**EMIS 7357 Spring 2017**

**Assignment 4**

Due Monday April 10 at 11:59pm, Canvas upload

Every student must upload his or her own homework and all source files (R scripts) in one **zip** folder titled HW4\_FirstName\_LastName.zip. Please do not submit .rar files. Do not forget to write the names of the students you worked with (two other students in the course maximum).

***Investment Management under Taxation*** in *Analytics Edge* Section 22.6

* Do the exercise both in Excel Solver and AMPL. Include all source files in your submission.
* Include the sensitivity analysis file generated from Excel Solver and answer the following additional questions for the problem solved in (b) from the text:
  + Using the sensitivity report only, by how much should the price estimate next year for General Electric stock change (decrease? increase?) for you to sell your GE shares?
    - HINT: this has something to do with the allowable increase or decrease of that objective coefficient. Look at the one that has a reasonable value and test your answer by resolving in Excel for a coefficient that is a little above (for an increase) or below (for a decrease) that value. This is connected to what we did in class through the question “for which value of that objective coefficient would the optimal solution not change?”
    - Excel might make the objective coefficients negative in your sensitivity report because it converts the maximization problem into a minimization. Be sure to take that into account when you analyze your report.
  + We are not sure about the price estimate for Microsoft stock next year. For which ranges of coefficients (price estimate for Microsoft) would your optimal solution not change?
  + By how much would your optimal objective change if the amount of money you want to generate is $11,000? Explain why you can use the sensitivity report here by looking at the allowable range. Explain why it makes intuitive sense that the shadow price is negative. Check your answer by resolving in Excel. Could you use the sensitivity report to conclude if the amount of money you wanted to raise was $13,000?