**A. APPLICATION: GBS\_MBA2.xls**

Dori Brownlapas, the Teaching Assistant for BUS 550, is in a bit of a jam. When she keyed in the students’ survey data at the beginning of the semester, she inadvertently missed one survey, which had fallen off her desk and hidden itself under the radiator. Only when Dori got around to turning on her heat later in the semester did she discover the wayward survey.

Dori wanted to add the new data to the GBS\_MBA2 database, but there was a small problem: when she pulled the survey from its temporary home under her radiator, part of the page was shredded and became illegible. This part of the page included the person’s student number (so Lori couldn’t ask the “mystery person” to fill in the missing data), and the person’s weight.

Not wanting to “bother” Prof. Noonstock, Dori enlisted the help of the eager BUS 550 students to guess the weight of the mystery person. Please help her by considering the following questions. (You will need to use the database, GBS\_MBA2.xls. Unless otherwise indicated, treat each question independently. You are not to use any regression tools just yet.)

1. Without any other information (i.e., about section, gender, age or height), what would be your best guess of the mystery person’s weight? How much uncertainty do you have about the guess? How would you make a prediction interval around your guess?

1. Is there a relationship between height and weight? Calculate the correlation coefficient to investigate this. Also, **create and print a scatter plot of height and weight**; you will find it more useful during class if weight appears along the “y” axis (up the side) and height appears along the “x” axis (across the bottom).

Now suppose you are given the information about the mystery person’s height. Using only graphical tools — i.e., pencil, paper, drawing aids of your choice — how can you use information about height to improve your guess about a person’s weight? What would be your best guess if you were told the person’s height is 66”? What if 76”? How much uncertainty do you have about your guess? How would you construct a prediction interval?

1. Now suppose you have information only about the person’s age (instead of height). How do your guesses about weight differ, if at all, from your answers in question 1?

1. Now suppose you have only the person’s gender. What would you guess about the weight if you were told the mystery person was male? Female?

1. Repeat question 4 for the case where you have only the person’s Section number.

1. Finally, suppose you have ALL the other information — section, gender, age, and height. Can you make a best guess and a prediction interval for the person’s weight? Generally speaking, how much uncertainty would you have about your guess?

**B. APPLICATION- regression: GBS\_MBA2.xls**

Now you are free to use Excel or JMP to perform any regression analyses you choose. Prepare to discuss the following questions: (we will likely do this together in class)

1. Using the file GBS\_MBA2, you should be able to run regression analyses on the questions for session first half of class and interpret the results. Try them.

In particular, what would be your best estimate of the weight of the mystery person if you were told that it was a female member of section 2, age 26, height 66 inches?

What if, instead, you were told that it was a male member of the evening class, age 27, height 76 inches?

1. Using all the variables available to you in the GBS\_MBA2 database (in any way you like), what’s the best regression model you can create to estimate someone’s weight?

1. Repeat question 2, but create a model to estimate a person’s age from the other variables.

1. Now consider the responses to the question about salary 10 years after graduation (“Salary10”). Which single variable does the best job of predicting Salary10? What are other variables you would reasonably expect to be useful in predicting responses? Are Age and Gender useful? What’s the best model you can create that does NOT include the related variable “Salary1”?

1. Can we use this regression approach to predict a person’s response to the question about whether they wear contact lenses? Why or why not?