

CHAPTER 4

Regression Analysis: Exploring Associations between Variables

Section 4.1 Visualizing Variability with a Scatterplot

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include **scatterplot**, **trend**, **strength**, **shape**, **positive associations (or positive trends)**, **negative associations (or negative trends)**, **linear trend**.

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

Be able to

- If given a scatterplot, classify the trend as being increasing, decreasing, or non-existent;
 - Determine if the association is strong or weak, and indicate its shape;
 - Interpret a scatterplot in context, interpreting trend, strength of association, and shape.
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Section 4.2 Measuring Strength of Association with Correlation

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include: **correlation**, **correlation coefficient**.

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

Be able to:

- If given a scatterplot, recognize if r is positive or negative and give an approximate value for r .
 - Interpret the meaning of the correlation coefficient in context.
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Section 4.3 Modeling Linear Trends

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important terms include **regression line**, **y-intercept**, **slope**, **explanatory variable**, **predictor variable**, **independent variable**, **response variable**, **predicted variable**, **dependent variable**.

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

Be able to:

- Recognize a linear trend from a scatterplot.
 - Know what each variable represents in a regression equation.
 - Use a given linear regression equation to predict a value of the output if given the input.
 - Interpret the slope of a regression line.
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Section 4.4 Evaluating the Linear Model

Write the vocabulary terms in this section on 3 x 5 cards and study them. Important term: **influential points**, **aggregate data**, **extrapolation**, **regression toward the mean**, **coefficient of determination**.

Be sure to also read and study the key points, highlighted in the blue boxes in the text.

Be able to:

- Know that correlation is NOT causation
 - Explain the effect of outliers on the regression line
 - Know what the coefficient of determination is
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