**Lab 2: Input Modeling with BestFit**

In this lab you will become familiar with the BestFit input modeling software that is integrated into @Risk. Open Excel; if the @Risk ribbon is not available, then open @Risk separately from the Start menu.

Open the file ProblemSolving.txt from Blackboard. Copy and paste the data into a column in Excel. These data are the times (in minutes) spent by each of 227 students in working on Question 1 on a final exam, for which 2 hours were allotted.

Select the column containing the data, and click on “Distribution Fitting” on the @Risk ribbon. From the drop-down menu, select “Fit”. Choose the settings on the “Data” and “Distributions to Fit” tabs to answer the questions below. *Important*: for @Risk to return p-values, you must check the box “Run Parametric Bootstrap” on the “Bootstrap” tab.

After choosing the settings in the “Fit Distributions to Data” window, select “Fit”. To switch between Fit Comparison Graphs, P-P plots, Q-Q plots, Bootstrap Analysis, and Statistical Summary, use the buttons on the bottom left-hand corner of the “Fit Results” window. To see goodness-of-fit statistics, select the “Bootstrap Analysis” button.

Note: the default criterion for the Fit Rankings is the Akaike Information Criterion. To switch to another criterion, select the “Fit Ranking” drop down menu and select another criterion.

Submit a document describing your input modeling of this data set, including:

1. Explain what settings you gave BestFit, and why:
   1. Continuous Sample Data vs. Discrete Sample Data
   2. If you chose Continuous Sample Data, what did you choose for Lower Limit and for Upper Limit? (Fixed Bound, Bounded But Unknown, Open, or Unsure)
   3. You may use BestFit multiple times with different settings, but if so, explain why you did and how you chose among the results.
2. Choose at least two distributions which you think are the top choices for modeling this random variable.
   1. Report them, with their parameters (e.g., normal with mean 0 and standard deviation 1). Don’t report too many digits.
   2. Report their p-values under the Chi-squared goodness-of-fit test and discuss how close to the best they are under each of the applicable goodness-of-fit tests (Chi-squared, Anderson-Darling, and Kolmogorov-Smirnov). If you’re not using a distribution that is ranked top by one of those tests, explain why.
   3. Include the automatic “Fit Comparison” plots, Q-Q plots or P-P plots, or any other plots you need for the distributions you are considering.
3. Considering these results and also the physical basis (interpretation) of the distributions you are considering, explain which one is your top choice to model this random variable, and why. How good do you consider this choice to be as a model of the random variable? Why?