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| <b>Course Number<br/>Course Name</b>  | ASTR 1115L, Introduction to Astronomy Laboratory  |
| <b>Credit Value<br/>(Breakdown of theory<br/>and lab credits)</b>                                   | 1 Lab   |
| <b>Catalog Course<br/>Description</b>   | Introduction to Astronomy Lab will include hands-on exercises that work to reinforce concepts covered in the lecture, and may include additional components that introduce students to the night sky. Co-requisite: ASTR 1115   |
| <b>Course Student<br/>Learning<br/>Outcomes/Objective<br/>s<br/>/Competencies of the<br/>Course</b> | <p><b>Student Learning Outcomes:</b> Upon successful completion of the course:</p> <ol style="list-style-type: none"> <li>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.</li> <li>2. Students will list and apply the steps of the scientific method.</li> <li>3. Students will describe the scale of the Solar System, Galaxy, and the Universe.</li> <li>4. Students will explain telescope design and how telescopes and spectra are used to extract information about Astronomical objects.</li> <li>5. Students will describe the formation scenarios and properties of solar system objects.</li> <li>6. Students will describe gravity, electromagnetism, and other physical processes that determine the appearance of the universe and its constituents.</li> <li>7. Students will describe methods by which planets are discovered around other stars and current results.</li> <li>8. Students will describe the structure, energy generation, and activity of the sun.</li> <li>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.</li> <li>10. Students will describe the structure of the Milky Way and other galaxies and galaxy clusters.</li> <li>11. Students will describe the origin, evolution, and expansion of the universe based on the Big Bang Theory and recent Astronomical observations.</li> <li>12. Students will describe conditions for life, its origins, and possible locations in the universe.</li> <li>13.</li> </ol> |
| <b>College-Wide Student<br/>Learning Outcomes</b>   | <p>ASTR 1115L will expose students to the following NNMCC College Wide Goal:</p> <p><i>Critical thought: Students are required to analyze and synthesize information and draw reasoned conclusions.</i></p>   |
| <b>Program Student<br/>Learning Outcomes<br/>measured</b>   | None  |