

CHAPTER 1

INTRODUCTION TO STATISTICS

WHY DO WE CARE?

Statistics is the *backbone* of criminology and criminal justice.

- Number of arrests per year
- Number of crimes in each city
- Number of officers within a precinct
- Bureau of Justice Statistics (BJS)
- FBI's Uniform Crime Report
- What and/or where else in criminology and criminal justice ?

**BUT EVEN MORE
IMPORTANT!**

Statistics is everywhere!!!

Statistics is everywhere!!!

ARRESTS RATE

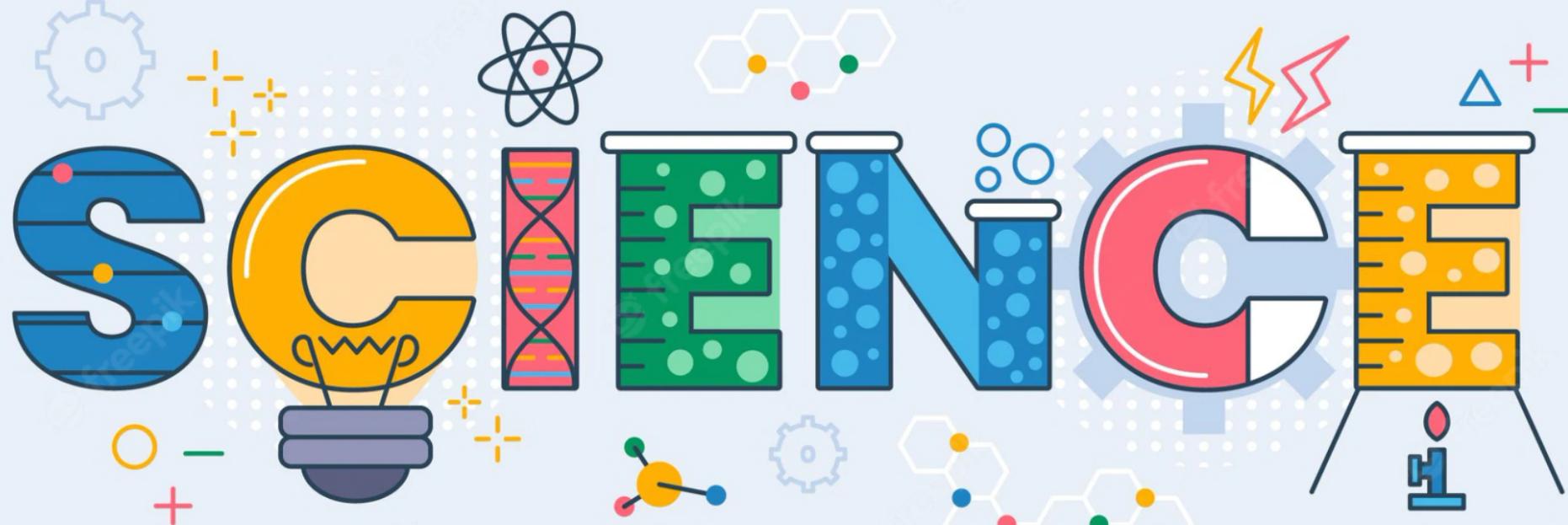
One of the most common statistics used in criminology and criminal justice.

It signifies the number of people arrested within a population during a certain time frame - usually in a given year.

\[\text{Arrest Rate} = (\text{Number of Arrest}/\text{Total Population}) \times \text{Multiplier} \]

**WHERE ELSE DO YOU
SEE OR USE
STATISTICS?**

**LET'S REVIEW SOME
BASIC TERMS**



is the process of gathering and analyzing data in a systematic way using procedures (i.e., methods) that are accepted across a

SAMPLE VS. POPULATION

- Any guesses?
- A **Population** is the universe of people, objects, or locations that researchers wish to study.
- A **Sample** is a subset pulled from the population in order to make generalizations about the universe of people, objects, or locations within that population.

POP QUIZ!

Which of the following is a sample?

- a.) The number of women in the University
- b.) The number of prisoners within a prison
- c.) All of the people in the state of Michigan.
- d.) A group of 100 police officers pull from a department

REPLICATION

Thoughts?

Why would a statistics book emphasize replication?

- Replication is conducted for the purpose of determining if a study's results hold when a new sample measures a previous study's findings.

HYPOTHESIS AND THEORIES

Theory is a set of proposed and testable explanations about reality that are bound together by evidence.

Hypothesis a single proposition deduced from a theory, that must hold true in order for the theory itself to be considered valid.

TYPES OF SCIENTIFIC RESEARCH

Evaluation Research

- Examines the results of program to assess whether the programs are effective

Exploratory Research

- Examines issues that have been understudied and thus lack theoretical or empirical grounding

Descriptive Research

- Studies done for the purpose of describing a phenomena that occurs in a population

Probability Sampling is a sampling technique in which all people, objects, or areas in a population have a known chance of being selected into a sample.



SOFTWARE FOR STATISTICAL ANALYSIS

We will touch lightly on software in this class.
Specifically, we will be using R through Posit Cloud.
But we won't dive into that until later in the semester.



HAVE A GREAT DAY!

