Problem Set #1

MACS 30100, Dr. Evans
Due Monday, Jan. 8 at 11:30am

1. **Classify a model from a journal (5 points).**

   (a) Find a theoretical or statistical model from a recently published article (no earlier than 2013) in either the *American Economic Review*, *American Journal of Political Science*, or the *American Journal of Sociology*.

   (b) Give a detailed citation of the article.

   (c) Write down the mathematical or statistical model (write the equations).

   (d) List which variables are exogenous (determined outside the model, assumed) and which variables are endogenous (determined inside the model, the output of the model)

   (e) Classify the model as static vs. dynamic, linear vs. nonlinear, deterministic vs. stochastic.

   (f) List a variable or feature that you think the model is missing that might be valuable.

   (g) You should be able to write this in less than one page. Only PDF submissions will be graded. Using LaTeX is a great option if you have equations (see LaTeX tutorial and template).

2. **Make your own model (5 points).**

   (a) Write down a model of whether someone decides to get married.

   (b) At least one of the dependent endogenous variables (output of the model) must be *1=get married* or *0=not get married*.

   (c) Make sure that your model is a complete data generating process. That is, you could simulate data from your model given all the parameters and relationships.

   (d) What do you think are the key factors that influence this outcome?

   (e) Why did you decide on those factors and not others?

   (f) How could you do a preliminary test whether your factors are significant in real life?

   (g) You should be able to write this in less than one page. Only PDF submissions will be graded. Using LaTeX is a great option if you have equations (see LaTeX tutorial and template).