

V20 - Estimation - Part 3

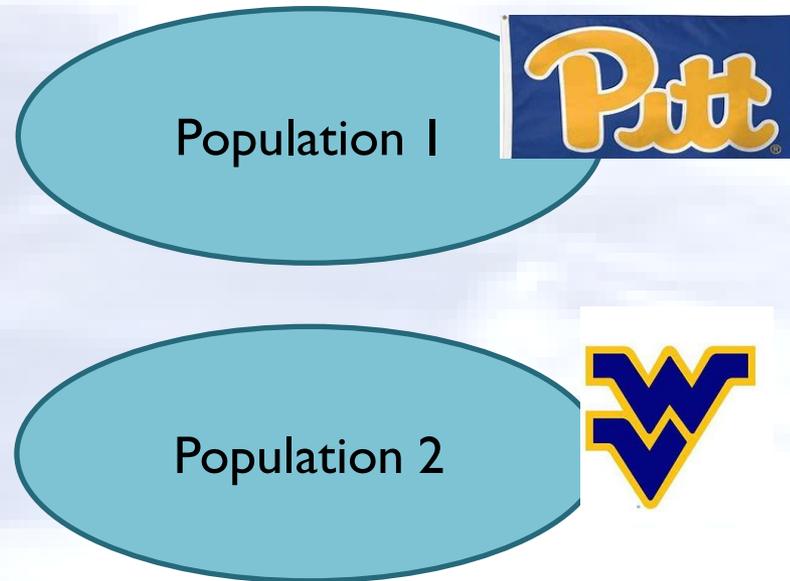
- ❑ Independent populations/groups
- ❑ Non-independent (dependent) populations/groups

Course: Statistical Testing & Regression
Dr. Renee Clark
Swanson School of Engineering
Industrial Engineering
University of Pittsburgh



Two Independent Populations

- ❖ Items in **population 1** *not* same as nor directly related to items in **population 2**
- ❖ Items not meaningfully paired in any way



Two Dependent Populations

❖ Opposite of independent populations

1) Same population analyzed twice OR

2) Two directly-related populations

• Dependent observations are _____



Examples of Paired Observations from Same Population

❖ Before and After studies

- Weight of a person before (X_1) & after (X_2) new diet regimen

Person	Before (x_1)	After (x_2)

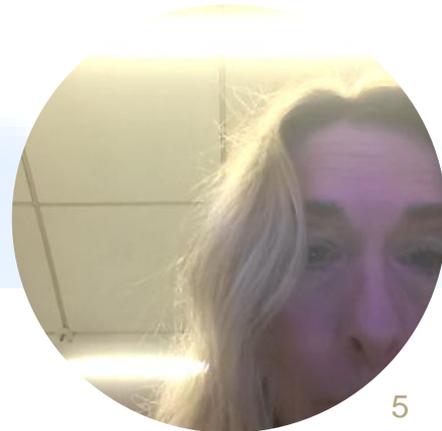
- Math ability of a student before & after new teaching method

❖ Analyze _____, or $d = X_1 - X_2$ for all subjects



Examples of Paired Observations from Directly Related Populations

- Brother & sister pairs
- Husband & wife pairs
- Father & son pairs
- Puppies from the same litter
- Twin pairs





Acknowledgement

This material is based upon work partially supported by the National Science Foundation under Grant# 2335802. Any opinions, findings, and conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.





You are free

- to **Share** – to copy, distribute, display and perform the work
- to **Remix** – to make derivative works

Under the following conditions

- **Attribution** — You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).
- **Noncommercial** — You may not use this work for commercial purposes.
- **Share Alike** — If you alter, transform, or build upon work, you may distribute the resulting work only under the same or similar license to this one.





THE END

