**Chapter 3: Describing Relationships Outline AP Statistics**

*Essential Questions:*

1. In what ways can you describe the relationship between two variables?
2. How do statisticians make predictions based on data?
3. How do you determine if a linear model is appropriate to represent the data?

*Knowledge: You should be able to define, illustrate, or calculate the following:*

* + Response Variable
	+ Explanatory Variable
	+ Scatterplot
	+ Form, Outliers, Directions, Strength (FODS)
	+ Positive/Negative Association
	+ Correlation *r*
	+ Regression line
	+ Predicted value, *y*ˆ
	+ Slope
	+ *y* intercept
	+ Extrapolation
	+ Residual
	+ Least-squares regression line
	+ Residual Plot
	+ Standard deviation of the residuals
	+ Coefficient of Determination, *r*2
	+ Influential observation

*Skills: You should be able to…*

* + Identify explanatory and response variables.
	+ Make a scatterplot to display the relationship between two quantitative variables.

o Add categorical data

* + Describe scatterplots by form, outliers, direction, and strength.
	+ Find *r* and *r*2 using your calculator and interpret.
	+ Explain why association does not imply causation.
	+ Interpret the slope and *y* intercept of a least-squares regression line.
	+ Use the least-squares regression line to predict *y* for a given *x*.
	+ Recognize problems with extrapolation.
	+ Calculate and interpret residuals.
	+ Determine the equation of a least-squares regression line using technology or computer output.
	+ Construct and interpret residual plots.
	+ Interpret the standard deviation of residuals and *r*2.
	+ Recognize influential observations and describe how they affect an LSRL.
	+ Find the slope and *y*-intercept of the least-squares regression line from the means, standard deviations of *x*

and *y*, and correlation.

 Monday Tuesday Wednesday Thursday Friday

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| 7 | 8 | 9 REACH Assessment  | 10Scatterplots (3.1)Homework #1**\*Stamp will be issued upon return**  | 11Correlation (3.1)LSRL, Prediction (3.2)Homework #2**\*Stamp will be issued upon return**  |
| 14Columbus DayNo Classes | 15LSRL, Prediction (3.2)Homework # 3**\*Stamp will be issued upon return**  | 16Calculating Equation of LSRL (3.2) |  17Residual & Residual Plots (3.2)Homework # 4**\*DUE DAY OF RETURN** | 18Coefficient of determination, Role of standard deviation of residuals, Interpreting Computer Regression Output (3.2)Homework #5**\*DUE DAY OF RETURN** |
| 21Ch. 3 ReviewHomework #6**\*DUE DAY OF RETURN- Solutions posted** | 22**Ch. 3 Quiz****CONCEPT CHECK****\*DUE DAY OF RETURN – Will be graded for accuracy**  | 23Ch. 3 ReviewHomework #7**\*DUE DAY OF RETURN- Solutions posted** | 24Ch. 3 ReviewHomework #8**\*DUE DAY OF RETURN** | 25Ch. 3 Review\*\*\*College Board Assignments:Unit 2 Progress Check: FRQ**\*DUE ASAP** |
| 28Ch. 3 Review\*\*\*College Board Assignments:Unit 2 Progress Check: MCQ Part A**\*DUE ASAP** | 29Ch. 3 Review\*\*\*College Board Assignments:Unit 2 Progress Check: MCQ Part B**\*DUE ASAP** | 30**Test 3: Chapter 3 - Linear Regression** |  |  |