**Summer Assignment, 2023
AP Statistics / MTH 251 Statistics I DE**

**Matthew R. Browning**

**DUE DATE: 8:30 AM August 22nd, 2023**

**Assignment:**

1. Read the book Naked Statistics by Dr. Charles Wheelan (Suggested Deadline: July 7th)
2. **Part I**. Write a **brief** **personal reflection and/or any effect** it had on you. In your essay, feel free to ask any **questions** you had about things you are confused on or more curious about. (Suggested Deadline: July 28th)
3. **Part II**. **Choose a section** 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(s). 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.
(Suggest Deadline: August 4th)
4. **Part III**. Dr. Wheelan concluded the book with questions rather than answer. There are five important (and admittedly random) questions whose socially significant answers will involve many of the tools introduced in this book. Your job is **pick one of these questions** and explain why you chose this question and how the information discussed in this book might be able to help answer it.
(Suggest Deadline: August 18th)
5. **All 3 parts should be blended together into** **one complete essay** that is **well** **thought out** and be at least *750 words* (Double Spaced, Times New Roman, Size 12 Font, and APA Format). Upload a word document or PDF with your responses to the drop-box on the AP Statistics Canvas Page ***by August 22nd***.

|  |
| --- |
| **Part II. Chapter Discussion Questions**  |
| **Chapter(s)** | **Questions**  |
| Chapter 1 What’s the Point? | 1. The author, Dr. Charles Wheelan, talks about how there are a lot of issues with using statistics…that it is an imperfect measure and raising more questions than answers at times. If this is the case, why do we use statistics and why do many people rely on them to make informed decisions/conclusions?
2. I often say, “Statistics is more like a science than a math.” Use examples from chapter 1 of Naked Statistics to support my statement. Then, write your own reflection—do you agree or disagree with the statement and why?
3. Give one example of categorical data and one example of quantitative data. In each of these examples, explain what type of graph you would use.
 |
| Chapter 2 Descriptive Statistics: Who was the best baseball player of all time?  | 1. Suppose that when you collect data for Project Forum, your data isn’t exactly normally distributed, and therefore, the Normal curve isn’t “perfect.” Do you think this is an issue? What are pros and cons to using the Normal curve if it isn’t perfect? You may use specific examples if you’d like to explain your thoughts.
2. Suppose you were doing some research for Mr. Levy, and Mr. Levy asked you to find the heights of 100 people. Using random sampling, you found 100 people’s height in inches. After doing this, Mr. Levy asked you to find the mean and standard deviation of the data. You did so, and showed him the results.

Mr. Levy: Oh no! I wanted the data in centimeters, not inches. Now you are going to have to convert everyone’s height in centimeters to find the mean and standard deviation!You: It’s okay. Since I know the mean and standard deviation in inches, I just have to transform the data! No need to rewrite everyone’s height in inches.Explain what you would do to find the mean and standard deviation in centimeters–you will need to find out how to convert from inches to centimeters. Be specific. If you would like, you can use actual numbers to help you explain your answer. |
| Chapter 3 Deceptive Description: “He’s got a great personality!”  | 1. Find one headline in the news (in the last 12 months) that implies causation, for example, *Eating Kale Reduces Colon Cancer*. Summarize the article in 1-2 sentences, then talk about the methods of the article. Did the researchers survey the participants or do a controlled experiment? Do you think their statement is valid?
 |
| Chapter 5 & 5.5 Basic Probability: Don’t buy the extended warranty on your $99 printer | 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. In the UK version, there are 23 cases. Should the contestant switch the final case?! Explain.
3. 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.
 |
| Chapters 9 & 10 Inference & Polling  | 1. Come up with a potential experiment or poll that will have REAL LIFE implications of making the world a better place. The experiment can be about anything as long as doing it will hopefully make the world a little bit better. Think: Education, sustainability, poverty, healthcare, etc. Write down
2. your justification/reasoning for doing this
3. your null and alternative hypotheses
4. the implications your proposal could have if you found significant results.
 |

|  |
| --- |
| **Part III. 5 Questions that Statistics can Help Answer**  |
| Question 1 | What is the future of football?  |
| Question 2  | What (if anything) is causing the dramatic rise in the incidence of autism?  |
| Question 3  | How can we identify and reward good teachers and schools? |
| Question 4 | What are the best tools for fighting global poverty?  |
| Question 5 | Who gets to know what about you?  |