SYLLABUS

DATE OF LAST REVIEW: 02/2013

CIP CODE: 24.0101
SEMESTER: DEPARTMENTAL SYLLABUS
COURSE TITLE: Introduction to Astronomy
COURSE NUMBER: NASC0107
CREDIT HOURS 3
INSTRUCTOR: DEPARTMENTAL SYLLABUS
OFFICE LOCATION: DEPARTMENTAL SYLLABUS
OFFICE HOURS: DEPARTMENTAL SYLLABUS
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KCKCC-issued email accounts are the official means for electronically communicating with our students.

PREREQUISITE(S): None. Good algebra skills helpful.

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com, for the required texts for your particular class.

COURSE DESCRIPTION:
A survey of astronomy, the topics included in this course are the moon, planets, the sun, stellar birth and death, galaxies and their evolution, and the evolution of our universe. Emphasis is descriptive rather than mathematical.

METHOD OF INSTRUCTION:
A variety of methods is used depending on the content area. These include but not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:
The course outline is indicated below and is subject to change as course development dictates.

I. Background Information
   A. Survey of the universe
   B. Powers of ten and the metric system
C. The history of Astronomy and observations of the ancients.
D. The celestial coordinate system and the night sky

II. Physics of Optics and Light
   A. Spectra and spectroscopy
   B. Atomic structure and the production of light
   C. Optics of telescopes
   D. Types of research telescopes

III. Stellar Types and Stellar evolution
   A. Stellar properties
   B. The messages of stellar spectra
   C. The H. R. Diagram
   D. Types of stars and stellar groups
   E. Nuclear physics
   F. Stellar evolution
   G. The interstellar medium
   H. Stellar death and Black Holes

IV. Galactic Theory
   A. Types of galaxies, normal and peculiar
   B. Quasars
   C. Galactic evolution
   D. Cosmology
   E. The Sun and the Solar System
   F. The sun and the solar atmosphere
   G. The solar system in general
   H. The Earth
   I. The Moon and Mercury
   J. Venus and Mars
   K. Saturn, Jupiter and the Outer Planets
   L. Extraterrestrial Life
   M. Modern Astronomy

EXPECTED LEARNER OUTCOMES:
A. The learner will be to understand the more basic ideas science of Astronomy.
B. The learner will be to illustrate an understanding of the celestial coordinate system.
C. The learner will be to understand the size and organization of the known universe.
D. The learner will be to understand the present theories of stellar evolution and cosmology.
E. The learner will be to understand the many recent discoveries in the field of high energy Astronomy.

COURSE COMPETENCIES:
   The learner will be to understand the more basic ideas science of Astronomy.
1. The learner will be to identify or illustrate the basic structure of the solar system, galaxy and universe.
2. The learner will be to use powers of ten and the metric system in descriptions.
3. The learner will be to identify or illustrate ideas from the history of Astronomy and observations of the ancients.

*The learner will be to illustrate an understanding of the celestial coordinate system.*

4. The learner will be to use or describe the celestial coordinate system

5. The learner will be to describe the nature of light.

6. The learner will be to describe the use of spectra and spectroscopy in astronomy.

7. The learner will be to describe atomic structures as they relate to the production of light.

8. The learner will be to describe some of the types of “telescopes” used in astronomy.

*The learner will be to understand the size and organization of the known universe.*

9. The learner will be to identify, describe or illustrate how the types of stars and stellar groups are determined.

10. The learner will be to identify, describe or illustrate how energy is produced in stars.

11. The learner will be to identify, describe or illustrate how stars “evolve”.

12. The learner will be to identify, describe or illustrate the later stages in the evolution of stars.

13. The learner will be to identify, describe or illustrate the types of galaxies.

14. The learner will be to identify, describe or illustrate how galaxies change.

*The learner will be to understand the present theories of stellar evolution and cosmology.*

15. The learner will be to identify, describe or illustrate the modern ideas of cosmology.

*The learner will be to understand the many recent discoveries in the field of high energy Astronomy.*

16. The learner will be to identify, describe or illustrate the sun and the solar atmosphere.

17. The learner will be to describe or identify the components of the solar system.

18. The learner will be able to identify the Scientific method as a process of science.

19. The learner will be able to make measurements using the metric system.

20. The learner will be able to gather the data and present it in a form showing their analysis.

21. The learner will be able to produce graphs of data provided by the instructor or gathered by the learner.

22. The learner will be able to recognize key concepts and/or principles of physical science.

**ASSESSMENT OF LEARNER OUTCOMES:**
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

**SPECIAL NOTES:**
This syllabus is subject to change at the discretion of the instructor. Material included is meant to provide and outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus in not intended to be a legal contract. Questions regarding the syllabus are welcome at any time.
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