



# Hypothesis Testing II

Spring 2012

# Unpaired T-Test

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- One measurement per individual
- Break our population into two natural subgroups
  - Male/Female; Smoker/Non-Smoker; Oak/Maple
  - Do the groups have a difference in measurement?
- Our primary statistic of concern is the p-value
  - How likely to occur by chance?

# Problem 12.1

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Question: Are the prices of houses near the Charles River more expensive than the prices of houses away from the Charles River.

State the Null Hypothesis

Perform an unpaired t-test (Independent Samples T-Test in SPSS)

# Problem 12.1

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- What is the test variable? Why?
- What is the grouping variable? Why
- Next, Define Groups
- Do you accept or reject the Null Hypothesis? Why?
- State your conclusion

# Correlation Analysis

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- Correlation Analysis addresses the following: Is there a statistically significant association between variable X and variable Y?
- Interpreting the Pearson Correlation Coefficient is not an exact science. We might use the following interpretation:
  - -1.0 to -0.7 strong negative association
  - -0.7 to -0.3 weak negative association
  - -0.3 to +0.3 little or no association
  - +0.3 to +0.7 weak positive association
  - +0.7 to +1.0 strong positive association

# Correlation Analysis Visual

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- Use Scattergrams (Scatterplots) to visually display data analyzed with this test.
- You can also produce a correlation matrix of the relationship of all variables in the matrix.
- Analyze | Correlate | Bivariate

# Problem 12.2

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- Create a correlation matrix of Cholesterol, Triglycerides, HDL, and LDL.

Identify the strongest positive correlation in the matrix.

Analyze | Correlate | Bivariate