

# Elmhurst College

## FYS 100.09 -- Becoming a Skeptical Student: Science, Pseudoscience, and Self-deception

Pythagoras (~580-500 BCE)

Plato (428-348 BCE)

Aristotle (384-322 BCE)

Euclid (~325-270 BCE)

Aristarchus of Samos (~310-230 BCE)

Ptolemy (~90-168 CE -- Alexandria) "Almagest"

Hypatia (~360-415 CE -- Alexandria)

---

William Tyndale burned at the stake in 1536.

Nicolaus Copernicus (1473-1543)

"On the Revolutions of the Heavenly Spheres" - ~1536; pub. 1543

Martin Luther died - 1546

Tycho Brahe (1546-1601) - **"Father" of modern observational/experimental approach.**

[In 1564, Michelangelo died; Shakespeare and Galileo were born.]

Giordano Bruno burned at the stake in 1600.

Galileo Galilei (1564-1642) - **"Father" of the modern scientific method.**

Telescope Development for Astronomy - 1609

"The Starry Messenger" - 1610

Admonished by the Church - 1616

"Dialogue on the Two Great World Systems" - 1632

Tried by the Inquisition - 1633

Wrote his great work on mechanics while under house arrest for the remainder of his life.

Johannes Kepler (1571-1630)

"A New Astronomy or A Physics of the Skies" - 1609

a) A force from the sun moves the planets in their orbits.

a) **1st Law of Planetary Motion:** Orbits of the planets are ellipses, with the sun at one focus.

c) **2nd Law:** Line drawn from the sun to a given planet sweeps out equal areas in equal times.

"Harmonies of the World" - 1619

**3rd Law:** The square of the period (T) of revolution of a planet divided by the cube its average distance (d) from the sun is the same for all planets.  $[T^2/d^3 = \text{constant}]$

Isaac Newton (1642-1727)

"Mathematical Principles of Natural Philosophy" – pub. 1687 (early work 1665-66)

The scientific revolution begins to move forward big time ....

Some Mathematics dates:

Logarithms - about 1614

Graphs - about 1637-1692

Calculus - 1665