

GAPS, MISSTEPS, & ERRORS IN STATISTICAL DATA ANALYSIS

A short course on essential concepts for rigorous practice & critical interpretation of statistical data analyses.

NOV 6 - DEC 4, 2019 | MW 3:00 - 4:50PM

<u>P-VALUE</u>	<u>INTERPRETATION</u>
0.001	HIGHLY SIGNIFICANT
0.01	
0.02	
0.03	
0.04	SIGNIFICANT
0.049	
0.050	OH CRAP. REDO CALCULATIONS.
0.051	ON THE EDGE OF SIGNIFICANCE
0.06	
0.07	HIGHLY SUGGESTIVE, SIGNIFICANT AT THE $P < 0.10$ LEVEL
0.08	
0.09	
0.099	HEY, LOOK AT THIS INTERESTING SUBGROUP ANALYSIS
≥ 0.1	

xkcd.com/1478

Topics

- Estimating error, uncertainty •
- Underpowered statistics •
- Multiple testing • P-hacking •
- Pseudoreplication • Regression to the mean • Double dipping •
- Spurious associations •
- Visualization challenges •
- Reproducibility, replicability

Pre-reqs: 1) Familiarity with introductory statistics and probability. 2) Basic experience with data wrangling, analysis, and visualization using R/Python.

Students, postdocs, faculty welcome! bit.ly/statgaps2019_signup