Descriptive statistics, sampling and correlation

CHEATSHEET

Exam Mon, 7 Dec 2026

EXAM LIKELIHOOD Interpreting R output (no code writing) **97%** · Selection bias and sample representativeness **92%** · Internal and external validity **92%** · Sampling methods: stratified, cluster, systematic **90%** · Pearson versus Spearman correlation **90%** · Spurious correlation and confounder **88%**

Three kinds of measures

Centre

Mean, median and mode: what is a typical value?

Spread

Range, variance and standard deviation: how far apart are values?

Association

Correlation: are two variables linearly related?

From population to sample

1. **Define the population**
2. **Choose a sampling method**
3. **Draw the sample**
4. **Estimate the population from the sample**

Common mistakes

- Saying that a strong correlation proves causality.
- Thinking that the 95% is a probability for this one interval.
- Seeing a larger sample as a cure for selection bias.
- Interpreting a correlation without the scatter plot.