Thematic Option CORE 103g
THE PROCESS OF CHANGE IN SCIENCE: REVOLUTION AND EVOLUTION OF IDEAS

Fall Semester, 2024
Professor Donal T. Manahan, Ph.D. (Web page link here)

COURSE DESCRIPTION

General Theme: "How do we know if something is true?" (The science behind knowledge).

Specific Details:

The revolution and evolution of new ideas is the central focus of this course. Science (understanding nature) and technology (manipulating nature) are dominant themes influencing our society. Modern science is viewed as a logical approach to understanding nature and our place in the Universe. Throughout the history of thought, however, the word "*science*" had a much broader meaning, with the word dating back to Latin origins that describe a process that produces basic knowledge in any field.

Historically, the invention of writing led to a wide and general access to books and peer-reviewed journals. This advance was central to the documentation of progress in knowledge that, over centuries, led to the acceptance of new ideas regarding how our World works. These new ideas were sometimes accepted quite rapidly, but often there was a slower acceptance.

In this course, we will explore the historical development of the major revolutions in thinking about science and technology. Historical and modern literature will be explored, with opportunities for students to have in-person access to "Great Books" in science (rare books, in particular). There will also be a focus on the biographies of "Great Thinkers" in the history of scientific knowledge, spanning earlier to modern times.

Current societal issues will be considered, regarding the concepts of information, misinformation, and disinformation in matters of science and technology related to important topics such as — human health, environmental change, disease prevention, food and energy policies, applications of artificial intelligence, and other emerging matters. Student engagement will be actively encouraged in the selection of these specific topics for in-depth review and discussion.

Required Reading

- *Scientifica Historica*: *How the world's great science books chart the history of knowledge.* Brian Clegg, 2019. 272 pages. Ivy Press. ISBN 978-1-78240-878-9
- Additional selected readings will be assigned during this Thematic Option course, in addition to incorporating class visits to Rare Book Collections and other literature options.