

Astronomy 110G: An Introduction to Astronomy

Course Outline

Setting the Stage: Naked-Eye Astronomy

- The Sky & the Celestial Sphere
 - A Celestial Inventory
- Astronomical Phenomena

Describing the Universe: Early Astronomical Ideas

- The Age of Mythology: Astronomy in Prehistory
- Classical Astronomy: Mediterranean and Arabic Astronomy
 - Renaissance Astronomy: The Copernican Revolution
- The Beginnings of Modern Astronomy: Galileo & Newton

The Message of Starlight: Electromagnetic Radiation

- The Nature of Light: Photometry & Spectroscopy
 - The Physics of Light: Phenomena
 - Light and Matter: Atomic Physics

The Solar System: The Sun's Family

- An Inventory of Solar System Bodies

Planets, Satellites, Asteroids, Comets, Meteoroids, Dust.....

- Orbits and Motions in the Solar System

- Physical Properties of Solar System Bodies

Mass, Size, Composition, Structure,.....

- Origins: The Formation of the Solar System

- The Formation and Evolution of the Earth

The Age of the Earth. Life on Earth.

- Other Stars, Other Planetary Systems

The Stars

- The Stars in Space: Distances and Motions

- Classifying Stars: Stellar Photometry

- The Physical Properties of Stars: Masses, Sizes, Luminosities

- Astrophysics: Stellar Structure and Thermonuclear Processes

- Stellar Evolution: The Birth and Death of Stars

Our Galaxy: The Milky Way

- Observing the Galaxy: Through a Glass Darkly
- Inventory: The Distributions of Stars, Dust, & Gas
- Galactic Structure: Rotation & Stellar Populations
- The Formation of the Galaxy: Clues & Confusion
 - The “Dark Matter” Puzzle

Island Universes: Other Galaxies

- The Nature of the Spiral Nebulae: The “Great Debate”
 - Types of Galaxies: Morphological Classification
 - Peculiar Galaxies: Active Galaxies and Quasars
- Galaxies in Space: Distances & Motions, Galaxy Clusters

Cosmology: The Structure & Evolution of the Universe

- Observations: Olbers’ Paradox & the Expansion of the Universe
 - Theoretical Cosmology: Einstein’s General Relativity
 - Cosmological Models: The “Big Bang”
 - More Puzzles: “Dark Matter” & “Dark Energy”



The Virgo Cluster of galaxies

