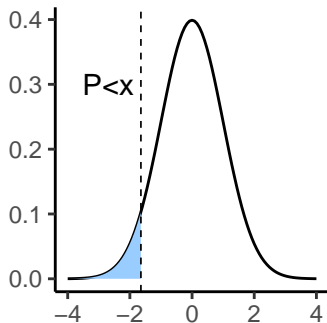# Inferential Statistics

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Fall 2024
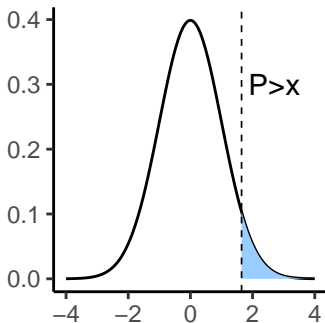
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Expanding on Hypothesis Testing

- 1-tailed
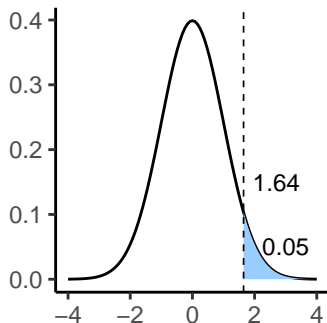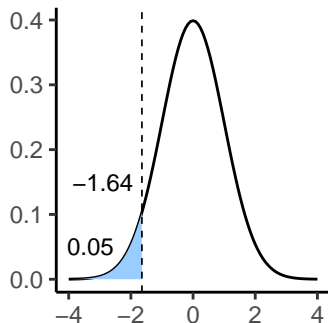 - ▶ Hypothesis includes an **expected direction**.

- ● Decrease
- ● Cooler
- ● Smaller
- ● Lower

- ● Increase
- ● Warmer
- ● Higher
- ● Expand

# Expanding on Hypothesis Testing

- 1-tailed - hypothesis includes an **expected direction**.

- If your obtained test statistic falls beyond the critical value (lightblue) for your given Alpha threshold = Significant result, **reject the null**

Expanding on Hypothesis Testing

- 2-tailed tests:
  - ▸ Have n**o expected directionality** hypothesized.
  - ▸ Splits the 5% of the area under the curve that would be considered significant between both tails of the normal distribution curve.
  - ▸ Are therefore less powerful tests (more likely to find a significant result).
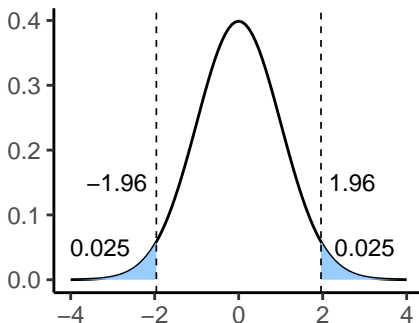
Significant or Not?

- **Not significant**=

  Significant=

- Accept the null hypothesis.
- There is **no** difference between the sample and population mean.
- Obtained test statistic < critical value threshold.
- p-value > alpha threshold (usually 0.05).

- Reject the null hypothesis,
- There **is** a difference between the sample and population mean.
- Obtained test statistic > critical value threshold.
- p-value < alpha threshold (usually 0.05).

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Basic steps for an **Inferential Test**

- A statement of null hypothesis.
- Choose the appropriate test.
- Set the level of Type I error risk (alpha)
- Analyze data distribution
- Compute the test statistic (obtained) value
- Assess significance:
  - ▶ Determine the critical value needed to reject the null hypothesis and compare it to your - calculated test statistic
  - ▶ Determine the p-value associated with your calculated test statistic
- Summarize

contents. . .

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