

Homework # 14

due 9:30 a.m. Friday, 9 December
in my office (Edm 162) or mailbox

- (1) See 8.99 for background (6th ed.: 8.81; 5th ed.: 8.77)

The question concerns statistical evidence used in a court case concerned with possible bias in jury selection. If selection for jury duty was unbiased with regard to Mexican Americans, the probability that a person selected for jury duty was Mexican American would equal the proportion of Mexican Americans in the pool of people eligible for jury duty, and the number of Mexican Americans selected for jury duty would have a binomial distribution with this probability. The data are for one county in Texas, for a particular period of time; I don't know the county or time period.

- (a) Out of 870 people selected for jury duty, 339 were Mexican Americans. Use these statistics to estimate p , the probability a person selected for jury duty was Mexican American, and give a 95% CI for p .
- (b) The proportion of Mexican Americans in the pool of people eligible for jury duty was $143,611 / 181,535 = 0.791$. Use the statistics from (a) on the people selected for jury duty to test $H_0: p = 0.791$.
- (c) What do you conclude?
- (2) There are four major blood types in humans: O, A, B, and AB. In a study conducted using blood specimens from the Blood Bank of Hawai'i, individuals were classified according to blood type and ethnic group. The ethnic groups were Hawaiian, Hawaiian-white, Hawaiian-Chinese, and white. Assume that the blood bank specimens are random samples from the Hawaiian populations of these ethnic groups.

Blood type	Ethnic group			
	Hawaiian	Hawaiian-white	Hawaiian-Chinese	White
O	1,903	4,469	2,206	53,759
A	2,490	4,671	2,368	50,008
B	178	606	568	16,252
AB	99	236	243	5,001

Summarize the data numerically and with a graph. Is there evidence to conclude that blood type and ethnic group are related? Explain how you arrived at your conclusion.