataset should have a random variable which follows a poisson distribution with $\lambda = 25$. The sample size (n) should be 30. Create a histogram to visualize the output.

[5]