BUTTE COLLEGE
COURSE OUTLINE

I. **CATALOG DESCRIPTION**

PSC 30 - Introductory Astronomy **4 Unit(s)**

Prerequisite(s): NONE
Recommended Prep: Reading Level IV; English Level IV; Math Level IV
Transfer Status: CSU/UC
51 hours Lecture
51 hours Lab

This course is a study of our dynamic universe. Topics include the history of astronomy, the science of observation and discovery, stellar birth, maturation and death, planetary formation, a description of our solar system galaxies, quasars and cosmology.

II. **OBJECTIVES**

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

A. Describe the basic motion of objects we see in the sky such as the sun, moon, stars, planets, comets meteors and meteor showers.
B. Discuss the basic history of astronomy to include Aristotle, Copernicus, Galileo, Kepler and Newton as well as the geocentric versus the heliocentric model.
C. Demonstrate an understanding of the basic laws of motion, optics and the electromagnetic spectrum related to energy, wavelength and spectroscopy.
D. Diagram the solar system and be able to discuss similarities and differences between Earth and other solar system bodies.
E. Outline the process of energy production in the Sun and the path of travel of this energy to Earth.
F. Compare and contrast the life cycle of a one solar mass star with a twenty solar mass star.

III. **COURSE CONTENT**

A. **Unit Titles/Suggested Time Schedule**

Lecture

Topics	Hours
1. History of Astronomy	3.00
2. Gravity, Position and Motion in the Universe	7.00
3. Light and Matter	6.00
4. Telescopes	2.00
5. The Solar System	14.00
6. The Sun and Stars	6.00
7. The Milky Way	3.00
8. Galaxies	2.00
9. Cosmology	6.00
10. Astrobiology	2.00
Total Hours	51.00

Lab

Topics	Hours
1. Basic math skills	3.00

2.	Mapping the stars	3.00
3.	Optics	3.00
4.	Spectroscopy	3.00
5.	Blackbody radiation	3.00
6.	Orbital motion	3.00
7.	Mapping the solar system	3.00
8.	Impact craters	3.00
9.	Atomspheres and the kinetic theory of gasses	3.00
10.	Buoyancy	3.00
11.	Geological processes	3.00
12.	Hertzsprung-Russell diagrams	3.00
13.	Stellar evolution	3.00
14.	Cepheid variable stars	3.00
15.	Intergalactic mapping	3.00
16.	Hubble's law	3.00
17.	Lines of evidence for the Big Bang	3.00
Total Hours		51.00

IV. **METHODS OF INSTRUCTION**

A. Lecture
B. Class Activities
C. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
D. Demonstrations
E. Reading Assignments
F. Multimedia Presentations
G. Laboratory Experiments
H. Laboratory Exercises and Simulations
I. Multi-media presentations and guided explorations

V. **METHODS OF EVALUATION**

A. Exams/Tests
B. Quizzes
C. Research Projects
D. Papers
E. Homework
F. Lab Projects
G. Laboratory Exercises
H. There is 1500 word writing requirement for this course which will be fulfilled through research projects and papers.

VI. **EXAMPLES OF ASSIGNMENTS**

A. Reading Assignments
B. Writing Assignments
C. Out-of-Class Assignments

VII. **RECOMMENDED MATERIALS OF INSTRUCTION**

Textbooks:

A. Bennett, J., Donahue, M., Schneider, N., Voit, M.. The Essential Cosmic Perspective . 5 Edition. Addison-Wesley, 2009.

Created/Revised by: Robert White
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