This homework is due Thursday, March 18th at the start of class. Late homework will not be accepted except for medical emergencies (with proof).

1. For the handicap study (Case Study 6.1.1, in Handicaps.JMP), consider the groups amputee, crutches and wheelchair to be handicaps of mobility and hearing to be a handicap affecting communication. Use the appropriate linear combination to test whether the average of the means for the mobility handicaps is equal to the mean of the communication handicap at the 0.05 significance level. Also report a 95% confidence interval for the difference between the average of the means of the mobility handicaps and the mean of the communication handicap.

2. For the handicap study, carry out tests of whether the following three pairs have different means, (i) amputee vs. crutches; (ii) amputee vs. wheelchair and (iii) crutches vs. wheelchair, so that the familywise type I error rate for these three tests is 0.05. Use the Bonferroni procedure to do this. (These three tests are tests of whether there are differences in attitude towards the mobility types of handicaps.)

3. Mendel performed experiments with peas to test his genetic theory. He predicted that 9/16 of his peas would be round yellow peas, 3/16 would be round green peas, 3/16 would be wrinkled yellow peas, and 1/16 would be wrinkled green peas. His data is contained in mendel.JMP. Do the data provide any evidence against his theory? Use the chi-squared test at the 0.05 significance level.

4. License records in a county reveal that 15% of cars are subcompacts, 25% are compacts, 40% are midsize and the rest are an assortment of other styles and models. A random sample of accidents involving cars licensed in the county was drawn. The type of car in the accident is stored in the file accident.JMP. Is there evidence that certain sizes of cars are involved in a higher than expected percentage of accidents? Carry out a test at the 0.05 significance level.