

As we part ways at the completion of the course, I'd like to share a few parting thoughts with you. Some involve your relationship to science some involve the relationship of science to society...

*Galileo Galilei: I do not feel obliged to believe that the same God who has endowed us with sense, reason, and intellect has intended us to forgo their use*

Just as the health of every sport depends on the spectators and their interest in the game, to avoid misguided projects and quack science depends on the public and their interest in the process of scientific advancement. You don't need to be a musician to appreciate music, an artist to appreciate art, nor a scientist to appreciate science. It simply requires exposure to the subject. A scientifically illiterate public dooms society

For some of you, it is the beginning of the end of your direct involvement in science, while for others this will mark the end of the beginning as you learn more and more about the nature of our universe. In some sense, the only thing that matters is that you have seen that science is a process driven by rational, logical thought, though there is still room for insight, intuition and new ideas. We ask only that those ideas be testable, verifiable and reproducible. We must stay vigilant along the way to prevent ideology and untestable beliefs from replacing reason and logic. You know the rules of the game, so please keep an eye on the players to keep them honest.

*Ernest Rutherford: "In science, there is only physics; all the rest is stamp collecting."*

From the standpoint of physics we have made tremendous strides. From our initial observations regarding position and the relationships of displacement to velocity and time to the successful exploration of the solar system and nearby planets, the application of observation and logic in the form called physics has led humanity into new realities. While the discoveries are neutral, their application has the potential to endanger millions, or to assure the continued existence of humanity in our universe. However, I see no reason not to be hopeful, and I'll quote Helen Keller here: "No pessimist ever discovered the secrets of the stars, or sailed to an uncharted land, or opened a new heaven to the horizon of the spirit."

*John Muir: When we try to pick out anything by itself, we find it hitched to everything else in the universe.*

Initially, much of science and religion was devoted to the separation of humanity from the rest of the universe. Whether the ideal that earth occupied a special position in space, or the notion that humanity occupies a special position in the universe, much of our ideological efforts have been devoted to removing us from the space-time we inhabit. If anything has become apparent it is that we are inextricably interconnected to everything else in the universe and to understand the universe is to understand ourselves. "We are - to quote Paul Hewitt - the conscious part of nature that is investigating itself"

*Jello Biafra: It seems the more I think I know, the more I find I don't. Every answer opens up so many questions.*

I hope this course has shown you that there is still a great deal of work to be done in improving our understanding of how the universe functions. We have journeyed further than anyone before us, but there are a myriad of uncharted paths that stretch before us, ready to be explored.