NORTHWESTERN UNIVERSITY | SCHOOL OF CONTINUING STUDIES

Handout: Problem Set #8

PREDICT 401: Introduction to Statistical Analysis

1. Imagine that you are analyzing information about visitors to a Web site designed to help individuals self-diagnose medical conditions. You hypothesize that older people visit the site more frequently, but you only have a small sample of data from which to draw. Specifically, you have the following information:

	Age			
# Web site Visits	**Old**	**Medium**	**Young**	**Total**
Low	1,000	1,030	1,050	3,080
Medium	525	520	515	1,560
High	475	450	435	1,360
Total	2,000	2,000	2,000	6,000

   a. State the null and alternative hypotheses.

   b. To test the null hypothesis, imagine that you calculate the chi-square statistic for independence based on the data shown, obtaining a value of 3.13. Can you reject the null hypothesis at the 0.05 level?

2. As an avid blogger of politics and health care, you recently surveyed 100 of your readers to identify any potential relationships between political affiliation and physical health. You came up with the following data:

	Health Status			
Affiliation	**Good**	**Medium**	**Poor**	**Total**
Democrat	25	10	5	40
Republican	10	35	5	50
Independent	5	5	0	10
Total	40	50	10	100

   a. State the null and alternative hypotheses.

   b. Calculate the chi-squared statistic and test the above hypothesis at the 0.01 level.