



MASTER COURSE OUTLINE

Prepared By: Jim Hamm

Date: Sep 2017

COURSE TITLE

Survey of Astronomy

GENERAL COURSE INFORMATION

Dept.: ASTR&

Course Num: 100

(Formerly: AST 110)

CIP Code: 40.0201

Intent Code: 11

Program Code: N/A

Credits: 5

Total Contact Hrs Per Qtr.: 55

Lecture Hrs: 55

Lab Hrs: 0

Other Hrs: 0

Distribution Designation: Natural Science NS

COURSE DESCRIPTION (as it will appear in the catalog)

A survey course intended for the non-science major. Topics studied will include most of the following: historical astronomy, electromagnetic radiation, telescopes, the Earth-Moon system, the solar system, the sun, stars, stellar evolution, galaxies, quasars, and cosmology. This is a non-lab science course. (Credit will not be granted for both ASTR& 100 and ASTR& 101).

PREREQUISITES

MATH 099 or higher placement

TEXTBOOK GUIDELINES

A current introductory astronomy text

COURSE LEARNING OUTCOMES

Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills:

1. Discuss some of the history of astronomy
2. Identify major seasonal constellations and some of the brighter stars in the night sky.
3. Identify lunar phases and, given a lunar phase, predict rising and setting times.
4. Describe conditions necessary for solar and lunar eclipses.
5. Demonstrate knowledge of the solar system, stellar evolution, galaxies, quasars, and black holes.
6. Describe the role of gravity in various astronomical processes.
7. Describe how astronomers employ electromagnetic radiation to learn about astronomical objects.
8. Perform simple algebra and calculations involving relations used in astronomy such as Wien's Displacement Law, Kepler's Third Law, and other relations used in introductory astronomy.
9. Discuss qualitatively current theories of cosmology.
10. Demonstrate knowledge of telescope powers (resolving power, light-gathering power, and magnification) to compare telescopes of different apertures and designs.

INSTITUTIONAL OUTCOMES

IO2 Quantitative Reasoning: Students will be able to reason mathematically.

COURSE CONTENT OUTLINE

Motions in the Sky

Seasonal Changes in the Night Sky

Astronomical History

Early Astronomy

 Developments in Astronomy of Copernicus, Galileo, and Kepler

Newton's Laws and the Celestial Clockwork

 Orbits of the Planets and Moons

Light, Optics, and Optical Astronomy

The Solar System

The Planets

 Asteroids, Comets, and Meteoroids

Radio, Infrared, and High-Energy Astronomy

Stars

Interstellar Distances

 Spectral Analysis of Starlight

 Nuclear Fusion

 Stellar Evolution

Galaxies

Other Astronomical Objects

 Quasars

 Black Holes

Cosmology

 The Expanding Universe

 Cosmological Models

 The Big Bang

 Dark Matter, Dark Energy, and the Fate of the Universe

DEPARTMENTAL GUIDELINES *(optional)*

Evaluation will be accomplished by examination and homework. 3 Hour Exams 16 2/3% each, total 50%; Final Exam 33 1/3%; Homework 16 2/3%

PO5 should be assessed: Students will be able to solve problems by gathering, interpreting, combining and/or applying information from multiple sources.

DIVISION CHAIR APPROVAL

DATE