8. Additional Comments/Topics to Consider

- There is no such thing as the "Right" or "Correct" model. Regression models are our way of describing what we believe to be true. Hopefully, we develop our regression models using all of our expert scientific knowledge.

- Even statisticians can't figure out what the "true" model is.

- Is it true that there may be several regression models that adequately answer our scientific question? Why not have multiple models?

- There is no one recipe for building a regression model. Let your scientific knowledge dictate the process.

- Step-wise regression procedures put the model building process in the hands of the p-value. These procedures are not optimal in most cases (see example).

- Modeling strategies may differ depending on your goal: a) to answer a scientific question or b) to provide a model to be used for prediction.

- If you are building a model for prediction purposes, you want to minimize your error (MSE) while providing a model that is easy to use (parsimonious). Several statistics are available to help you in this process: $AIC = MSE + 2*p$, $BIC = MSE + 2*\log(p)$, etc.

- Be wary of the R-square (see example)

- Be sensible, in the end, you will be defending your choice. Doesn't sound good to say "I don't know why 'Mother's Maiden Name' is in the model, but SAS/Stata selected that variable with p-value < 0.001"