



MATH 225N-61694: Statistical Reasoning for the Health Sciences

MATH225

Week 7 Lab Assignment

Please use this template to help answer the questions listed in the lab instructions. The “steps” below refer to the steps listed in the lab instructions. Type your answers and post your screenshots in the spaces given.

Summary of Articles

Write a few complete sentences summarizing what you learned from the articles provided.

A. Summary of Article #1

Confidence intervals: Part

1

This article explains the concept of confidence intervals and their role in making conclusions about a study population. For instance, a 95% confidence interval means that if the study were conducted multiple times, 95% of these intervals would likely encompass the true population value. A narrower confidence interval indicates greater precision, while a wider interval suggests increased uncertainty. In practice, a narrow confidence interval implies that the sample mean is probably a reliable estimate of the population mean. In contrast, a wide confidence interval indicates that more data is necessary before drawing any conclusions.

B. Summary of Article #2

Confidence intervals: Part

2

This article explains how to determine if two average scores are different by looking at their confidence intervals. If the confidence intervals overlap, it

means the difference is not significant, suggesting the true values might be the same. If the confidence intervals do not overlap, the difference is significant. Also, if the confidence interval for the difference between the two means does not include zero, the difference is substantial.

- C. How do you think confidence intervals can be used in health sciences? Use the articles to inspire and support your answer.
- In health sciences, confidence intervals help us understand how accurate estimates are, such as the effects of a treatment or intervention. When the confidence intervals for two treatments do not overlap, it means there is a significant difference between them. However, if they overlap, this suggests that the difference might not be important and could be due to random chance.
- Confidence intervals also show the range in which a true value, like average blood pressure, is likely to fall. This information helps decision-makers evaluate the effectiveness of treatments.
- As highlighted in the articles, non-overlapping confidence intervals between two treatments suggest a significant difference, while overlapping intervals suggest that the treatments might not be as distinct as they appear. This approach is valuable for making informed decisions about treatment options.

Data Collection

Use the data set you collected for the Week 5 lab (heights of 10 different people plus the 10 heights provided by your instructor). (**NOTE:** This is NOT the data used in the lab video, which is about midterm grades. Do not use the midterm grades data.)