

Minnesota State University Moorhead

AST 100: Introduction to a Universe of Astronomy

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

An introduction to astronomy including the nature and evolution of stars and planets as well as the evolution of the universe as a whole. Lab included. MnTC Goal 3L.

B. COURSE EFFECTIVE DATES: 03/10/2021 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. The history of astronomy as an example of how science works
2. Review of laws of motion and nature of light
3. Properties and Evolution of the Sun and Solar System as a model for Stars and Exoplanets
4. Stellar Evolution and Death
5. Properties of galaxies; dark matter
6. Evolution of universe (Big Bang cosmology)

D. LEARNING OUTCOMES (General)

1. Distinguish between scientific and non-scientific ideas.
2. Apply basic physical laws to motions of planets and stars.
3. Understand the nature of light and how it is used in astronomy to not only detect objects but to determine their composition.
4. Describe and explain patterns in the motion, composition, and location of objects in the solar system.
5. Compare and contrast our solar system with other solar systems.
6. Explain the internal processes that drive the evolution of a star toward its eventual death.
7. Describe the properties of galaxies and the evolution of the universe.
8. Describe the evidence supporting our current models for the evolution of stars and the universe.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted