



Course Number Course Name	ASTR 1115, Introduction to Astronomy
Credit Value (Breakdown of theory and lab credits)	3 Theory
Catalog Course Description	This course surveys observations, theories, and methods of modern astronomy. The course is predominantly for non-science majors, aiming to provide a conceptual understanding of the universe and the basic physics that governs it. Presented subjects include the general movements of the sky and history of astronomy, followed by an introduction to basic physics concepts like Newton's and Kepler's laws of motion. The course also provides modern details and facts about celestial bodies in our solar system, and differentiates between them – Terrestrial and Jovian planets, exoplanets, the practical meaning of “dwarf planets”, asteroids, comets, and Kuiper Belt and Trans-Neptunian Objects. Beyond this, we study stars and galaxies, star clusters, nebulae, black holes, clusters of galaxies and dark matter. Finally, we study cosmology - the structure and history of the universe. Prerequisite: ENG 109N and MATH 100N. Co-requisite: ASTR 1115L
Student Learning Outcomes/Objectives /Competencies of the Course	<p>Student Learning Outcomes: Upon successful completion of the course:</p> <ol style="list-style-type: none"> 1. Students will discuss the night sky as seen from Earth, including coordinate systems, the apparent daily and yearly motions of the sun, Moon, and stars, and their resulting astronomical phenomena. 2. Students will list and apply the steps of the scientific method. 3. Students will describe the scale of the Solar System, Galaxy, and the Universe. 4. Students will explain telescope design and how telescopes and spectra are used to extract information about Astronomical objects. 5. Students will describe the formation scenarios and properties of solar system objects. 6. Students will describe gravity, electromagnetism, and other physical processes that determine the appearance of the universe and its constituents. 7. Students will describe methods by which planets are discovered around other stars and current results. 8. Students will describe the structure, energy generation, and activity of the sun. 9. Students will compare our sun to other stars and outline the evolution of stars of different masses and its end products, including black holes. 10. Students will describe the structure of the Milky Way and other galaxies and galaxy clusters. 11. Students will describe the origin, evolution, and expansion of the universe based on the Big Bang Theory and recent Astronomical observations. 12. Students will describe conditions for life, its origins, and possible locations in the universe.
College-Wide Student Learning Outcomes	<p>ASTR 1115 learning objectives align with the following NNMC College Wide Goal:</p> <p><i>Critical thought: Students are required to analyze and synthesize information and draw reasoned conclusions.</i></p>