

# MATH108: Elementary Stats

Fall 2023

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## Mini-Project 01

Your project is **due by 11:59pm on Tuesday, November 14<sup>th</sup>**.

### Learning Objectives:

- Explain inference for one sample mean, paired means, two means, more than 2 means

### Overview:

For this project, you will take a turn being the class professor. The class will divide into 4 groups and each group will be assigned one topic related to inference with continuous data. You will explain your topic to the class by giving a mini-lecture on the second day of this mini-project.

For this assignment, you will self-assess. That means you will look at the rubric for the assignment (below) and assess your work in each area laid out in it. Your self-assessment will factor into your grade but may be adjusted.

## Part 1 – Preparation

Prepare a lecture that is about 15 minutes in length and introduces the topic you were assigned to the class as though they have no prior experience with it. Your lecture must include:

- The name of the hypothesis test appropriate for the topic you were assigned
- An explanation of the hypothesis test:
  - When is it appropriate to use this hypothesis test?
  - What test statistic does it require? What does the statistic mean?
  - How do we calculate that statistic?
  - Once we have a test statistic, how do we find a p-value?
- A motivating example that you have the class work on
  - This example cannot be one we have already used in lecture or in homework
  - Your example should include all steps from research question and identifying hypotheses, through answering the original research question based on the results of the hypothesis test

## *Part 2 – Mini lecture*

Your mini-lecture should be about 15 minutes in length. In addition to including the points listed above in Preparation it must include the following:

- All group members must speak roughly equal amounts of time
- You should have slides to share OR clearly write notes on the board

## *Part 3 – Participation*

While your classmates are presenting you are expected to participate. For each group's presentation, clearly document the work you did on their motivating example (you can handwrite your work and take a picture of it to submit, or you can type your work). Be sure to label each problem with the hypothesis test it demonstrates, and to write out all of your work clearly and legibly.

## *Submission*

Save your presentation as a PDF. Copy the self-grading rubric below and fill it out. For each standard listed on the left of the rubric, do an honest assessment of your work compared to the standard. Mark which category your work falls into (approaching, meets, exceeds), and indicate where in your report you demonstrate meeting the standard at that level.

Submit your PDF, completed rubric, and ALL team member's participation work as a group through PLATO. Be sure to label each participation work with the author. Individual grades may be adjusted based on presentations and participation.

## Rubric

	Approaching	Meets	Exceeds
<b>Content</b>			
Accurate hypothesis test			
Accurate rationale for test			
Required conditions / assumptions for hypothesis test			
Accurate test statistic			
Accurate calculation of test statistic			
Accurate explanation of test statistic			
Finding p-value explained			
Motivating example is new			
Research question is given			
Accurate hypotheses are given			
Result of test with respect to hypotheses is given			
Result of test with respect to research question is given			
<b>Presentation</b>			
Each group member contributed meaningfully			
Slides are clear and easy to follow			
<b>Participation</b>			
Every group member participated in other groups' motivating examples			