Misconceptions of Science, Part 2

Course Description
This two-semester course deals with common misconceptions of science typically held by nonscientists as well as scientists. The course is based on Dr. Don Lincoln's Great Courses (Teaching Company) lectures, “Understanding the Misconceptions of Science”. Dr. Lincoln is a physicist from Fermi National Accelerator Lab and adjunct professor at University of Notre Dame. Each lecture will be followed by discussion and supplemented by background information to ensure clarity. We will also discuss related topics of interest.
The second semester will include a wide range of topics, covering both physical and life sciences, such as radiation health risks, misuse of statistical data, entropy of evolution, fundamentals of relativity and cosmology, properties related to the speed of light, untangling quantum mechanics, and the significance of the theory of everything.

Weekly Layout:
Radiation and health risks: different sources of radiation will be discussed, including methods of measurement and health risks.

Misuse of statistics: we will define terms used for satistical analysis, including how best to interpret statistical data.

In this session, we will show that thermodynamics helps explain evolutionary processes.

The theory of relativity will be reviewed, including common misconceptions.

Special theory of relativity will be examined with a discussion on mass-energy equivalence.

In this session, we will discuss the formation, properties, and significance of black holes.

The beginning of the universe will be discussed in terms of the big bang.

For this session, we will show that nothing travels faster than the speed of light.

Quantum mechanics will be introduced, including some of its unusual properties.

We will discuss the possibility of there being a theory of everything and its consequences.