**READING NOTES:**

* science is a formal activity that creates and accumulates knowledge by directly confronting the natural world. That is, science makes progress because of its systematic method, and because that method allows the natural world to play a role in the evaluation of theories.
* These formal relations between theories and data can be difficult to reconcile with an even more fundamental intuition about science: Whatever else it does, science progresses toward truth, and accumulates truths as it goes. We can call this intuition *realism*, the name that philosophers have given to the claim that many or most scientific theories are approximately true.
* Lewis Mumford (1934, 1967) established an influential line of thinking about technology. According to Mumford, technology comes in two varieties. ***Polytechnics***are “life-oriented,” integrated with broad human needs and potentials. Polytechnics produce small-scale and versatile tools, useful for pursuing many human goals. ***Monotechnics***produce “mega machines” that can increase power dramatically, but by regimenting and dehumanizing.

**SEMINAR QUESTIONS:**

1. **What was the purpose of the Vienna Circle?**

* *Logical positivism*
* The Vienna Circle was a group of prominent philosophers and scientists who met in the early 1930s. The project of the Vienna Circle was to develop a philosophical understanding of science that would allow for an expansion of the scientific worldview – particularly into the social sciences and into philosophy itself.

1. **What is logical positivism?**

a form of positivism, developed by members of the Vienna Circle, which considers that the only meaningful philosophical problems are those which can be solved by logical analysis.

1. **Describe a problem with Verificationism**

Verificationism (also known as the Verifiability Criterion of Meaning or the Verification Principle) is the doctrine that a proposition is only cognitively meaningful if it can be definitively and conclusively determined to be either true or false (i.e. verifiable or falsifiable)

It fails because it is, in fact, an example of the very thing that the Verification principle was designed to guard against: 'metaphysical', or non-empirically verifiable propositions.

1. **What is inductive logic?**
2. **Do you find any problems with inductive logic?**

1. **What is the Duhem-Quine Thesis?**

The Duhem–Quine thesis is the claim that a theory can never be conclusively tested in isolation: what is tested is an entire framework or a web of beliefs. This means that in principle any scientific theory can be held inthe face of apparently contrary evidence

1. **What is Underdetermination? Can you think of an example?**

* **Underdetermination** is a thesis explaining that for any scientifically based theory there will always be at least one rival theory that is also supported by the evidence given, and that that theory can also be logically maintained in the face of any new evidence.

Scientists choose the best account of data from among competing hypotheses. This choice can never be logically conclusive, because for every explanation there are in principle an indefinitely large number of others that are exactly empirically equivalent. Theories are *underdetermined* by the empirical evidence.

1. **Highlight and discuss one position about science and/or technology that STS takes as a starting point.**