North Hennepin Community College

NSCI 1071: Stars and the Universe Lab

A. COURSE DESCRIPTION

Credits: 1

Lecture Hours/Week: *.*

Lab Hours/Week: *.*

OJT Hours/Week: *.*

Prerequisites:
This course requires the following prerequisite
NSCI 1070 - Concepts of the Stars and Universe

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

An optional course laboratory course designed to complement the Concepts of Stars and the Universe lecture class, It will involve investigation of the process of astronomy through the analysis of astronomical data. Computer simulation software, Internet exercises, videotapes and observational sessions may be used within the course. (2 hrs/week)
Prerequisite: Prior or concurrent enrollment in Phys/NSci 1070 AND Math 0902 or equivalent. If taking this course concurrently with PHYS 1070, you must obtain instructor permission and complete appropriate paperwork for pre-requisite override.

B. COURSE EFFECTIVE DATES: 05/24/2010 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Experiments related to chief topics discussed in the Concepts of Stars and the Universe lecture course. Examples:
   *Power Output of the Sun
   *Suns Absorption and Continuous Spectra
   *Using Spectra to Classify Stars
   *Properties of Stars and the Hertzsprung-Russel Diagram
   *Characteristics of Binary Stars
   *Doppler Effect and Its Uses in Astronomy
   *Hunt for Extrasolar Planets
   *Using Cepheid Variable Stars as a Distance Indicator
   *Study of Novae Explosions
   *Distances and Ages of Star Clusters
   *Galactic Rotation
   *Hubble Law
   *Quasar Redshifts and Distances

D. LEARNING OUTCOMES (General)

1. Demonstrate knowledge of how astronomical information can be collected, analyzed and interpreted. (MnTC Goal 3, Competencies a and b; MnTC Goal Area 2, Competencies a, b, and c)
2. Clearly communicate their experimental findings, analyses, and interpretations both orally and in writing. (MnTC Goal 3, Competency c)
3. Demonstrate that they can organize and present scientific material in a coherent manner. (MnTC Goal 3, Competency c)
4. Evaluate and make predictions regarding astronomical phenomena, particularly based on the results and implications of their experiments (MnTC Goal 3, Competencies a and b; MnTC Goal 2, Competencies a, b, and c).

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. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted