

Summer Assignment, 2019
AP Statistics
Browning

DUE DATE: 1st day of class, Fall Semester 2019

Assignment:

1. Read the book, “Standard Deviations, Flawed Assumptions, Tortured Data, & Other Ways to Lie with Statistics,” by Gary Smith.
2. Write a **synopsis** of the book and **any effect** it had on you. In your essay, feel free to ask me any **questions** you had about things you are confused on or more curious about.
3. **Choose at least two sections** from the list below to read again and think about in depth. Answer the content questions to write a thoughtful essay response to the chapter. Be sure to use specific examples from the chapter in your essays. Feel free to do some research as you think about each of the issues.
4. Your synopsis and chapter specific essay should be between 3 – 5 pages in length. Upload a document with your responses to the drop-box on the AP Statistics Moodle *by the beginning of class* on the first day of class.

Chapter(s)	Questions
1 & 5: Patterns, Patterns, Patterns & Graphical Gaffes	<ol style="list-style-type: none"> 1. What is the area principle? Have you ever been fooled by this before? 2. Does it matter which variable goes on which axis? 3. Does proper scale matter? 4. When looking at a distribution how can someone describe the shape, center, and spread? 5. Find an example of a graph that has gone wrong, describe what is wrong with it, and then fix it.
2: Garbage In, Gospel Out	<ol style="list-style-type: none"> 1. What is the difference between a observational study and experiment? 2. What is survivor bias? 3. What is conditional probability? 4. Explain a situation from your life where conditional probability played a role.
6: Common Nonsense	<ol style="list-style-type: none"> 1. In the show “Let’s Make a Deal,” the host Monty Hall would ask participants if they wanted to switch or not. Look up this show and decide if you should switch or not? Why? 2. Tversky and Kahneman were two psychologists who showed us that our minds sometimes divert us away from the truth by biases such as availability, representativeness, and confirmation. Look these up and discuss how they are related to the chapter.
7: Confound it!	<ol style="list-style-type: none"> 1. Why is control in a study necessary? 2. What is a confounding variable? Provide an example outside of the book. 3. What does it mean to double-blind an experiment? Provide an example outside of the book. 4. What is Simpson’s Paradox?

<p>8: When You're Hot, You're Not</p>	<ol style="list-style-type: none"> 1. What is the Law of Small Numbers? 2. If a player strikes out several at-bats in a row or a player misses several shots in a row, then some announcers make the statement that the player is "due" a bit or a basket. Is this really the case? 3. Do hot and cold hands exist?
<p>9 & 11: Regression & The Texas Sharpshooter</p>	<ol style="list-style-type: none"> 1. What is regression to the mean? Provide an example outside of the book. 2. Have you ever been taught or heard a theory that didn't make sense but there was data to convince you?
<p>16 & 18: Data without Theory & Theory without Data</p>	<ol style="list-style-type: none"> 1. Have you ever been fooled by misleading data? 2. What is the Greater Fool Theory? 3. Why do you think we buy into ideas that are not informed by theory? 4. Have you ever been convinced to believe something is true because someone famous believed it were true?