

## MIS0855: Data Science

### In-Class Exercise on Friday, Jan 16 – Developing Hypotheses

**Objective:** Create hypotheses about things you experience in your daily lives.

#### Learning Outcomes:

- Develop testable hypotheses
- Propose an underlying rationale for that hypothesis
- Explain the difference between a hypothesis, its rationale, and a theory

#### Step 1: Develop Hypotheses and their Rationale (15 minutes)

- In groups of four, think about three different things you encounter in your daily lives. They can be very ordinary, like riding the elevator, or more exciting, like going to a concert.
- Now develop a question about something that you've experienced with each situation.  
*Example: "Are elevators slower at certain times of the day (or is it just my imagination)?"*
- From this, develop a hypothesis about what you believe is going on.  
*Example: "Elevators take longer to arrive during the break between classes than during scheduled class time."*
  - Make sure your hypothesis is testable. Make a note of how you would test it.
- Develop an underlying rationale that justifies your hypothesis.  
*Example: "More people are on the elevator during breaks as they move between floors. All those extra people mean there are extra stops and more time at each floor."*
- Designate a member of your group to be the spokesperson.

#### Step 2: Class Discussion (10 minutes)

We'll compare notes.

First, each group will present its best hypotheses, why they think it's interesting, and how they would test it. Then we'll discuss:

- 1) Were certain hypotheses more difficult to formulate than others?
- 2) What kind of data would you have to collect to test your hypothesis?
- 3) What mistakes could you make if you didn't have a good rationale driving your hypotheses?

Send your group's note to [minspang@temple.edu](mailto:minspang@temple.edu) by 10:00 AM.