



**Intro to Stats**  
Course Overview

The cartoon depicts a man in a suit and tie, looking thoughtful. He is surrounded by a circular arrangement of numbers (1 through 8) and musical notes, suggesting a connection between statistics and music or a rhythmic pattern in data.

## Psychology: Questions and Methods

<p><u>Questions from Philosophy</u></p> <ul style="list-style-type: none"><li>•How do we learn?</li><li>•Why do we smile?</li><li>•What is anger?</li><li>•When will we help others?</li></ul>	<p><u>Methods from Natural Sciences</u></p> <ul style="list-style-type: none"><li>•Scientific Method</li><li>•Critical Thinking</li><li>•Statistics</li></ul>
--	---

↓                      ↓

Psychology!

The diagram shows two columns of text. The left column is titled 'Questions from Philosophy' and lists four questions. The right column is titled 'Methods from Natural Sciences' and lists three items. Two arrows point from the bottom of each column towards the word 'Psychology!' centered below them.

## **Methods of Psychology: Scientific Method**

- ▶ Science starts with an attitude and a desire for the truth
  
- ▶ Systematic empirical study of phenomena
  - Systematic: keep the bias out, include all data and information even if it doesn't "fit"
  - Empirical: based on observable events
  - Phenomena: must be measurable

## **Problems with Common Sense**

- ▶ People see some parts of the world and miss others
  - (due to ability, attention, etc.)
- ▶ People notice those things that fit preconceptions
- ▶ People often believe to be true whatever feels good

## The Scientific Method

- ▶ To develop theories about the world and to test those theories using observations
- ▶ The scientific process
  - Is self correcting (theories are tested, then revised, then tested)
  - Theories are falsifiable
  - The process is objective and public

## The Role of Math

- ▶ After collecting observations, you must be able to pull them all together and make sense of them
- ▶ Statistics: set of tools and techniques used for describing, organizing, and interpreting information or data
- ▶ Want to describe information and to see how points relate to one another

## **Descriptive & Inferential Stats**

- ▶ Descriptive statistic
  - Organize & describe characteristics of a large amount of information
  - What's the most popular major? How old are most tweeters?
  
- ▶ Inferential statistic
  - Make inferences from a small group of data (a sample) to a larger group (the population) about a relationship between two or more characteristics
  - News polls about opinions regarding the president; healthcare; war