Icebreaker – Tag yourselves

**OVER IT STEVE**
- slowly crumbling under the pressure
- doesn’t see the point of exams anymore
- hasn’t seen the sun in ages
- lives off Red Bull, coffee and two minute noodles

**EMOTIONAL AMY**
- is prone to mood swings
- takes naps because they’re so stressed
- studies for 30 minutes but then takes a break for five hours
- desperately in need of a good cry

**LAST MINUTE LUKE**
- unpredictable sleep schedule
- crams all their notes the night before an exam
- makes everyone else stressed because they’re so chill
- always forgets to bring their pens in a clear pencil case

**FED UP DANIEL**
- grumbles a lot
- is mad that they have multiple exams on the same day
- has studied way too much that their brain is mush
- just wants everyone to leave them alone

**RESPONSIBLE JANE**
- makes neat and organised notes
- has done all the past papers
- complains that they haven’t studied enough but then finds the exam easy
- somehow still finds the time to exercise

**“THIS IS FINE” LYDIA**
- smiles but is internally screaming
- goes to the library to study but gets no work done
- on the verge of a mental breakdown
- can’t stop eating chocolate
Research Design

- Two fundamental/overarching approaches:
  - What is going on? (descriptive design)
  - Why is it going on? (explanatory design)
Research Design

● What is going on? (descriptive design)
  ● What is the unemployment rate in “x” country?
  ● Is the level of social inequality increasing or declining across the Midwest?
  ● Who in Chicago is more likely to be apprehended and convicted of crimes?

● Why is it going on? (explanatory design)
  ● Why is the eviction rate in the Bronx highest out of all the boroughs?
  ● Why do NYC schools “remain some of the most segregated in the country”?
  ● How does personality affect an individual’s choice of career?
Research Design

1. Purpose
2. Research Question
3. Literature Review
4. Hypothesis/Expectation
   • Operationalization of variables
5. Method
   a) Type of Study (Experiment? Cross-sectional? Time series?)
   b) Data/evidence
6. Analysis
7. Conclusion
Research Question(s)

- What question am I trying to answer?
  - Research question framework:
    - What is the relationship between x and y?
    - How does x affect y?
    - What factors contribute to x, y, z?
    - Who is affected by x, y, z, (and where)?
    - How is x distributed in y location? Who has access to x?
    - Why does x occur in y communities/areas?
- What is the sociospatial relationship between poverty and school diversity in NYC?
- Why does poverty affect school diversity in NYC, and in which communities?
Research Question(s)

- Be specific about the parameters of your question
- What context is the question being asked in?
- Previous example question:
  - What is the sociospatial relationship between poverty and school diversity in NYC?
  - What parameters/details might need to be specified?
Hypothesis/

• Answer to your research question
• Example structure:
  ● The location of x increases y.
  ● x is related to y in communities, based on z.
  ● X is distributed unevenly across communities in y location, disproportionately affecting z.
• What is the sociospatial access to day care centers in NYC?
  ● Day care access is distributed unevenly across communities in NYC, disproportionately affecting single mothers.

Expectation
Why are school buses often significantly delayed in NYC?

a.) Direct causal Relationship

- Heavy Traffic
- School bus delays

b.) Indirect causal relationship

- Urban population growth
- More drivers/cars on the roads
- Heavy Traffic
- Traffic accidents
- School bus delays
Operationalization

- Concepts -> Operational Definitions

How are you going to measure your concept?

Examples of Concepts:
- Gentrification
- Sustainable
- Personality
- Economic security
- Race
- Impactful/Successful
Operationalization

• Concepts -> Operational Definitions

Research Question: How has the unemployment rate changed in the US during the 20th century?

Concepts:
1. Conception of an abstract idea or phenomenon
   • Unemployment – how do we define it?

Research Question: How does personality affect a person’s career choices?

Concepts:
• Personality
  • Extroversion
Operationalization

- Concepts -> Operational Definitions

Research Question: How are boys socialized into traditional gender roles?

Concepts:
1. Conception of an abstract idea or phenomenon

Operationalization

- Concepts -> Operational Definitions

Research Question: What is the relationship between neighborhood walkability in NYC and health? (Built Environment and Health Research Group at Columbia)

Concepts:
1. Conception of an abstract idea or phenomenon
   - Mental image of neighborhood = conceptualization of the idea of a neighborhood
   - Your turn: What is your conceptualization of “Neighborhood”? “Walkability”? “Health”?
Operationalization

• Concepts -> Operational Definitions

Conceptualization of “neighborhood”:
• A bundle of spatially distributed attributes
• A community
• Group memberships of households within a specific area

Indicators of a neighborhood:
• Gated community
• School district
• Resident-perceived
• Administrative boundaries may be consistent with the notion of a neighborhood
Operationalization

- Concepts -> Operational Definitions

Conceptualization of “walkability”:

Indicators of a walkability:
- **Density**: attributes of interest per geographic area
- **Diversity**: land use mix
- **Design**: layout of the street grid
- **Destination accessibility**: availability of destinations to travel to such as stores
- **Distance to transit**: physical distance to public transportation
Operationalization

- Operational definitions -> Measure(s) of the concept

Measuring neighborhood:
  - Zip code

Measuring walkability (walkability variables):
  - Density: population density
  - Diversity: residential, office, retail, education, and entertainment
  - Design: intersection density
  - Destination accessibility: the ratio of retail building floor area to retail land area
  - Distance to transit: subway stop density
  - Also: safety? Aesthetics?

Measuring health: BMI (NYC Community Health Survey)
Method

- Case Study
  - Detailed, in depth investigation into a specific location/phenomenon/person/etc at a specific point in time
- Cross-sectional
  - Investigation into an area/population (group or aggregate space) at a specific point in time
- Longitudinal
  - Investigation into the same area/population (group or aggregate space) over many points in time
- GIS
  - Can be any of the 3 above + investigating over/ across space
Data/Evidence

- Qualitative
  - Collection and analysis of categorical data
    - Interviews
    - Focus groups
    - Oral histories
    - Narratives
- Quantitative
  - Variables measured numerically (interval, ratio) or converted to a numerical scale (ordinal)
Example: **Affordability**
Exercise

- Discuss your final project proposal
  - What is your research question?
  - Hypothesis/expectation?
  - How will you operationalize the concepts of your topic?