

SESSION 7 OF

STATISTICS FOR BUSINESS

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TODAY'S TOPIC

**HYPOTHESIS
TESTING**

BY THE END OF CLASS, WE SHOULD KNOW

- Null and alternative hypothesis
- Hypothesis testing
- Significance level (α)
- One and two tailed tests

NULL HYPOTHESIS

$[H_0]$

STATUS QUO

ALTERNATE HYPOTHESIS

$[H_A]$

PROPOSING

EXAMPLES

H_0

- The average monthly salary of a European adult is EUR 3000.
- The average height of the kids under seven years is less than hundred centimeters.
- The average house-rent in los angels is greater than or equal to 2000 USD.

H_A

- The average monthly salary of a European adult is not equal to EUR 3000.
- The average height of the kids under seven years is grater than or equal to hundred centimeters.
- The average house-rent in los angels is less than 2000 USD

HYPOTHESIS TESTING



TYPE-1 ERROR

H_0 is true but we reject it.

SIGNIFICANCE LEVEL [α]



$$\alpha = P(\text{TYPE} - 1 \text{ ERROR})$$

TYPE-2 ERROR

H_0 is false but we failed to reject it.

$$\beta = P(\text{Type} - 2 \text{ error})$$

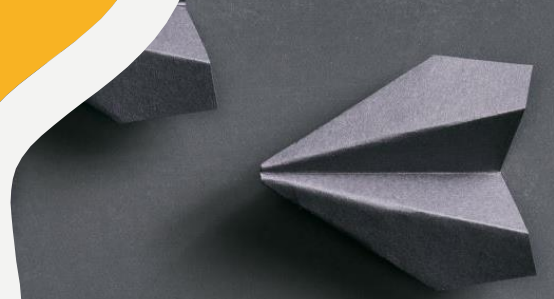
EXAMPLE

Which error is acceptable for the following?

H_0 : Average battery life of a pacemaker is 300 days or less.



EXAMPLE ONE TAILED TEST



EXAMPLE TWO

TAILED TEST

**THANK
YOU**

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