University of Arkansas - Fort Smith
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General Syllabus

PHSC 2501 Fundamentals of Astronomy Laboratory

Credit Hours: 1 Lecture Hours: 0 Laboratory Hours: 2 hours

Prerequisite or corequisite: PHSC 2503 Fundamentals of Astronomy

Effective: 2018~2019

I. Course Information

A. Catalog Description

Application-based activities designed to enhance the students understanding of the night sky through investigation, comparison, and observation. Some outside of class participation in field observation is required.

II. Student Learning Outcomes

A. Subject Matter

Upon completion of this course, the student should be able to:

1. Make measurements with common instruments.
2. Make objective observations of physical phenomena.
3. Draw conclusions based on observations and data.
4. Analyze quantitative information using sketches, graphs, tables, and statistics.
5. Conduct quantitative and qualitative discussions of observational errors.
6. Evaluate the observations and reports of others.
7. Make measurements with equipment in order to investigate phenomenon or ideas.
8. Conduct astronomical observations appropriate to the level of the course.
9. Design and conduct an experiment in order to investigate a proposition, evaluate a phenomenon, or make a prediction.

B. University Learning Outcomes

Fundamentals of Astronomy enhances student abilities in the following areas:

Analytical Skills
Critical Thinking Skills: Students will identify a problem or issue and will research, evaluate, and compare information from varying sources in order to evaluate authority, accuracy, recency, and bias relevant to the problems/issues. The student will generate solutions/analysis of problems/issues evaluated and will assess and justify the solutions and/or analysis.

Communication Skills (written and oral)
Students will communicate proficiently. The student will compose coherent documents appropriate to the intended audience and effectively communicate orally in a public setting.

Ethical Decision Making
Students will model ethical decision-making processes. The students will identify ethical dilemmas and affected parties and will apply ethical frameworks to resolve a variety of ethical dilemmas.

Global & Cultural Perspectives
Students will reflect upon cultural differences and their implications for interacting with people from cultures other than their own. The students will demonstrate understanding or application of their discipline in a global environment and will demonstrate how their discipline impacts or is impacted by different cultures.

III. Major Course Topics

A. The Sky
B. The Summer/Fall Sky
C. Telescopes
D. Properties of Planets in the Solar System
E. Lunar Craters
F. Solar Rotation
G. Solar Cycle/Space Weather
H. Explore the Color of Stars
I. The Hertzsprung – Russell Diagram
J. Identifying Lines in the Spectra of Stars
K. Color-Magnitude Diagram of a Star Cluster
L. The Hubble Diagram