Lab 10

PH142 Fall 2025

Announcements

- **Lab 10:** due 11/14 at 11:59pm

Week 12 Lecture Review

Chi-Square Tests

Goal: To determine whether your data are significantly different from what you expected.

Chi-Square tests are used for categorical data.
There are two types:
- Chi-Square Goodness of Fit
- Chi-Square Test for Independence

Week 12 Lecture Review

Chi-Square Tests

Chi-Square Test Statistic:

$$\chi^2 = \sum_{i=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

k = the number of cells in the table.

O = the observed count for the i th group

E = the expected count for the i th group

Week 12 Lecture Review

Chi-Square Goodness of Fit

Goal: To test how well the observed counts "fit" the expected counts.

H_0: Proportion in observed is the same as the proportion from a given population

H_a: At least one of p_k is not equal to the proportion stated in the null hypothesis

$p_1 = \#_1, p_2 = \#_2, ..., p_k = \#_k$

where $\#_1, \#_2, ..., \#_k$ are provided or can be derived from percentages provided

Week 12 Lecture Review

Chi-Square Test for Independence

Goal: To test whether two categorical variables are related to each other.

H_0: Response and explanatory variables are independent

H_a: Response and explanatory variables are dependent

LAB 10 Walkthrough

Lab Submission

- Follow the directions on the LAB10 file
- Submit using the **Terminal Tab** (next to the console in the bottom left pane)
  - Copy and paste the given line into the terminal
  - Follow prompts (NOTE: the terminal will **not** show your password being typed out!)
- **CHECK IN GRADESCOPE THAT ALL YOUR TESTS PASSED**