

Honor 2103
Exam #1 Studyguide

Key Concepts and Persons

A list of key concepts and persons discussed in lecture and the readings. The list is not meant to be comprehensive, but only point to the highlights. You should be able to answer multiple choice and short answer questions regarding these concepts. In general you are expected to understand the basic transformations that occurred during the scientific revolution, from Copernicus through Newton and during the Enlightenment. Bluebooks are required.

Aristotlean & Ptolemaic Astronomy
Geocentric model
Natural motions and teleology
Celestial vs. Terrestrial motions
Teleology
Epicycle-on-deferent
Eccentrics and Equants
Church authority
Planets and retrograde motion
Copernicus
Heliocentric model
Objections to heliocentric model: spinning earth and parallax
Kepler's three laws of planetary motion
Galileo
Major findings in *Starry Messenger* (1610)
Primary/Secondary qualities and relativity of perception
Scientific method and authority
Scriptural authority: especially Joshua 10:12-13
Experiment, idealizations, mathematical representations
Descartes
Geometric model of knowledge (tree example)
Four rules (*Discourse on Method*, 1637)
Mechanical Philosophy
Mind/Body dualism
Rationalism
Newton
Annu mirabilis
Experimentum crucis
Theory of light
Refractions (refrangible)
Chromatic aberrations and telescope
Three laws of motion & Gravity
Great synthesis
Scientific method (method of analysis and composition, D-N model)
Empiricism
Newton and natural theology (argument from design)
Voltaire
Candide: main characters and key plot points: e.g., Death of Jacques the Anabaptist, Lisbon earthquake, El Dorado, Tending one's garden, etc.
Problem of evil and principle of sufficient reason

Essay Questions

You will be expected to write brief, but complete and clear answers in essay form to the following questions. During the exam, three of the following questions will be selected and you will be required to write on two of the three. Make sure you answer the questions completely.

1. Copernican system: What are the basic differences between the heliocentric and geocentric models. How was the heliocentric model considered an improvement (be specific)? What was one objection to the heliocentric model and how did Copernicus answer that objection?
2. Galileo: What did Galileo see through his telescope that challenged the Aristotelean/Ptolemaic system? Why were these observations a challenge? How did Galileo argue in defense of the Copernican system?
3. Newton and light: What was Newton's revolutionary theory of light? What experiment did he perform to demonstrate this theory? What did he make with the results of this theory (and why was it important)?
4. Newton's synthesis: One of Newton's greatest contributions is the great synthesis. What is the great synthesis (be as specific as you can be)? What proof did he offer to demonstrate his synthesis (canon and mountain)? What was the significance of this synthesis for later intellectual developments?
5. Voltaire: *Candide* is a story of tragic comedy, satirizing the Leibnizian idea of the principle of sufficient reason (all is well). In what way does Voltaire achieve this satire of optimism (give an example or two from the text)? Does the main character Candide transformed by his experiences (why or why not)? Why does he say in the end that we must tend to our gardens?