

### Upcoming Events:

- Remind students that they have a weekend assignment: write a one-paragraph (typed, double spaced) description of their potential term paper topic. I expect these paragraphs to include the following:
  - A sentence explaining what is the topic you would like to study.
  - A sentence explaining why you selected it.
  - A sentence explaining why this topic is important to the study of social science
  - Optional: a sentence explaining how you might do about studying your topic (for example, if you plan to analyze the importance of Jazz in American society, tell me (briefly) what this type of analysis entails: will you to study the history of the music, or focus more on the how much influence jazz has over other forms of music in America?

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### Today's Blueprint:

**Brief Review of Last Class:** What is science? I am searching for the following major characteristics discussed in the readings:

1. Science is logical (it makes sense; it is deductive or inductive)
2. Science is deterministic (deals with cause and effect relationships)
3. Science is general/generalizable (the results can apply to other settings, times, and groups)
4. Science is parsimonious (displays information in a simple and efficient way)
5. Science is specific (Narrows broad questions to specific, testable questions)
6. Science is empirically verifiable/falsifiable (science can be disproved)
7. Science is intersubjective (different researchers from different perspectives working on the same topic should come up with similar results)
8. Science is open to modification (in theory, when new information is discovered, scientists are supposed to add it to the pre-existing theory).

...Based on what the students what say is the difference between soft and hard sciences, tell the students that, over the weekend, they should have this in mind while they read the chapter 2 of the Babbie reading.

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### Hard Science vs. Soft Science

- According to the reading (many of the students will not be this far because they are reading this stuff this weekend), social sciences fulfill only 6 of the 8 major characteristics of scientific research:

<b>Hard (physical) Sciences</b>	<b>Soft (social) Sciences</b>
Logical	Logical
Deterministic	Deterministic
General	General
Parsimonious	Empirically falsifiable
Specific	Intersubjective
Empirically falsifiable	Open to Modification
Intersubjective	
Open to Modification	

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- The main idea is that, the differences aside, the one thing that the soft and hard sciences have in common is that they both seek to answer questions using the scientific method. There is a little less scientific method in the softer sciences, but the scientific method is there, nonetheless.
- This is all well and good, but the distinction between hard and soft sciences is deeper than the “check list” that the readings imply. In fact, there is a lot of debate going on between the hard and the soft sciences, and between scientists within these two camps. Scientists compete with one another to see whose style of science is the hardest.
  - Before we get into all that, ask the students to give examples of soft sciences (i.e. history, economics, AAAS, psychology, anthropology, ecology, poli sci, criminology, etc.) and hard sciences (math [math is weird, it is independent of science, but math methods are always used in science. On one hand, they go together like hand and glove, but math is the “before science,” so most mathematicians do not call themselves scientists as much as they brag that all scientists need math], physics, chemistry, biology, astronomy, etc).
  - Get the students to discuss what the hard and soft sciences have in common. What makes these disciplines different?

### Ray’s Two Cents:

To me, you can tell how hard a science is by checking out what types of things they study.

- Computer scientists study computers, Wetland scientists study wetlands (swamps, rivers, etc.), and Poultry scientists study chicken ☺

...These are dead giveaways, let’s try some harder ones (get class involved):

- Biologists (organic elements and systems)
  - Chemists (inorganic elements and systems)
  - Physics (pretty much all physical phenomena)
  - Neurology (brain cells)
  - Sociologists (societies)
  - Psychologists (minds)
  - Anthropologists (societal and cultures artifacts)
- The thing I want the class to understand is that, with the hard sciences, the thing they study is more standard and more easily recognized. If you study atoms, there is a lot of agreement on what “atoms” are. If you study something like “male domination” or “racism,” “love,” “happiness,” etc. there is less agreement across the board about what these things are. It is open to interpretation. The interpretation part makes the soft scientists soft. The fact that there are few universal, standard definitions to concepts like “power,” “trust” or “depression” makes it difficult for social scientists to do research.
  - The squishiness of soft science can be a good thing or a bad thing, depending on how you think about it:
    - On the one hand, it can be nerve-racking to be a soft scientist because there are few standards that people can agree on.
    - On the other hand, that is what makes social science so fun, Rather than thinking that the questions social scientists ask are less “scientific”, some people think social scientists have harder questions because they are tougher to measure. [Stacy, the quotes below are optional, but I thought they were relevant]: Take the following quotes from hard scientists:

*From time to time, people suggest to me that scientists ought to give more consideration to social problems - especially that they should be more responsible in considering the impact of science upon society. It seems to be generally believed that if scientists would only look at these very difficult social problems and not spend so much time fooling with the less vital scientific ones, great success would come of it. Most scientists do think about these problems from time to time, but we don't put full-time effort into them-because we know that social problems are very much harder than scientific ones, and that we usually don't get anywhere when we do think about them (Richard Feynman, 1999).*

*"Everyone knows the social sciences are hypercomplex. They are inherently far more difficult than physics and chemistry, and as a result they, not physics and chemistry, should be called the hard sciences. They just seem easier, because we can talk with other human beings but not with photons, gluons, and sulfide radicals. Consequently, too many social-science textbooks are a scandal of banality." (Edward O. Wilson, 1998).*