

ASTR 122 : ASTRONOMY: STARS AND STELLAR EVOLUTION

Transcript title

Astronomy: The Stars

Credits

4

Grading mode

Standard letter grades

Total contact hours

60

Lecture hours

30

Lab hours

30

Recommended preparation

MTH 60 or MTH 98 or placement into Math level 10.

Course Description

Introduces planet and constellation identification for a non-science major audience. Presents concepts of observed properties of stars, internal structure of stars, and the stages of a star's life (e.g., stellar births, white dwarfs, supernovae, pulsars, neutron stars, and black holes). ASTR 121, ASTR 122, and ASTR 123 can be taken in any order.

Course learning outcomes

1. Analyze the formation of our sun and other stars, their properties, and how to interpret radiation data received from stars.
2. Use the process of stellar evolution to explain red giants, neutron stars, black holes, and white dwarf stars.
3. Access space science research from a variety of sources, evaluate the quality of the information, and compare it to current models of astronomical processes.
4. Use scientific reasoning to interpret field-based observations and measurements of astronomical phenomena and compare the results with current astronomical models.
5. Assess the contributions of astronomy to our evolving understanding of global change and sustainability while placing the development of astronomy in its historical and cultural context.

Content outline

1. Star names, magnitude scales, and topics in the history of astronomy, at the discretion of the instructor.
2. Our sun, its properties and features, and its history and future.
3. The electromagnetic spectrum, Doppler effect, and stellar spectra.
4. Stars and their properties.
5. The interstellar medium and stellar formation, and brown dwarf objects.
6. Methods of determining distances to stars.
7. Color-magnitude diagrams (including "H-R diagrams").

8. Stellar evolution, including: red giants, planetary nebulae, neutron stars, black holes, and white dwarf stars.

Required materials

May require a textbook.

General education/Related instruction lists

- Science Lab