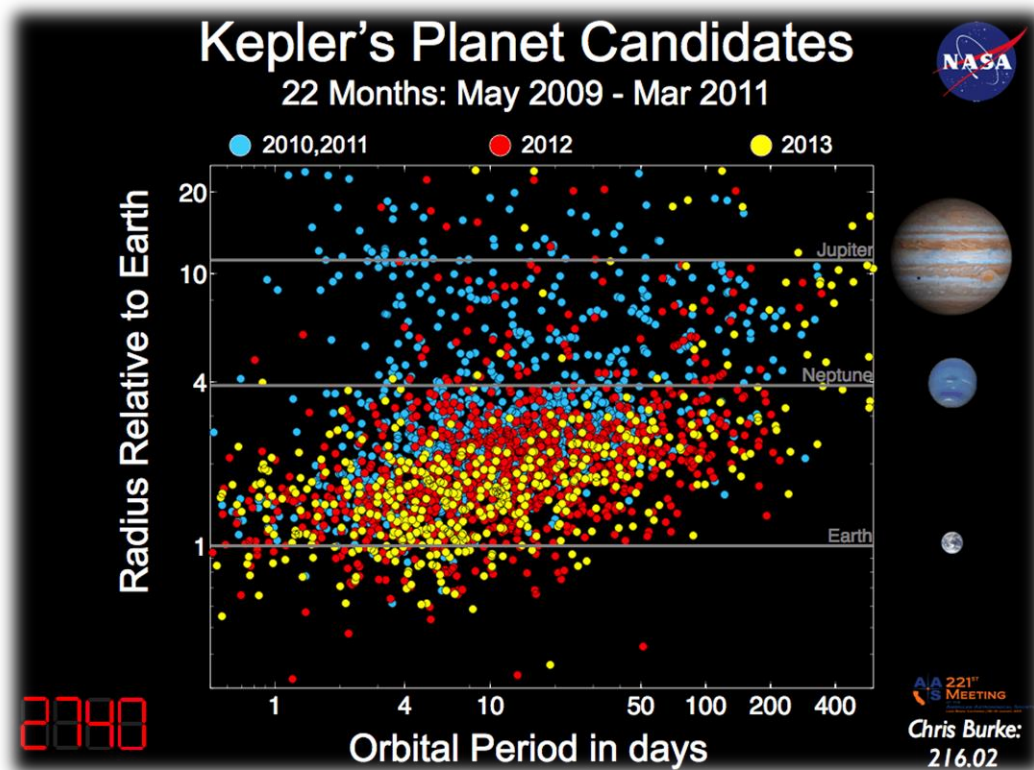# Statistics

Quarter Two (Pt 1)

"I never am really satisfied that I understand anything; because, understand it well as I may, my comprehension can only be an infinitesimal fraction of all I want to understand."

-Ada Lovelace

Overview

The first half of this quarter, we will begin by reviewing the different parts of a linear equation and how derive it for a line that passes through two points. This will be extremely helpful when we begin creating models out of data points and attempt to identify how strongly chosen attributes are towards each other. In doing so, we are preparing ourselves with the necessary tools to produce statistical analyses of parts of our every-day lives.

Lessons: Linear Systems and Matrices, Quadratic Equations

_____ **Ch7:** Plotting Lines Review

_____ **8.1:** The Scatter Diagram   } **10/23 - 10/27**

_____ **8.2:** The Correlation Coefficient   } **10/30 – 11/3**

_____ **8.3:** The SD Line

_____ **8.4:** Computing the Correlation Coefficient   } **11/6 - 11/9**

_____ **9.1/9.2:** Features of the Correlation Coefficient/Changing SD's

_____ **9.3/9.4:** Some Exceptional Cases/Ecological Correlations } **11/13 - 11/17**

Individual/Group Work

Guiding question 3:

How can we identify the connection between two variables? How can mathematical tools such as average and standard deviation be applied to find correlations between multiple variables?

_____ *21) Vocabulary*: **coordinate plane, slope, intercept, slope-intercept form, scatter diagram, association, independent variable, dependent variable, correlation, correlation coefficient** (do one of the below).

    a. Write the words, their definitions, and an example for each of the above terms in your notebook.

    b. Create a mind-map with connections, a story, or a drawing with captions that shows the connections between the above terms.

    c. Create vocabulary cards of the above terms. Be sure to include an example for each.

_____ *22) Problem Sets***:** You will find the problems in the textbooks in the classroom **OR** in the pdf form on Google Classroom. You must complete the whole set (and show your work) for full credit. Make sure you use the selected answers in the back of the book to check your work.

    _____ a. 7.4: Plotting Lines (p.115 #'s 1-6)

    _____ b. 7.5: The Algebraic Equation for a Line (p.116 #'s 1-6)

    _____ c. 8.1: The Scatter Diagram (p.122 #'s 1-6)

    _____ d. 8.2: The Correlation Coefficient (p.128-130 #'s 1-8)

_____ *23) Group Mini-Project: Sounds of a Normal Distribution* With your statistics group, complete the "popcorn" mini-project assigned on google classroom. You will be collecting and displaying data on the frequency of pops you hear when you microwave a bag of popcorn.

_____ *24)* *ASSESSMENT:* Plotting Lines, Correlation (Ch7, 8.1, 8.2)

    (Friday, November 3rd)

Guiding question 4:

How do we compute a correlation coefficient, and what does that value mean in terms of the data we use?

_____ *25)* Vocabulary: **Standard Deviation Line, positive correlation, negative correlation, no correlation, change of scale,** (do one of the below).

a. Write the words, their definitions, and an example for each of the above terms in your notebook.

b. Create a mind-map with connections, a story, or a drawing with captions that shows the connections between the above terms.

c. Create vocabulary cards of the above terms. Be sure to include an example for each.

_____ *26)* **Problem Sets:** You will find the problems in the textbooks in the classroom **OR** in the pdf form on Google Classroom. You must complete the whole set (and show your work) for full credit. Make sure you use the selected answers in the back of the book to check your work.

    _____ a. 8.3: The SD Line (p.131 #'s 1-4)

    _____ b. 8.4: Computing the Correlation Coefficient (p.134 #'s 1-4)

    _____ c. 9.1: Features of the Correlation Coefficient (p.143 #'s 1-10)

_____ d. 9.2: Changing SD's (p.145 #'s 1-4)

_____ e. 9.3: Some Exceptional Cases (p.148 #'s 1-4)

_____ f. 9.4: Ecological Correlations (p.149 #'s 1-2)

_____ *27)* **Correlation Coefficient:** Complete the graphic organizer and staple into your notebook. This will help you visualize the steps needed to calculate a correlation coefficient given a set of data points.

_____ *28)* ***ASSESSMENT:*** More on Correlation (8.3, 8.4, Ch 9)

(Friday, November 17th)