ASTRO190 HOMEWORK #1, DUE Jan 16 before class.

This homework covers the material of the first day of class. Submit in pdf or text format to balick@uw.edu. *Content, conciseness and clarity matter. More difficult questions will be graded with a lighter touch. Contact me (543-7683; balick@uw.edu) if you are stymied.*

1. Modern science can trace its history back to some of the earliest Greek philosophers who preceded Socrates and Aristotle, notably

Thales of Miletus (624-546 BCE),
Anaximander of Miletus (610-546 BCE),
Pythagoras* of Saros (570-495 BCE),
Democritus of Thrace (460-370 BCE)

* Anaximander's student, known best for his derivation of the relative lengths of lines of triangles

Match each of these people with their assertions about the nature of the natural world (Hint: use Wiki). That is, match each name and the letter that identifies their assertion, such as "Pythagoras – (X)". (One line)

a. everything can be understood as the result of natural laws
b. rational thinking and the application of hypotheses, not the ancient anthropomorphic gods, is the way to understand the world around us
c. nature is ruled by laws, just like human societies, and anything that disturbs the balance of nature does not last long
d. the planets and stars move according to mathematical equations, which correspond to musical notes and thus produce a symphony

2. Science as we know it withered in the Roman Empire and the Dark Ages until the later years of the Renaissance. Nicolas Copernicus (1473-1543), Giordano Bruno (1548-1600), Galileo Galilei of Pisa (1564-1642) re-awakened science and gave it prominence (despite the teachings of powerful theists into the 19th century that only God understands how the world works).

Match these people with their assertions about the nature of the natural world (Hint: use Wiki). Match each name and the letter identifying their best-known belief, such as "Bruno – (X)". (One line)

a. the idea that the Sun is just one of very numerous of stars, Earth is one of many of planets, and that intelligent life might not be unique to the Earth
b. the formulation and logical justification of the idea that the Sun, not the Earth, is not the center of the Universe ("heliocentrism" vs "geocentrism")
c. the contentious (and mistaken) "proof" of heliocentrism

3. Which of Galileo's many stunning *observations* has turned out to have the greatest impact on modern science and culture? Explain. *(Make sure that your explanation is based on an observation.)* (≤ 20 words)

4. "Truth", "truth", and "false truths": what are the differences? (≤ 100 words)
Suggestion: Explore the standards for proof of guilt used in criminal and civil trials.

5. What's the difference between "geocentrism" and "egocentrism"?