

UGFN1001 In Dialogue with Nature (Cross-institutional)

Required Readings

What are the topic-by-topic reading assignments?

Excerpts will be selected from the following classics. The instructor may subtract from or add to the following list where s/he sees fit, but there should be a general adherence to what is given below. Excerpts from titles not discussed in class can be listed as texts for critical analysis in students' essays.

1. Human Exploration of the Physical Universe

- Plato, *Republic*
- David C. Lindberg, *The Beginnings of Western Science*, 2nd edition
- I. Bernard Cohen, *The Birth of a New Physics*
- Isaac Newton, *The Principia*

2. Human Exploration of the World of Life

- Charles Darwin, *On the Origin of Species*, 1st edition
- James D. Watson and Andrew Berry, *DNA: The Secret of Life*
- Rachel Carson, *Silent Spring*

3. Our Understanding of Human Understanding

- Henri Poincaré, *Science and Method*
- Eric R. Kandel, *In Search of Memory: The Emergence of a New Science of Mind*
- Colin A. Ronan and Joseph Needham, *The Shorter Science and Civilisation in China* Vol. 1
- Nathan Sivin, 'Why the Scientific Revolution Did Not Take Place in China - or Didn't it?'
- 沈括：《夢溪筆談》
- William Dunham, *The Mathematical Universe: An Alphabetical Journey Through the Great Proofs, Problems, and Personalities*
- Euclid, *Elements*

Recommended Readings (if applicable)

1. Human Explorations of the Physical Universe

- Edward Grant, *Physical Science in the Middle Ages*
- Roy Porter (ed), *The Cambridge History of Science* Vol. 4 (Eighteenth-Century Science)
- Aristotle, *Physics*
- Thomas Kuhn, *The Structure of Scientific Revolution*
- Karl Popper, *Conjectures and Refutations*

2. Human Explorations of the World of Life

- Erwin Schrödinger, *What is Life?*
- Richard Dawkins, *The Selfish Gene*
- John Houghton, *Global Warming: The Complete Briefing*

3. Our Understanding of Human Understanding

- Erwin Schrödinger, *Mind and Matter*
- Joseph Needham, *Science and Civilisation in China* Vol. 7
- 陳方正：《繼承與叛逆》
- 陳天機、許倬雲、關子尹編：《系統視野與宇宙人生》
- 陳天機：《大自然與文化》
- 陳天機：《天羅地網》
- Roger Penrose, *The Emperor's New Mind*