

## DAILY ASSESSMENT

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Course:	Coursera	USN:	4AL17EC097
Topic:	Basic Statics	Semester & Section:	6 <sup>TH</sup> SEM & 'B' Section
Github Repository:	yamunashree-course		

## SESSION DETAILS

Basic Statistics > Week 5 > 5.04 The central limit theorem

Sample and sampling

Sampling distribution of sample mean and central limit theorem

- ✓ Reading: Sampling distribution of sample mean and central limit theorem 10 min
- ✓ Video: 5.03 The sampling distribution 7 min
- ✓ Video: 5.04 The central limit theorem 7 min
- ✓ Video: 5.05 Three distributions 7 min
- ✓ Reading: Reference 10 min

Sampling distribution of sample proportion and

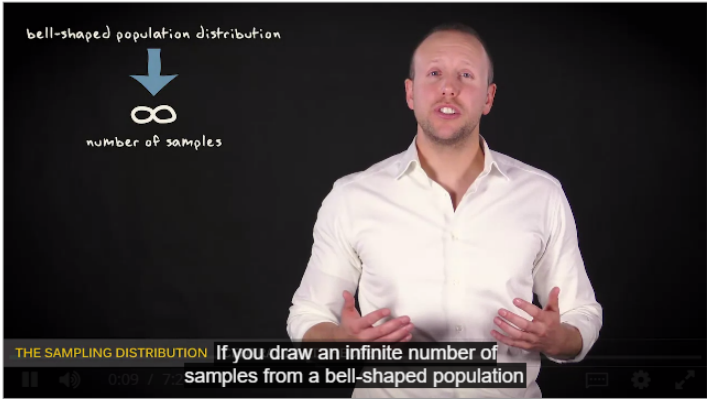
### 5.04 The central limit theorem

bell-shaped population distribution

↓

∞

number of samples



THE SAMPLING DISTRIBUTION If you draw an infinite number of samples from a bell-shaped population

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✓ Video: 5.04 The central limit theorem  
7 min

✓ Video: 5.05 Three distributions  
7 min

✓ Reading: Reference  
10 min

**Sampling distribution of sample proportion and example**

✓ Reading: Sampling distribution of sample proportion and example  
10 min

✓ Video: 5.06 Sampling distribution proportion  
5 min

✓ Video: 5.07 Example  
6 min

Review

## 5.06 Sampling distribution proportion



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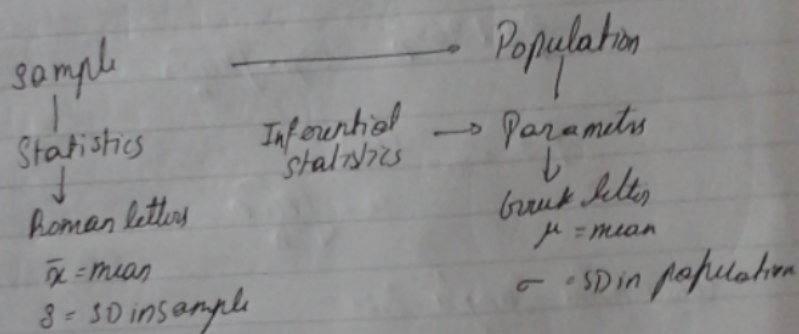
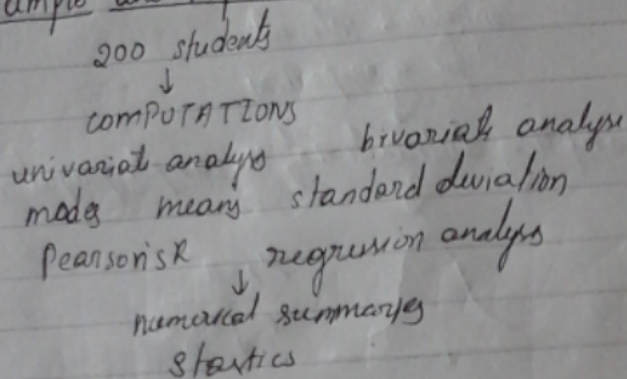
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## Sample and Population



## Sampling

Inferential Statistics refers to method used to draw conclusion about a population, based on data coming from a sample

A sample is nothing more than a subset of a population yet for methods of inferential statistics, not sample is appropriate.

## The sampling distribution

Sample distribution is the link that helps researchers to draw conclusions about a population on the basis of only one sample

The central limit theorem  
bell shaped population distribution

↓  
number of sample

↓  
distribution of sample means is bell shaped  
with a mean equal to the population mean

↓  
sampling distribution  
of sample mean.

central limit theorem

↓  
The sampling distribution of sample mean  $\bar{x}$   
is approximately normal

mean of sampling distribution  
= population mean

↓  
 $\mu_{\bar{x}} = \mu$

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

Three distribution

1. Population distribution
2. Data/sample distribution.
3. Sampling distribution

Sampling distribution Proportion

sampling distribution of the sample mean

↓  
approximately bell shaped if population is  
normally distributed or if sample size is  
sufficiently large ( $\geq 30$ )

sampling distribution  
of the sample proportion → approximately bell shaped  
if  $np \geq 15$  and  $n(1-p) \geq 15$



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