

Exam 2 Topics List

Statistical framework (parameter vs statistic)

What is a distribution?

- What values?
- How frequently?

Study Design

- Representative samples
- Bias vs variance

Sampling Distribution

- Distributional parameters
- Standard error vs standard deviation
- Sampling distribution definition
- Central Limit Theorem conditions
 - When does it apply? When does it not?
 - When is approximation likely correct?
- Normal distribution
- Standard normal distribution
- Critical values
- t-distribution
- Bootstrapping

Confidence Intervals

- When can we use / how to construct
- Critical values and quantiles
- How does each term impact location and size of CI
- Coverage probability (what does this mean?)

Hypothesis Testing

- What is a t-statistic? Can you write it?
- What is a t-test?
- Testing univariate mean
- Proportion and difference in proportion
- Null Hypothesis and null distribution (sampling distribution when null is true)
- Interpret p-values
- Relationship between α and confidence intervals

Do not need to know

How to compute p-values directly

Types of study design

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