

Name:

Lab Exam 1A - Distributions of Data

Open the Excel spreadsheet: **Exam 1A** found in the course folder. The Excel file contains a *sample* of Amherst home sales; the *sample* was collected for the year 2003. Complete the exercises below using these *sample* data.

Please observe the following rules:

- You cannot have any other windows open for any reason.
- **Do not talk with your neighbor for any reason and do not save your Excel file to any other location.**
- Saving files to any other device will be considered cheating. You cannot open a browser, so email is out.

1. The distribution of Home prices – a univariate distribution.

- (5) a. Before you do anything, save your copy of the file to the **Lab Exam** folder as: *Exam 1A – firstname lastname.xls*. This is where we will look to find your file. Then, click the **save** icon often while you work. **You cannot save this file to any other location. To do so is considered cheating.**
- (5) b. First, sort the data by the variable *Price*. Then **copy the sorted data to the sheet Exam 1A to the range A4:E33. The data will fit neatly into the existing table.**
- (10) c. Organize the *price* data in a *grouped data table* so as to provide a neat summary of the data. (Complete the grouped data table template that is provided.) *Relative frequencies* are to be calculated using Excel – your equation will be revealed in the cells. **Round the relative frequencies to 3 decimal places.**)
- (10) d. Create a *relative frequency histogram* for these prices. Place your graph in the marked area under your grouped data table.
- (10) e. Determine the *Mean* and *Median* for the variables *Price* and number of *Rooms* using the Excel functions. **What do these descriptive statistics measure? Write your answer in the space below:**
- (10) f. Complete additional columns necessary (deviations and deviations squared) to estimate the population *standard deviation* for the variable *Price* using the formula on the sheet provided, **do not use the Excel function – we'll get to that next.** Type your final equation in the highlighted box provided.
- (10) g. Now use Excel functions to determine the standard deviations for both *Price* and number of *Rooms*. **What do these descriptive statistics measure? Write your answers in the space below:**

- (10) h. **Create a 90% confidence interval** for the population mean *Price* of homes in the Amherst/Belchertown areas. Enter the lower and upper limits in the boxes provided on the worksheet.
2. The bivariate distribution of prices and mileage.
- (10) a. **Does a relationship appear to exist** between *Price* and number of *Rooms*? Check by creating an *XY Scatter diagram* for *Price* and number of *Rooms*. Put the *dependent* variable on the vertical axis and the *independent* variable on the horizontal axis. Put the scatter diagram in the highlighted area.
- (5) b. **Does a linear relationship exist** between price and rooms? Add a *tendline* to your XY Scatter Diagram and **include the equation for the line**.
- (10) c. Determine *correlations* between *Price*, *Rooms*, *Bedrooms* and *Baths*. What would you conclude given your estimated values? Answer in the space below:
- (5) d. Be sure to save your spreadsheet one last time, then print only two pages: (1) your data and your estimates and correlations at the bottom (i.e., range A1:G51); (2) your grouped data table and your two graphs (i.e., range I1:M53). **Use print selection and print only two pages**.