**Q: What are the four scientific goals of description, prediction, explanation, and control, and how do they relate to each other?**

The description is the goal where scientists distinguish and characterize the basic phenomena within their domain. Then, the prediction, once phenomena are described, scientists aim to predict future occurrences or unknown facts about those phenomena based on observed patterns. This is followed by the explanation, in which, after establishing predictions, the next goal is to explain why certain patterns exist. This seeks to describe the "why" behind the observed patterns, providing a deeper understanding of the underlying mechanisms. Finally, the control, which goal is to apply the knowledge gained from the previous three goals to control the phenomena. This is often the practical application of scientific knowledge, looking for solving specific problems or improving conditions.

**Q: What are the following "characteristic metaphysical beliefs" held by scientists: realism, continuously connected and forward causality, simplicity, skepticism, quantitative thinking?**

Realism, which posits that the universe exists independently of sentient(thinking, feeling) beings. Scientists generally accept that matter and energy are patterned in space and time, forming meaningful entities and events. Following, the continuously connected and forward causality: Scientists tend to believe that causes and effects are continuously connected in space and time, operating in a forward direction. Next is simplicity, often referred to as the principle of parsimony or Occam's Razor, this belief suggests that scientists favor simpler explanations as they are generally easier to test and validate. Next up is the skepticism, which involves a critical approach to knowledge claims, where scientists maintain a questioning attitude towards absolute beliefs and seek empirical evidence to support theories. Last but not least, the quantitative thinking. This belief involves using numerical data and mathematical methods to analyze phenomena, allowing for precise measurement and comparison.