

## Instructions for the March Seminar - The God Equation by Michio Kaku

### Instructions

To prepare for the seminar, explore the materials and links below, and then write a response of at least 200 words. There are some discussion questions at the end that you may use as writing prompts, but feel free to respond as you wish.

Email your written response to [lewesseminar@gmail.com](mailto:lewesseminar@gmail.com) no later than Monday, March 6. You are asked to read all the responses prior to the seminar meeting on March 8.

Most of us think in a three-dimensional world and base our understandings and meanings within this paradigm. This next seminar is an attempt to take our thoughts beyond the bounds of our known world to the theoretical thinking and understandings of mathematicians and physicists who attempt to better understand the origins, structures and meaning of the universe or multiverse. While these scientists have helped us learn much about our own planet, enabling both industrial and technical revolutions, they are also on the cutting edge of learning about the universe. Michio Kaku is a String Theorist who takes us on a scientific journey in his pursuit of what he calls the God equation or the theory of everything.

The seminar is not an attempt to understand the mathematics behind these theories, which is well beyond the scope that I believe any of us are interested in going. Rather, it is to appreciate how scientists think and put together knowledge and some of the philosophical questions that are raised from their inquiry.

Following is a brief list and explanation of theories scientists use when dealing with the cosmos. This information was generated by using the new CHATgpt. (I recommend you take a look at this AGI generated knowledge base, which you can easily obtain by typing the name in your browser.)

“Some of the most well-known and widely studied theories in physics include:

- The Standard Model of particle physics, which is a theory that describes the fundamental particles that make up matter and the forces that govern their interactions. This theory has been extremely successful in explaining a wide range of phenomena, but it does not account for some observed phenomena, such as dark matter and dark energy.
- General relativity, which is a theory of gravitation that describes the gravitational force as the curvature of spacetime caused by the presence of mass and energy. This theory has been very successful in explaining a wide range of phenomena, including the orbits of planets and the expansion of the universe.
- Quantum mechanics, which is a theory that describes the behavior of very small particles, such as atoms and subatomic particles. Quantum mechanics is the basis for many modern technologies, including transistors and lasers.
- String theory, which is a theory that attempts to unify the principles of quantum mechanics and general relativity. String theory postulates that the fundamental building blocks of the universe are tiny, vibrating strings rather than point-like particles.” CHATgpt))

## How to prepare for the seminar

Two copies of the book *The God Equation* is available on reserve at the **Lewes** library. However, Michio Kaku makes several presentations on YouTube that are well narrated and can be very adequate in preparation for our seminar.

For a basic understanding of string theory, watch the following:

<https://www.youtube.com/watch?v=B1GO1HPLp7Y>

For an in-depth discussion of the book *The God Equation*, watch the following:

<https://www.youtube.com/watch?v=3cyhXgT3w6A>

For some perspective on the vastness of the universe, you may wish to go to the following website for some photography from our space telescopes.

<https://esahubble.org/images/heic1709a/>

In a recent discussion with David, he mentioned a difference between science, which is charged with exploring “what is” and the arts, which is focused on “what if.” I was struck by this notion, because those mathematicians and physicists dealing with the cosmos are seeking understanding of the universe but are doing so mostly indirectly, as much of what they do cannot be directly observed or verified through experimentation. Consequently, their work is filled with “what if” questions.

In his text Kaku raises several questions that seem to be the domains not only of science but philosophy and religion. Some of these questions are:

What happened before the Big Bang? Why was there a Big Bang in the first place? Is time travel possible? Is there a multi-verse? Are there wormholes to other universes? Are there higher dimensions? What is the grand design of the universe? Was there a first designer? Is there a rhyme and reason to our existence or is it all pointless? Is the universe subject to determinism such as all future events can be predicted? Can everything be reduced to chance and uncertainty? Does the universe have purpose and meaning? Was there a designer to the universe? What is life?

The following are some thoughts questions that may be interesting to discuss in the seminar.

1. Given what we have read in the text about the nature of a possible creator, give a “rational” explanation for identifying as an atheist.
2. What are ways of knowing about the cosmos that go beyond the boundaries of the science presented in this text?
3. Does knowing more about the universe help in understanding the meaning and purpose of our lives?
4. Do human beings have a special role in the universe and what is it?

There are numerous other questions and discussions that Kaku’s book raises. Please consider them for our seminar.

Prepared by Aram Terzian