# Stat 201: Statistics I
# StatCrunch: Chapter 10

Metropolitan State University

# Chapter 10
# Correlation and Regression

# Section 10.1
# Correlation

# Correlation coefficient and p-value in StatCrunch

- Stat $\rightarrow$ Summary Stats $\rightarrow$ Correlation
- Select the columns which contain the data
- Check "Two-sided P-value"
- Click "Compute!"
- The correlation coefficient $r$ is given, the p-value is in parentheses

Note: The test statistic for the hypothesis test can be found in StatCrunch by doing a regression, discussed in the next section.

# Section 10.2
# Regression

# Regression in StatCrunch

- Stat $\rightarrow$ Regression $\rightarrow$ Simple Linear
- Select columns for X and Y variables
- Select "Hypothesis tests" (default values are fine)
- If desired, enter "X value(s)" for "Prediction of Y"
- If desired, select graphs to generate (the default "Fitted line plot" is usually best)
- Click "Compute!"

# Interpreting regression results in StatCrunch

- "Simple linear regression results" section contains:
  - The regression equation in the form of "YVAR = intercept + slope XVAR"
  - The correlation coefficient $r$ as "R (correlation coefficient)"
  - The coefficient of determination $R^2$ as "R-sq"
- The "Parameter estimates" table contains:
  - The estimates for intercept $(b_0)$ and slope $(b_1)$
  - The t statistic and p-value for the slope are the same as for a correlation hypothesis test with this data
- Ignore "Analysis of variance table for regression model"
- If predicted values were asked for, they will be in the "Predicted values" table
- Click on the right arrow at the bottom of the results window to get to any graphs that were selected