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## FACULTY OF ENGINEERING & TECHNOLOGY

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# LECTURE- 28

BSc (AG)  
2<sup>nd</sup> Year , IIIrd Sem.  
Statistical Methods  
AES-213



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# Outline of Lecture

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- Sampling Theory
- Basic definitions used in sampling theory
- Types of Sampling
- Random Sampling
- Types of Random Sampling
- Suggested Readings & References



## Basic definitions used in sampling theory

### Population:

- The group of observations under study is called population or universe.
- Population may be finite or infinite.
- A large packet of rice is treated as population.

### Sample:

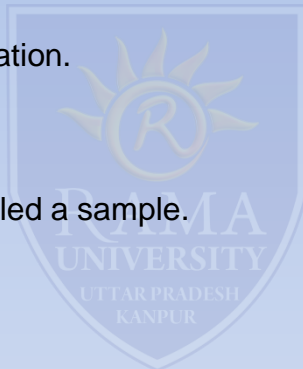
- A part selected from the population is called a sample.
- A bowl of rice is treated as sample.

### Parameters:

- The statistical constants of population such as mean, median, mode, range, S.D., variance, etc are called parameters.

### Statistic:

- The statistical constants of sample such as mean, median, mode, range, S.D., variance, etc are called statistic.



## Types of Sampling

There are following types of sampling commonly used .

1. Purposive sampling ( purpose based sampling )
2. Random Sampling
3. Stratified Sampling
4. Systematic Sampling



From this random sampling is very important to us. There are two types of random sampling.

- I. Random Sampling with replacement
- II. Random Sampling without replacement

## Random Sampling

Random sampling is a part of the sampling technique in which each sample has an equal probability of being chosen. A sample chosen randomly is meant to be an unbiased representation of the total population.

A simple random sample is a subset of a statistical population in which each member of the subset has an equal probability of being chosen. A simple random sample is meant to be an unbiased representation of a whole group.

An example of a simple random sample would be the names of 30 students being chosen out of a B.Sc. AG Section A of 225 students. In this case, the population is all 225 students, and the sample is random because each student has an equal chance of being chosen. Random sampling is used in science to conduct randomized control tests or for blinded experiments.

# Suggested Readings & References

## Suggested Readings & References

- 1) Statistical Methods: P.N. Arora, Sumeet Arora & S. Arora; S. Chand & Company Ltd.
- 2) Fundamental of Mathematical Statistics: S.C. Gupta & V. Kapoor; Sultan Chand & Sons.
- 3) Statistics: M.R. Spiegel; Schaum's Outline Series, Mc-Graw Hill Publication.
- 4) Advanced Engineering Mathematics: Erwin Kreyszig; John Wiley & Sons Inc.
- 5) Elements of Statistics: J.P. Chauhan & S. Kumar; Krishna Publication.

The logo of Rama University is a shield-shaped emblem. At the top is a sun with rays. Below the sun is a circle containing the letter 'R'. Underneath the circle, the word 'RAMA' is written in a serif font, followed by 'UNIVERSITY' in a smaller font. At the bottom of the shield, the word 'Rama' is written in a script font.

**\* THANK YOU \***