Review Questions Topic 2: The Nature of Science

What is the scientific definition of a FACT?

How does the scientific definition of a FACT notably differ from the way we use the term in every-day language?

Explain the difference AND connection between FACTS and INFERENCES

Define INFERENCE, the way scientist do

Explain how scientific FACTS can turn out to be wrong (what "changed?")?

Explain why it is so important that scientists have an enormous and comprehensive knowledge of their field, when it comes to forming inferences

A widespread view among social scientists is that ALL inferences are correct because they merely depend on the reference frame of the observer. Why do physical scientists disagree?

Define hypothesis. Why is a hypothesis not merely an "educated guess"?

What is odd about hypotheses? In other words, what can we do with them, and what can't we do with them?

Why is it important that scientists start with multiple hypotheses when testing an explanation?

What is the difference between methodological naturalism and philosophical naturalism?

What might lead an unfalsified hypothesis to be "elevated" to a law?

True or False? Laws always explain <u>why</u> something occurs, or works the way it does

Ranks the scientific concepts we discussed by how scientists view their relative certainties

How does this differ significantly from the way that non-scientists do?

Explain how the Titius-Bode Law came to be and how it ultimately was shown to be wrong?

Why is the word "proof" not very useful within a scientific context?

Why are the words "False" and "True" not very useful within a scientific context?

Many people have come to lose trust in scientific explanations because "they change all the time". What does this reveal about people's misunderstanding of (some) of the concepts we discussed in this lecture?