

(1) Chi-Square: We would like to compare Male Students' performance with Female students' performance in a stat course. The following table shows the number of people in each group that got a grade above and below B.

	Grades above B	Grades below B	Totals
Female	7	7	14
Male	8	20	28
Totals	15	27	42

- (a) In a chi-square analysis of this table, what is the null hypothesis?
- (b) Fill in the table below with the numbers that would be expected under the null hypothesis.

	Grades above B	Grades below B	Totals
Female			14
Male			28
Totals	15	27	42

- (c) The chi-square statistic for this analysis turns out to be 1.87. How is that computed?
- (d) How many degrees of freedom are present in this data?
- (e) Do you accept or reject the null hypothesis you state in (a)?
- (f) What can you say about the p-value of your conclusion in (e)?

(2) Simple regression: We run a simple regression to see if there is any association between Graduate schools tuition (x-variable) and the number of applicant (y-variable). The sample size is 42. The regression estimates the intercept to be 2 and the slope to be - 1.56, with the standard errors of 1.5 and 0.73 respectively.

- (a): Based on this result can we state that more tuition results in fewer applicants?
- (b): Assume F-stat for this regression results in $F=2.5$ ($p<0.01$). How do you interpret this number?

(3) Multiple Regression: We would like to see how different factors influence employees' performance in different organizations. Based on the available data ($n=85$), we run a regression whereby employees' performance is our y-variable (dependent variable). Our x-variables (independent variables) are job satisfaction (JS), average salary (S), management performance (M), organizational conflicts (OC), and governance (G). We get the following table.

Dependent variable: employees' performance (OP)

	Coefficients	Standard Error (SE)	t	p
Intercept	5	1.5	3.33	0.003
JS	1.1	0.3	3.67	0.000
S	0.3	0.2	1.50	0.13
M	2	0.35	5.71	0.000
OC	-1.5	0.5	-3.00	0.004
G	0.2	0.18	1.11	0.26

(a): Interpret the table by 1) stating a function for employees' performance, and 2) listing the coefficients that are significant.

(b): In the regression, G , represent organizational governance, whereby it is equal to 0 for public organization and is equal to 1 for private organizations. People believe that in private organizations, organizational performance is higher than in public organizations. Do you think based on the regression we have any support for this argument?

(c) Look at the row for **OC**. Based on the coefficient and SE, re-calculate **t** and **p-value**.