

Week 2: Materials

LAB #1 TIME

Week 2



Intro to Probability, Distributions, Z-Scores

Laerd "Creating a New File", "Opening a File", "Data Setup", "Calculating a Z-Score".

- What is "probability"?
- Theoretical Probability versus Empirical Probability
- Basic approaches to probability: non-parametric and parametric

Lab 1 (Introduction to Probability Using SPSS Including Z-Score Application: Thursday Work Session)

Overview

This week we keep developing our conceptual framework by addressing the core concept of "probabilities" and the two key kinds of probabilities: theoretical and empirical probabilities. We then go on and introduce the two most prominent theoretical distributions: the Normal distribution and the Poisson distribution. Before we end for the week, we define the concept of a z-score and its powerful applications.

Key Concepts

Probability as a Central Idea for the Course

Side Discussion: Math Notation (View Supplemental Video)

Understanding Probability

Two key kinds of probabilities

1. Theoretical Probabilities
2. Empirical Probabilities

Communicating Probabilities

Combining Probabilities

The Frequency Distribution Idea

Theoretical versus Empirical Distributions

Two Common Theoretical Frequency Distributions

1. Normal Distribution
2. Poisson Distribution

General Uses for Theoretical Distributions

- Parametric versus Non-Parametric Methods

Z-Scores

- How to calculate
- What they mean

Resources for Personal Reflection

Now, let's dig into some of the content described above in more detail. Here is a video that gives a quick and understandable overview of the Normal distribution that is a crucial piece of modern statistical practice.

<https://www.youtube.com/watch?v=lhtmW28slDw&t=1s>

Now here is the video from the same series that covers the Poisson Distribution.

<https://www.youtube.com/watch?v=BbLfV0wOeyc&t=1s>

Finally, do not forget to complete the Laerd reading for this week, as it is helpful preparation for the first lab session on Thursday.

- Opening a File
- Calculating a Z-Score

Questions to consider:

- Why are the Normal and Poisson distributions so important?
- How does the Lion example help us understand the concept of a normal distribution?
- What your key takeaways from the Poisson video discussion?