**Some Notes on Natural Philosophy and Its Implications for the Enlightenment**

I  **The Legacy of Greek Philosophy**

Atomism and materialism

Platonism and mysticism: Logic and the elites; sharp dualism; neo-Platonism

Aristotle’s synthesis: laws of physics; laws of politics; importance of the mean

Why did Aristotle believe “nature abhors a vacuum”?

The prime mover

Was the universe created or always in existence?

Lucretius: atomism and atheism

II  **Alchemy and Scholasticism**

The four elements – metals, fire, water and air – along with the fifth element (the elixir)

Purifying metals: fashioning gold and silver out of impure metals

Applications to practical concerns: medicine, food preparation, metal working

Alchemy passed from Islamic scholarship and practice to Europeans, especially through Iberia (occupied by Islamic powers, then slowly reconquered by emerging states that became Spain and Portugal)

Scholasticism: rejecting alchemy but incorporating Aristotle’s theories (Saint Thomas Aquinas)

III  **The Rise of Natural Philosophy**

The attack on the theory on the geocentric theory of the solar system: Copernicus and Galileo

Revival of atomism: Descartes

Tycho Brahe and Johannes Kepler: Kepler’s three laws

Newton’s attack on Descartes

Action at a distance: gravity

Explaining Kepler’s law: what applies in the solar system applies on earth
God resets the system

Deism and “natural law”

The intellectual pendulum swing: from Scholasticism to Natural Philosophy; from Descartes to Newton

Applications to government: the importance of free speech and debate; bringing practical alchemy into the world of natural philosophy – a kind of “industrial enlightenment” emerging: mechanics working for scientists, scientists depending on mechanics, growing use of mathematics and experiment

IV The Enlightenment: High Philosophy

Reason and public debate

Incorporating natural philosophy: how do we know natural laws?

Locke: the Blank Slate, importance of individual experience

Hume: Reject miracles; always look for a natural explanation

Gibbon: Christianity held back the West

Newton’s atomism inspires theories of Adam Smith (altruism as “force at a distance”)

Ben Franklin in the United States: electricity and practical knowledge

Reconciling intrinsic knowledge with experiment and experience: Kant

The Categorical Imperative: Deducing the Golden Rule from logic