

**EPCS 201 : Understanding Planet Earth**  
Fall 2018 Lecture Notes

Allison Mejia

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# 1. Origin of the Universe, Solar System and Earth

Humans are complicated animals. Our complex, conscious thought gives us curiosity about ourselves and our universe. We have come to define the universe as all of space, all of the matter and energy within it and all of time. Time is specifically believed to have started at the Big Bang. The scientific study of the universe, also known as cosmology, is based on credible speculation. Everything claimed is tested as to give proof. In this class we will come to understand the structure and history of our Universe partially but more specifically of Earth

In the past, our ancestors thousands of years ago knew about the stars and how they appeared fixed relative to each other. They seemed to rotate about a fixed point (Polaris<sup>1</sup>) while the planets moved against the background of stars. They did not know however that Earth is a planet and were unaware how heavenly bodies moved. They believed that the Universe was geocentric, ie. that the Earth sat at the centre of the universe while every other celestial body circled a motionless Earth. The heliocentric model only gained acceptance during the Renaissance (15th century)

## 1.1 The Big Bang

Assigned reading: textbook<sup>2</sup> chapter 1 and appendix a

## 1.2 Nucleosynthesis

A

## 1.3 Origin and Age of our Solar System

B

## 1.4 Origin and Composition of the Earth

C

## 1.5 Trivia and Morphology of the Earth's Surface

D

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<sup>1</sup>The north star. It is a variable star that changes its brightness every 3 days

<sup>2</sup>Essentials of Geology, 5th Edition

## **1.6 Hypsographic Curve of the World's Surface**

**E**

## **1.7 Internal Structure of the Earth**

**F**