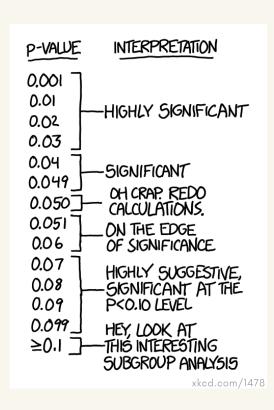CMSE 890-310

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

P-VALUE   INTERPRETATION

0.001
0.01
0.02   —— HIGHLY SIGNIFICANT
0.03

0.04   —— SIGNIFICANT
0.049
0.050   —— OH CRAP. REDO CALCULATIONS.
0.051   —— ON THE EDGE OF SIGNIFICANCE
0.06

0.07
0.08   —— HIGHLY SUGGESTIVE, SIGNIFICANT AT THE P<0.10 LEVEL
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

Arjun Krishnan | arjun@msu.edu | @compbiologist | thekrishnanlab.org
Dept. Computational Math, Sci, & Egr, Dept. Biochemistry & Mol. Biology