Week 2: Descriptive Statistics

Unit 3: Sampling and Populations

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Introduction

- **Population**: the entire group of items or individuals being studied
- **Sample**: a part of the population being studied
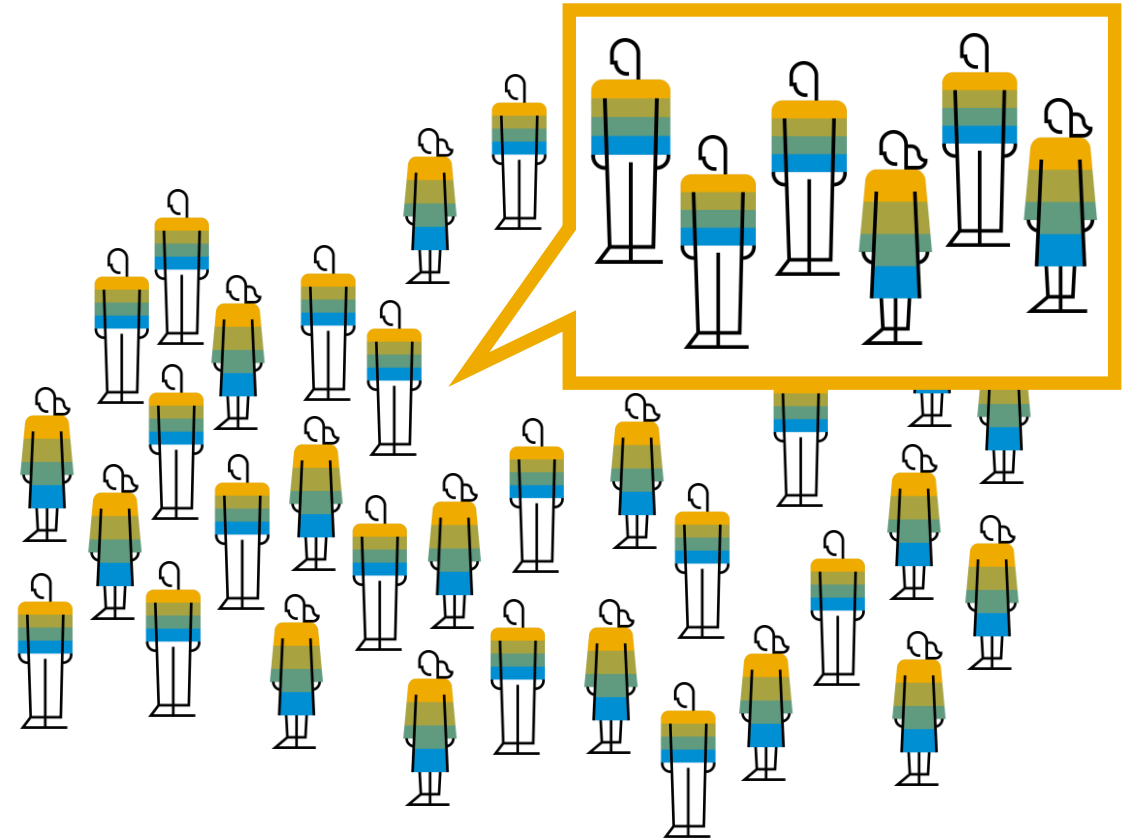
The population

Number = N

Mean = μ

Standard deviation = σ

General kinds of sampling

Haphazard sampling

Quota sampling

Probability sampling

Common sampling approaches

First N, Last N

Every Nth

Simple Random

Systematic Random

Stratified Sampling

	Emp ID	Emp Name	DOB	Age
1	1	Laura	11/11/86 00:00	25
2	2	Desy	12/05/81 00:00	30
3	3	Alex	30/05/78 00:00	33
4	4	John	06/06/79 00:00	32
5	5	Ted	04/07/87 00:00	24
6	6	Tom	30/06/70 00:00	41
7	7	Anna	24/06/65 00:00	46
8	8	Valerie	06/07/90 00:00	21
9	9	Mary	19/09/85 00:00	26
10	10	Martin	21/11/86 00:00	25

Systematic Random Example:

- With 10 records, a bucket size of 5 will give 2 buckets which are randomly sampled from:
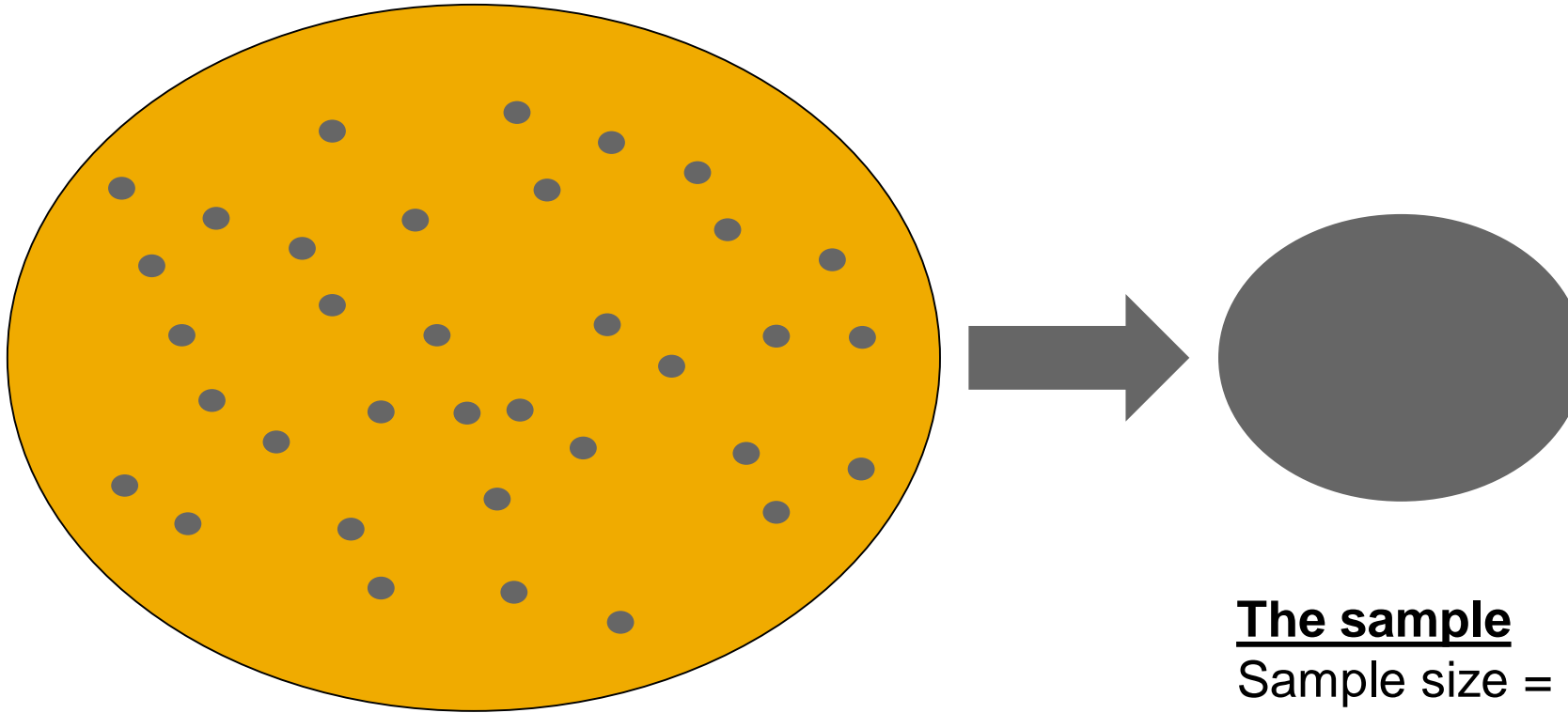
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The random sample

The sample
Sample size = **n**
Sample mean = $\bar{\mathbf{x}}$
Sample standard deviation = **s**

Population vs sample
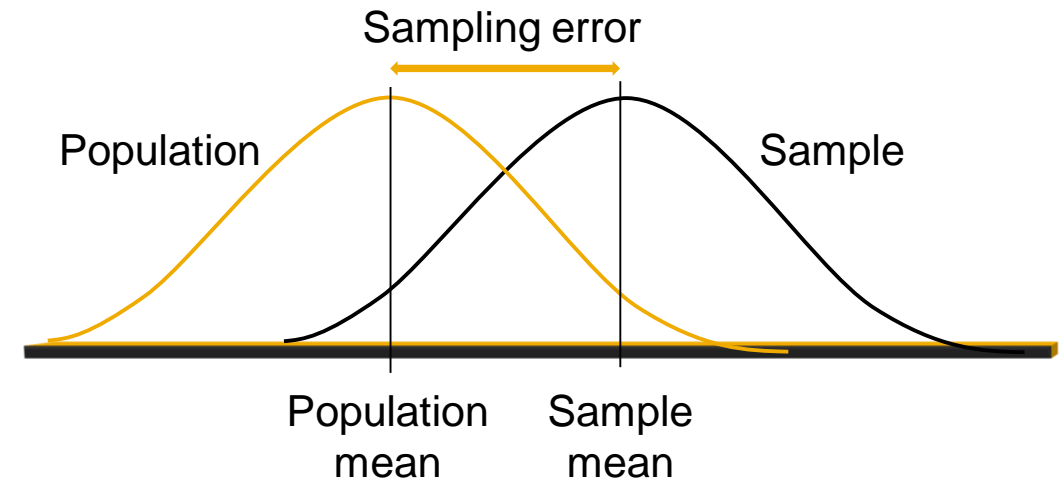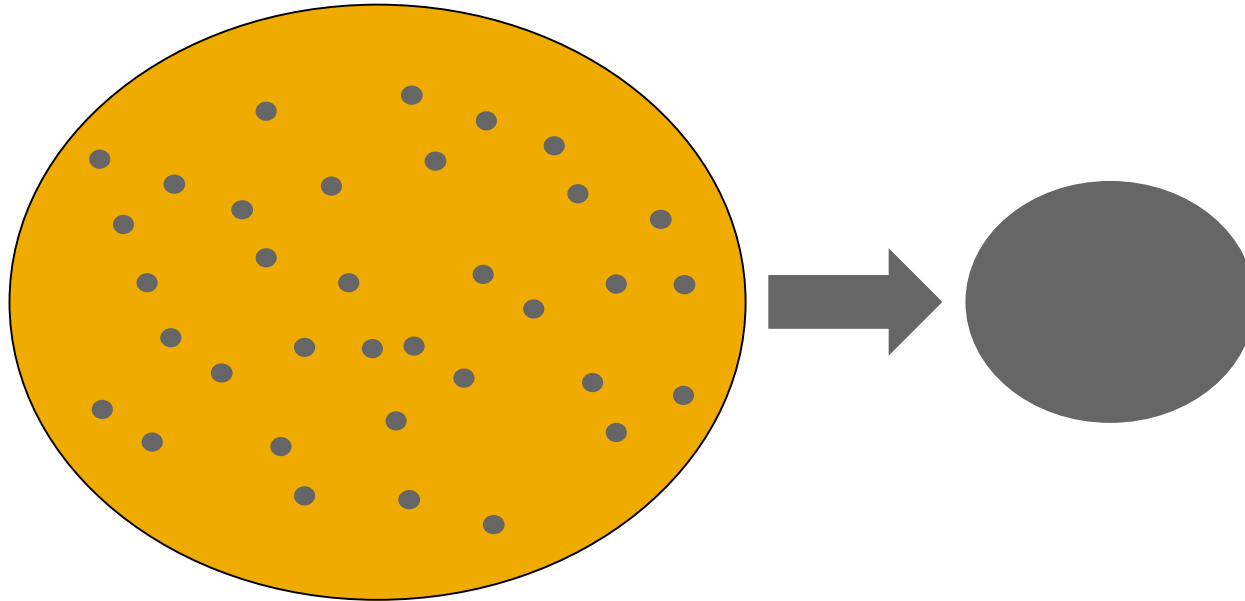
Sampling error

Population   Sample

Population mean   Sample mean

The population

Number = N

Mean = μ

Standard deviation = σ

The sample

Sample size = **n**

Sample mean = $\overline{x}$

Sample standard deviation = **s**

Sampling bias
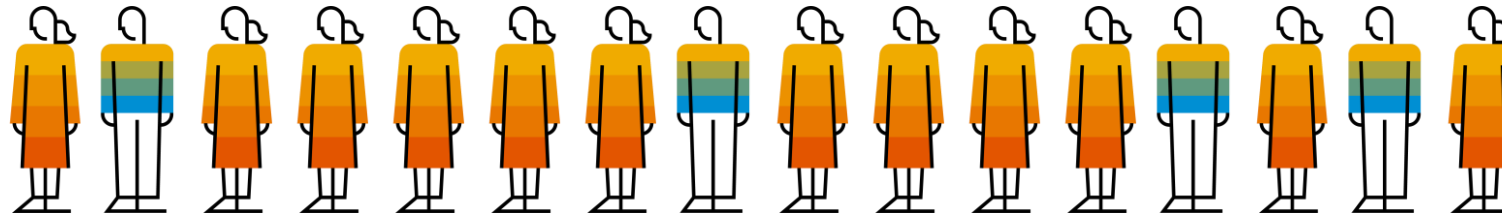
12 females   4 males
75% female   25% male
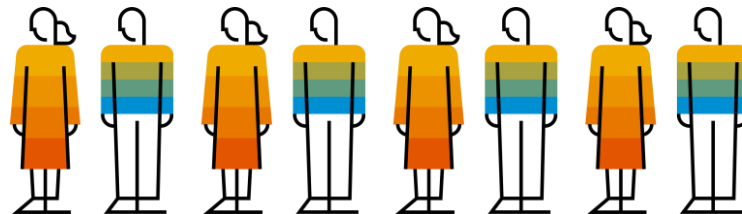
A biased sample:

Does *not* accurately represent the population

4 females   4 males
50% female   50% male

Summary

- This was a short introduction to sampling and populations, and the challenges that are associated with creating representative samples. It also introduced you to some of the terminology that is used in this area.
- You will learn more about this important topic later in this course.

Thank you.

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