

Lessons from Science and Technology

What makes “Science” an effective method to understand the world and what makes “Technology” successful in improving the world? This course will consider how science and technology work best by exploring counterexamples. What might we learn from examples that have been designated bad science and what might we learn from mistakes and failures in implementing technology? In the category of bad science, we will study Lysenko and Russian agricultural policy, Princeton resident Immanuel Velikovsky and “Worlds in Collision,” Wegener and the denial of Continental Drift, and Cold Fusion as the “poster child” for bad science. We will also study the problem of failures as in the Tacoma Narrows Bridge Disaster, Cold Fusion as a technology, and Tesla’s Wardencllyffe Tower.

This course will run as a participatory seminar where the students are encouraged to focus on at least one of our topics, read the relevant references (to be discussed in the first session) and, if they wish, present a summary of what they have learned. The six major topics will be put into the scientific and engineering context of the times, and we will look at factors such as the sociology of science, political and economic forces, and certain aspects of ethical and legal constraints. We will keep coming back to the question of how science and technology are done and, perhaps, should be done.

The first session will give a broad overview of ideas from the philosophy of science such as falsification, degree of belief and the role of theory and experiments. Technology will be treated as an independent process that may follow from science, discovery and invention or lead science in fostering discovery, invention and an understanding of the world. The final session will bring together what we have learned, ourselves, from the examples presented and to see if we can form a consensus as to what makes for good science and appropriate technology. I am looking forward to an exciting process of discovery and insight and our meeting some of the most interesting characters of the 20th century.

Leader: Stuart Kurtz, whose current interests are in philosophy of science and time, has had a career in teaching both engineering and science and as a researcher in industry.

Fridays: 10:00 a.m. to 12:00 noon., 8 weeks: September 29 through November 17.

Location: Presbyterian Church of Lawrenceville.