

Spring 2026
Prof. Sowinski

PHYS 100
Physics and the Natural World University of Rochester
Department of Physics & Astronomy

Please answer the following. Write legibly, use full sentences, and large enough so that my poor eyes can read what you wrote. You may discuss these questions with one another, and look at the readings. Reference the readings. Ad Astra Per Aspera!

What does Ptolemy identify as the three branches of theoretical philosophy, and where does astronomy fit?

What observational evidence does Ptolemy give for the spherical motion of the heavens?

What are the two distinct motions Ptolemy identifies in the heavens?

What argument does Copernicus give for why the sphere is the correct shape for celestial bodies?

How does Copernicus use observations of ships to argue for Earth's sphericity?

Why does Copernicus assert that celestial motion must be circular or composed of circular motions?

How does the Earth-to-celestial-sphere size ratio support Earth's mobility?

What are the classical arguments against Earth's motion that Copernicus must address?

How does Copernicus counter the objection that objects would fly off a rotating Earth?

What are the three motions Copernicus assigns to Earth, and what phenomena does each explain?

How does the heliocentric arrangement resolve the ordering ambiguity for Mercury and Venus?

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What is Galileo's argument for why Scripture should not be used to settle disputes about natural phenomena?

How does Galileo use the Church Fathers' own writings to argue against literal interpretation of physical passages?

What is Galileo's response to the argument that Copernicanism contradicts Joshua 10:12-13 (the Sun standing still)?