

ECON 251: Model Assignment 3

Due Friday December 16 by 11:00 PM

Your assignment is to write down an economic model, a formal mathematical framework characterizing a simultaneous-move game similar to (but **not** identical to) the ones discussed in class. For this assignment, you are specifically asked to characterize a simultaneous move game with a continuous action space.

Describe a plausible, socially and economically relevant strategic interaction between individuals, firms, or some other players. Your description should characterize each player's action space and the resulting Nash equilibrium of the simultaneous move game. The situation that you describe can reflect your own life, or it can reflect a setting that you think is socially, economically, or psychologically important. Your setup should not be one that we covered in class.

I encourage you to be creative both conceptually and mathematically. Your mathematical characterization of the action space and payoffs should reflect something fundamental about the nature of the choice that your players are facing, and ideally this will not simply be a re-labeling of a mathematical setup that we have already analyzed.

Your submission should be typed, and it should not be longer than two sides of a page in 11-point or 12-point font. Submissions must be pdfs, which you will upload to gradescope. Your submission must include the following:

- A brief introductory paragraph (one or two sentences) explaining the economic context you are modeling
- A precise characterization of the set of players and each player's action space
- A discussion of the Nash equilibrium of the game and its economic or social implications

What I Am Looking For:

I want to see you apply the theoretical tools that we are building in class to a new and economically interesting situation (remember: Gary Becker tells us economics is an approach and not a topic, so feel free to think outside the box). I am looking to see you represent a strategic interaction in mathematical terms.

In grading your assignments, I will be looking at the following:

- Is your setup both conceptually and mathematically different from the ones we've discussed in class?
- Is your setup interesting and important?
- Does your mathematical representation of the relationship between action profiles and payoffs capture some fundamental intuition about the nature of the tradeoffs your players are facing?
- Have you included everything I asked? Is the information presented clearly, and in a way that is easy for me to read and understand?
- Have you translated your verbal description of the interaction you are modeling into a correct mathematical representation of the game?

- Have you correctly identified the Nash equilibrium?

As I said before, I strongly encourage you to keep your model simple, so that you are able to solve it correctly.