

# Lesson 3: Descriptive Statistics I

Date: August 20, 2025

## 1 Admin Notes

- Instructor Website
- Office location
- Bonus Point sign-up: the link is good
- More Bonus Points: MA103 3-ring binder and folder on computer

## 2 Mentimeter quiz.

## 3 Lecture.

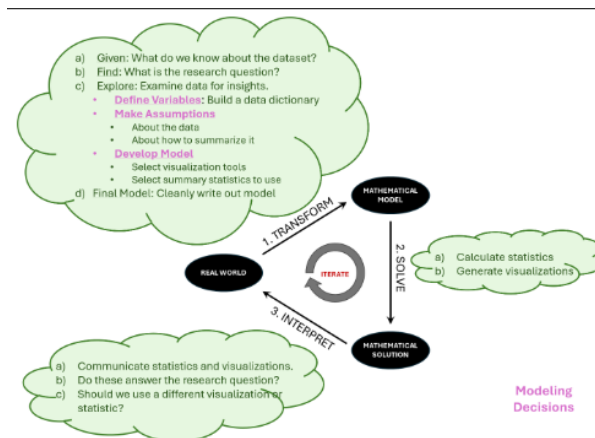


Figure 1: Descriptive Statistics

**3.1 What are Descriptive statistics? They are a component of descriptive analytics that are used to summarize data. In most cases they help us measure center and spread of data. Next, what are some questions we may ask about the data?**

- What is the story of the data set? What can the data collectively tell me about the group that the data represents?

- How are these two data sets different, and what might those differences mean in context?
- How can I compare data points from two different data sets?

**Data Dictionary:** A table that describes the meaning of each variable in a dataset.

### 3.2 Modeling Triangle and Descriptive Statistics

- Transform: (1) Define -data dictionary (var type) , (2) Make Assumptions - data cleaning (edit justifications) (3) Develop Model - type of visualization / specific variables assessed / assumptions associated with data and descriptive stats / specific stats calculated.
- Solve - calculating the statistics you chose and generating the appropriate visualizations.
- Interpret- communicate the statistics and visualizations.

Types of Variables
<p><b>Numerical:</b> a variable that takes on numerical values [1]</p> <ul style="list-style-type: none"> <li>• <b>Continuous:</b> a variable that can take on infinitely many values in an interval [4]</li> <li>• <b>Discrete:</b> a variable that can only take on specific, separate values, often whole numbers, such as the number of students in class or the number of goals scored in a game [4]</li> </ul>
<p><b>Categorical:</b> a variable that distinguishes among subjects by sorting them into a limited number of categories [3]</p> <ul style="list-style-type: none"> <li>• <b>Nominal:</b> labels categories without an inherent order or ranking [3]</li> <li>• <b>Ordinal:</b> a variable that is measured using a scale that places an order on it, such as t-shirt sizes small, medium, large, and extra large [3]</li> <li>• <b>Binary:</b> a variable with only two possible values, usually coded as 0 and 1 [3]</li> </ul>

Figure 2: Variable Types

## 4 Work on Board Sheet

## 5 Honor Brief