Lecture Notes:

① what is **science**?

1 science is **not** politics, ethics, faith, or ideology

2 science is a special way of **questioning** the world, and a scientific question has the following characteristics:

a a non-normative **modality**:

- **descriptive** = **fact** (existence) = **I am** (it is; he is; she is; they are)
- prescriptive = demand = I **should** (it should; he ought; she necessitates; they are obligated)
- cathectic = assessment = I **like** (it likes; he prefers; she favors; they fancy)

(it is legitimate (and often necessary) for social research to discuss your **subject**'s preferences, norms, values or beliefs, but you cannot let your own preferences, norms, values, or beliefs bias your research)

b clear and precise with no ambiguities

c concerns a significant social issue that needs study or will add to the store of human knowledge

d theoretically justifiable and testable

e practically developed and feasible to implement

f can be implemented in an ethical manner that is respectful of human rights

g builds on existing knowledge in a creative way or one that fill gaps in our existing understanding

□ what we think we "know" of the world may be wrong in many ways:

1 error vs. bias:

- **error**: examples of elements in category differ in unpredictable or random ways
- **bias**: examples of elements in category differ systematically (this is a **stereotype**)

2 we look for knowledge that is both **valid** and **reliable** (**target** example)

- **reliability** = dependability of a measure over multiple trials
- **validity** = lack of systematic error or bias

• these may be corrected through the study of many cases selected in a special manner, called:

③ science is a **process** and a **community** united in shared purpose through **time** and **space** in what has been called a "great conversation" about the world we inhabit.

1 this involves **four activities**:

a developing or revising theories

b collecting data or evidence from real world

c analyzing & interpreting data to test theories

d sharing results with social scientists & general public

↘ this starts the process over with others' reactions

2 science is **problem solving** according to a special set of rules we call the **scientific method**, which supposes:

a the natural world (including social and mental) may be explained by **natural laws** and **natural causes**

b **empirical proof** and **systematic observation** (understand your biases and *try* to be objective)

c analyze, justify, and explain all data through **reason** and **logic**

d examine the world from multiple vantages and gather data through multiple methods for **intersubjectivity** (triangulation and replication)

e **representative sampling** of the population (law of large numbers and thinking in *probabilities*)

3 the "data" social scientists collect includes:

- **internal individual**: attitudes, knowledge, experiences, beliefs, perceptions, values, etc.
- **external individual**: individual characteristics, behaviors
- **immediate surroundings**: traces, artifacts, ecological characteristics
- **groups** or **aggregates**: culture, demographic characteristics, relationships

4 **techniques**: surveys, observations, interviews, nonreactive measures, documents and artifacts, and experiments

5 **purposes** of social research:

- exploration
- description
- explanation
- prediction
- prescription
- criticism
- application
- evaluation

④ science is a particular way of thinking about the world
1 **rigorously**: logically, analytically, holistically, thoroughly, repeatedly
2 **empirically**: examining many real world cases in a systematic fashion, preferably over time and in different contexts
3 **critically**: questioning your own and others' assumptions and propositions, applying many perspectives and evaluating each according to explicit criteria, …
4 **creatively**: seeing an issue or problem through fresh eyes and going beyond your biases and preconceptions

Key Ideas:

Methodology, reliability, validity, survey, experiment, sampling, field research, hypothesis, data.