

**SOCI 101**  
**INTRODUCTION TO**  
**SOCIOLOGY**

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**> SOCI 101 (CRAWFORD 116)**

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THEME: Theory and Data

Artist: John Baswell  
 Song: A Wave of Reason  
 Website: [SymphonyOfScience.com](http://SymphonyOfScience.com)

Carl Sagan, Richard Dawkins, James Randi, Mystic MEG

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### B. Doing Social Science

The Scientific Method

Ask a Question

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Research Existing Sources

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Formulate a Hypothesis

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Design and Conduct a Study

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Draw Conclusions

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Report Results

**1.** To ask a question, one must have a perspective; **deductive** (scientific) reasoning starts with the premise of a **scientific theory**, or a **system of ideas intended to explain, especially based on general argumentative premises.** (Inductive reasoning begins with conclusions, drawing them from specific instances.)

Figure 2.2

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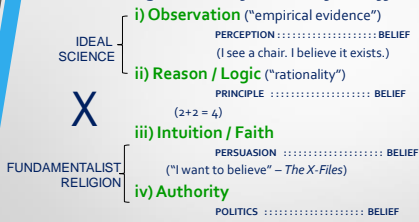
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## B. Doing Social Science

### 2. Upon what foundation are our beliefs?

Knowledge and belief comes in four different ways:



**IDEOLOGY:** a non-scientific system of belief, often religious or political; NOT objectively truthful, yet thought to be "gospel" (absolute truth); for example, "Capitalism", "Communism", or "Christianity"  
**BEWARE OF THOSE CLAIMING TO TELL YOU THE ABSOLUTE TRUTH**

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## B. Doing Social Science

### 3. What are the NORMS of science?

We can use the acronym **NOTTUS** to identify them:

- N = Natural (vs. Supernatural)** – science seeks to explain natural phenomena
- O = Observable (vs. Invisible)** – uses senses and tools to enhance the senses
- T = Testable (vs. Untestable)** – can make predictions; results must be consistent
- T = Tentative (vs. Omniscient)** – science is not all-knowing; hypotheses and theories must always be open to disconfirmation
- U = Uncertain (vs. Certain)** – science has a degree of improbability; there is no such thing as "perfect knowledge"
- S = Social (vs. Isolated)** – science is social; it requires replication of testing by different people and an openness to sharing results (peer review)




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## B. Doing Social Science

### 4. What is NOT science?



**a. Non-science:** events or phenomena that simply do not meet the NOTTUS criteria and therefore fall outside of the realm of science. This includes any belief system (ideology or religion), philosophy, personal opinions and attitudes, and ethics. *But isn't science just another faith? NO!*

**b. Pseudoscience:** science that is emerging or nearing fulfillment of the categories of NOTTUS; with more time, and better tools, new discoveries emerge. For example, research on patterns of electricity in our earth's climate system, [mental telepathy](#) or the [search for aliens \(SETI\)](#).



**c. Pseudoscience:** "Pseudo-" means false in Latin and so these are claims that appear to be scientific, but the claims do not meet the strict standards of NOTTUS; for example, [astrology](#) or [Dianetics \(scientology\)](#).

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## B. Doing Social Science

**5. On Testing and Evidence:** In science, what is crucial in establishing a truth claim are the **types of evidence** one has to back up that claim. But **not all types of evidence are equally strong**.

Weak

Strong

- a. **Anecdotal and expert evidence** (witness accounts from lay people or individual experts – sometimes the *weakest* evidence).
- b. **Experimental evidence** (not widely used in sociology, because it puts people in “unnatural” situations, but provides *greater strength*)
- c. **Surveys and Questionnaires** (very widely used in sociology; can collect vast amounts of information; typically reliable but not always valid)
- d. **Case Studies/Observation over time** (very widely used in sociology; can be **participant** or **non-participant**; typically valid but not always reliable)

Quantity

Quality

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## B. Doing Social Science



### 6. What makes a method valuable?

a. **Reliability** means *generalizability of research* or the degree to which the research gives the same results when repeated in different settings.

It is achieved through *large quantity* of results.

(Ex: *surveys and questionnaires* – lots of people can fill them out, but the questions are limited. **Quantitative research** methods often achieve good reliability of results.)

b. **Validity** means *accuracy of research*

or the degree to which the study measures *exactly* the reality it claims to be measuring.

It is a measure of the *quality* of results.

(Ex: *case studies and ethnographies* really get into the details. **Qualitative research** methods achieve good validity of results.)

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