

# Foundational Doctrines of Science

# Differentiating between metaphysical and epistemological doctrines

- The foundational doctrines of science may be divided into at least two- the metaphysical ones and the epistemological doctrines
- the metaphysical doctrines dwell on what the nature of reality is or what the substance of study of science is
- The epistemological doctrine of science dwells on the questions of how we get to know in science

- In a way it is important to say that these doctrines are philosophical. They are because they developed also as philosophy theories. This is so since there was no demarcation between science and philosophy as such in the early days of the discipline of science with a lot of philosophers doing science ( which was referred to as natural philosophy); and because it is philosophy that provides formidable basis for what is done in science.

- Note that science is separated from philosophy because of methodological differences and because it is not enough to make logical conjectures about the universe based on observation and reflection. Common sense is important, but it is not enough for science. Truth for science can best be discovered through the observation of nature rather than the study of authoritative sources

# The Foundational Doctrines of Science

- Naturalism
- Materialism
- Physicalism
- Causation (Shall be treated separately)
- Empiricism

# Naturalism

- The fundamental belief informing the notion of naturalism is the belief that there are ways that nature behaves. In other words, there are ways things behave in the natural world because of their properties and these properties lead to a pattern that can be understood.
- Not only do things behave in a particular way, there is a law governing nature which is the natural law.
- This law can be discovered and used to make prediction about how nature behaves and will behave

- It is interesting to note that the first set of postulations about reality relied on supernatural explanations, mysticism spirituality
- What naturalism holds is that reality is natural in nature and as such is not dependent on spiritual and supernatural explanations. Rather that the universe can be studied through natural properties through time.
- Naturalism will have us rely on our five senses to understand the world. That which can be seen, heard, touched, tasted, smelt are the things nature is made up of

# Materialism

- Materialism counters the position of idealism. Idealism wants us to believe that that which exists is an idea in our minds.
- Materialism is the position that which exists in the universe is matter; or that whatever there is is dependent on matter.
- Matter is that which has mass, weight, and occupies space



# Physicalism

- An outcome of the position that everything is matter is the belief in physicalism
- Physicalism holds that that which exists in the universe are physical entities and properties.
- In another word, anything that is in our world is physically constituted or physically made up. They can be related-with with our senses. Only that which physics can deal with is what the world is made up of.

# Empiricism

- This doctrine has to do with the mode of knowing what we claim to know.
- It has a rival theory in rationalism. Rationalism is the theory in epistemology which champions that fact that reason is the source of knowledge. In that attaining knowledge is through reasoning as we have in logic and mathematics for instance
- However, empiricism will not have any of this. It is the position that knowledge can be attained through sense experience or sense perception.

- Empiricism makes a distinction between *a priori* knowledge and *posteriori* knowledge. This is a distinction between knowledge that we claim to have before experience and those we claim to have after experience. Empiricism pitches its tent which with *posteriori* knowledge as the only reliable source of our knowledge