

ASTR1010: Astronomy of the Solar System

Test #1 Study Guide

Fall 2019

Lectures: Prof. Emmanouil Georgoulis

Website: <http://www.astro.gsu.edu/~georgmk1/Astro1010-Fall-2019/>

- Please make sure you have an understanding of the material in the Textbook
- Review the Chapter slides available in the course website
- Work on the practice questions, available after each lecture
- Work on the review questions, available after the September 12 practice lecture

The main concepts of each chapter to be examined on September 17 are as follows:

Chapter 1:

- What is our location in the Universe?
- What is a: Comet, Asteroid, Planet, Star, Solar System, Nebula, Galaxy, Universe?
- What is our Sun, in regard to other Stars in the Galaxy?
- What is an Astronomical Unit – what is its average magnitude?
- How many planets exist in our Solar System – is Pluto considered a planet?
- What is the shape of our Galaxy and how many stars does it have?
- How many Galaxies exist in the Universe?
- What is the size and the age of the Universe?
- What is the light year – what is its approximate magnitude?
- Does the Universe expand – how did we find this out?

Chapter 2:

- What is the Milky Way – can it be observed from Earth and how does it look like?
- How many stars can we see on a clear night in the countryside with naked eyes?
- What is a Constellation – how many are there?
- What is the Celestial Sphere, the Celestial Equator and the Celestial Poles?
- What is the Ecliptic – how much is it tilted with respect to the Celestial Equator?
- Can we measure angles in the sky? How?
- What causes Seasons in Earth? Are Seasons, weather-wise, the same for the North and South hemispheres of Earth? Why?
- What are Solstices and Equinoxes? What do they mean for the progression of Seasons?
- What is the Precession of Earth's rotation axis – what is its period?
- What are the Phases of the Moon and why do they happen?
- Does the Moon rotate around itself? Why do we only see half (a hemisphere) of it?
- What are Eclipses? What is a Solar and a Lunar Eclipse?
- From a certain location on the surface of the Earth, why are Lunar Eclipses more frequent than Solar Eclipses?
- What is the Retrograde Motion of planet Mars and why does it happen?

Continue →

- What is Stellar Parallax and why did the ancient Greeks miss it? What did they conclude because of not observing one?

Chapter 3:

- What does Science mean and what did the ancient Greeks mean by it?
- How is modern Science rooted in ancient Astronomy?
- How many ancient civilizations can you find that relied on Astronomy for their needs?
- What is the Geocentric Model? Who defined it and which was the most elaborate one?
- What was the most important contribution of Ptolemy's Geocentric Model?
- What are the most important contributions of Copernicus, Tycho Brahe and Kepler?
- Which are Kepler's three laws? Which one is the most important for practical applications?
- What were Galileo's main contributions?
- How can Science and Non-Science be distinguished?
- What are the Hallmarks of Science?
- What is a Scientific Theory – can you think of some?
- Is Astrology a Science, like Astronomy? What is their single most important difference?
- Do Astrology's predictions have any scientific validity? Why?

Chapter S1:

- What is a Solar and what is a Sidereal Day? Which one is longer, and why?
- What is a Synodic and what is a Sidereal Month? Which one is longer, and why?
- What is a Sidereal and what is a Tropical Year?
- What is a Sidereal and what is a Synodic planetary Period?
- What is a Planetary Transit and why does it happen?
- What is the simplest way of finding noon on a sunny day without looking at the time?
- What is Local Noon, Apparent Solar Time, Mean Solar Time, Standard Time and Universal Time? When is Daylight Time introduced and why?
- How many Time Zones exist on Earth?
- What is a Leap Year and why was it necessary to be introduced?
- What are the Celestial Coordinates and their units of measurement?
- What are Earth's Special Latitudes and why have they been introduced?
- What are the two rules for determining the Geographic Latitude at your location?
- Can the Sun only be used to determine the Geographic Latitude or stars can be used, as well? What are the key pieces of knowledge we need to have, either way?
- How can the Geographic Longitude be determined? Why was this arguably a harder problem than determining the Geographic Latitude?