# Cheatography

## Chapter 7: Sampling and Sampling Distributions Cheat Sheet by allyrae97 via cheatography.com/29652/cs/8742/

### Definitions

Element: The entity on which data are collected Population: A collection of all the elements of interest

Sample: A subset of the population

Sampled population: The population from which the sample is collected

Frame: a list of elements that the sample will be collected from

#### Sampling from an Infinite Population

Populations generated by an ongoing process are referred to as Infinite Populations: parts being manufactured, transactions occurring at a bank, calls at a technical help desk, customers entering a store

Each element selected must come from the population of interest, Each element is selected independently.

#### Sampling Distribution of

Expected value of $x_{-}$ : E( $x_{-}$ ) = u	Standard Deviation of x-:
Finite Population: $\sigma x_{-} = \sqrt{N-n}(N-1) (\sigma/\sqrt{n})$	Infinite Population: $\sigma x$ = $\sigma / \sqrt{n}$
Z-value at the upper endpoint of interval=- largest value-u/ <i>ax</i> -	Area under the curve to the left of the upper endpoint=largest value- $u/\sigma x_{-}$ on the z table
Z-value at the lower endpoint of the interval=- smallest value-u/ <i>σx</i> -	Area under the curve to the left of the lower endpoint=smallest value-u/ $\sigma$ x- on the z table
Probability=area under curve to left of upper endpoint-area under curve to left of lower endpoint	When selecting a different sample number, expected value remains the same. When the sample size is increased the standard error is decreased.

#### Sampling from a Finite Population

Finite Populations are often	A simple random sample of size n
defined by lists: Organi-	from a finite population of size N: a
zation Member Roster,	sample selected such that each
Credit Card Account	possible sample of size n has the
Numbers, Inventory Product	same probability of being selected
Numbers	

#### **Point Estimation**

largest value-p/ op-

endpoint of the interval=-

smallest value-p/ op-

Point Estimation is a form of statis- tical inference.	We use the data from the sample to compute a value of a sample statistic that serves as an estimate of a population parameter.	
x- is the point estimator of the population mean	s is the point estimator of the population standard deviation	
<i>p</i> <sub>-</sub> is the point estimator of the population proportion	x-=(∑xi )/	'n
<i>s</i> =√∑( <i>xi</i> -□ □-)^2/n-1	<i>p</i> _=x/n	
	5	
Sampling Distribution of		
Expected value of $\Box$ $\Box_{-}=E(p_{-})=p$	]	Standard Deviation of <i>p</i> -;
Finite Population: $\sigma p$ = $\sqrt{N-n}/(N-1)$ )( $\sqrt{p}(1-$	∟ -p/n)	Infinite Population: $\sigma p_{-} = \sqrt{p(1-p/n)}$
Z-value at the upper		Area under the curve to the left of the

Area under the curve to the left of the endpoint of the interval=upper endpoint equals z value of largest value-p/ op-Z-value at the lower Area under the curve to the left of the

lower endpoint=z=value of mallest

Probability=area under curve to left of upper endpoint-area under curve to left of lower endpoin

value-p/ op-

#### By allyrae97

cheatography.com/allyrae97/

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