



# Intro to Stats

Course Overview

Why study  
statistics?

## Psychology: Questions and Methods

### Questions from Philosophy

- How do we learn?
- Why do we smile?
- What is anger?
- When will we help others?

### Methods from Natural Sciences

- Scientific Method
- Critical Thinking
- Statistics

Psychology!

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graph TD; A[Questions from Philosophy] --> C[Psychology!]; B[Methods from Natural Sciences] --> C;
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## 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 to describe, organize, and interpret 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

## Goals for this Session

- ▶ Develop ability to use basic statistics used in psychology
- ▶ Develop critical thinking
  - To understand how science works and to apply this
    - When thinking about people
    - When reading about psychological findings
- ▶ Teach you to neither fear nor revere statistics
- ▶ Share observations with statistics
- ▶ Write about scientific findings

## Why this is a tough class...

- ▶ You have a quite a few assignments due during this class.
  - Lecture
  - Lab (attendance)
  - Writing assignments
  - Quizzes
  - Tests
  - Presentations

## **Class Format**

- ▶ Lectures
  - Video clips
  - Discussions
  - Hand calculations
- ▶ Readings
  - Most helpful before class
- ▶ Course website
  - Tips on note taking in this course
  - Links and updates that will further your understanding of concepts

## **LAB!!**

- ▶ There is a lab component
- ▶ \*We are working on publishing a lab manual – for now it is downloadable over the website.
- ▶ It is **CRITICAL** that you attend lab and complete assignments there
- ▶ This is a writing course – you must complete writing assignments to pass this class
- ▶ Your TA is your point person for questions and assignments

## Writing

- ▶ One of the most important skills you can learn in this class is how to communicate findings
- ▶ You will act as junior scientists and design a study, collect data, then analyze the results
- ▶ You will then report those results through writing and presentations (example at the front and in your manual)

## A Note on Plagiarism

- ▶ Be careful not to plagiarize from other group or class members
  - There are hundreds of different ways to phrase results
  - If you see someone else's it's hard to think of another way
  - Do not look at one another's assignments
  - Everyone is responsible
- ▶ Do not make up or change your data (academic dishonesty)

## Details

- ▶ Office: Psych 255  
Tuesdays & Thursdays 10–11  
OR by appointment  
\*\*Email is always best
- ▶ Text: Statistics for people who (think they) hate statistics
- ▶ Lab Text: Handouts posted on website
- ▶ Optional: calculator without memory functions

## Grades

- ▶ Tests
- ▶ Lab attendance and participation
- ▶ Quizzes
- ▶ Writing assignments (MANDATORY!!!)
- ▶ Presentation
- ▶ Extra Credit article reviews / in class points

## **Speed**

- ▶ Class and lab will move QUICKLY
- ▶ It is important that you attend lecture and lab
- ▶ Read
- ▶ Ask questions and be involved
- ▶ Complete all practice items in your text and assigned in class or in the lab
- ▶ Complete your writing assignments on time

## **Grading**

- ▶ Several sources of grading
- ▶ Quizzes: Graders
- ▶ Tests: Graders
- ▶ Writing Assignments: TAs
- ▶ Presentations: Me & TAs & fellow classmates
- ▶ Inter-rater reliability continually assessed
- ▶ Standardized grading rubrics