

In multiple regression,

Stat 543

4-28-15

Collinearity occurs when several predictors are correlated with each other. ①

Diagnostics : - Look at all pairwise correlations  
- Find the variance inflation factors (VIFs)

$R^2$  vs. adjusted  $R^2$

↑

Same interpretation as before

↳ penalizes you for each additional predictor

Review for midterm exam: Tuesday May 5

②

Bring: - 1 page of notes  
- Calculator  
- z + t tables

Content: - descriptive procedures  
- confidence intervals  
- hypothesis tests  
- regression

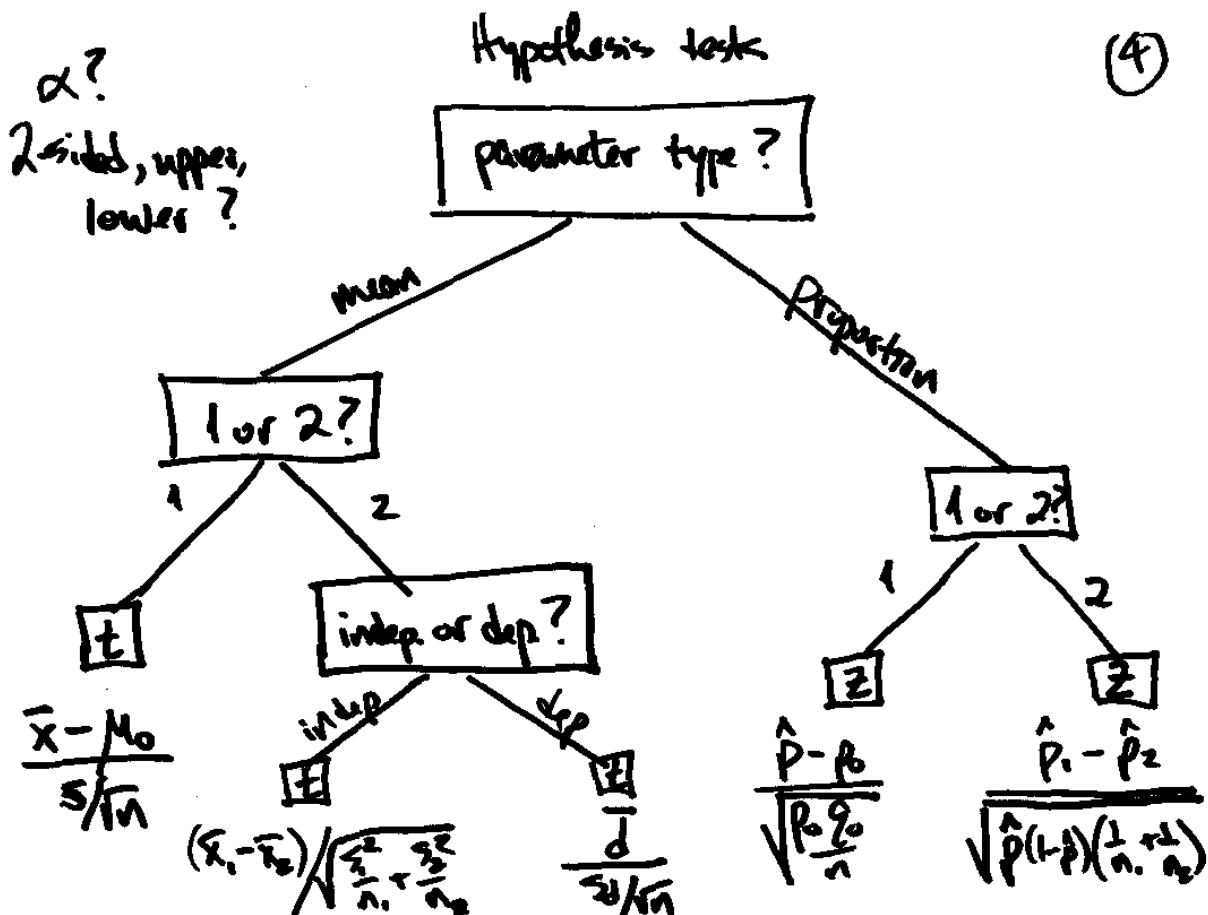
(3)

# Descriptives

Graphical	Numerical
Stem-and-leaf Box plot	mean, median, mode Quartiles, percentiles $S, S^2$ , range, CV, z-scores

## Confidence + Hypothesis tests

$\mu, p, \mu_1 \text{ vs. } \mu_2, p_1 \text{ vs. } p_2$ , matched pairs



## Assumptions needed for C.I.s and H.T.s (5)

1-sample t-test & C.I. : Either (a) the sample came from a normal population, or  
(b)  $n$  is sufficiently large

2-sample t-test & C.I. : For each of the 2 samples, need (a) or (b) as above

Matched pairs: need (a) or (b) to hold on the differences

## Sample size determination for C.I.s (6)

$$\text{For } \mu : n = \left( \frac{ZS}{E} \right)^2$$

$$\text{For } p : n = \frac{z^2 \hat{p}(1-\hat{p})}{E^2}$$

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For any hyp-test, be sure to include

①  $H_0$  and  $H_a$

② State the decision rule

③ test statistic

④ Decision

Reject  $H_0$   
Fail to reject  $H_0$

⑤ Interpretation in common language.

⑦

Regression: Simple linear regression:

be able to find the equation

Multiple regression:

be able to interpret  
computer output