Form Version: February 2001

EFFECTIVE TERM: Fall 2002

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

_X_ Transfer Course _X_ A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: ASTRONOMY 105L
Introduction to Astronomy Laboratory

UNIT VALUE: 1

MINIMUM NUMBER OF SEMESTER HOURS: 48

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: Completion of, or concurrent enrollment in:
Astronomy 100, 120, 205, or 206

COREQUISITE: None.

RECOMMENDED PREPARATION: None.

SCOPE OF COURSE:
Exploration of the techniques used in astronomy to determine the physical properties of stars and galaxies. The physical nature of light and the optical principles of a telescope are also explored. Measurements of planetary and stellar phenomena are used to investigate the astronomical methods of determining the size, composition and age of the universe.

SPECIFIC COURSE OBJECTIVES:
Successful students will:

1. be able to apply the principles of astronomy to deduce valid conclusions about the size and scale of the universe.
2. be able to explain the methods by which astronomers gather information about the properties of stars and planets.
3. be able to use mathematics as a tool to calculate the physical properties of astronomical bodies.
4. be able to identify the physics of a telescope and accessory instrumentation.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:
This is a laboratory course in Astronomy. Each class period will consist of an exercise devoted to the investigation of a particular astronomical principle. The exercises will cover many fields in astronomy. The following are some of the exercises:

I. Investigate methods used in determining the distances to the planets and stars and build a scale model of the solar system.
II. Finding distances to globular clusters by using RR Lyrae variable stars.
III. Finding the Hubble Law of radial velocity vs. distances of galaxies.
IV. Mass determination of Jupiter by orbital data of its moons.
V. Determine the period of rotation of the Sun using the physics of the Doppler effect.
VI. Identifying elements in a gas discharge tube by spectroscopic analysis.
VII. Explore the method used to determine distances to the stars by learning the principle and application of stellar parallax.
VIII. Determine the distances to stars using the Hertzsprung-Russell diagram.
IX. Using telescopes to observe objects by implementation of the setting circles.
X. Using optical benches with lenses to study the formation of images and making of a simple refracting telescope.

REQUIRED READING:
Assigned pages from the laboratory manual:
Lane, Mark, Astronomy 105L: Astronomy Laboratory Exercises.

Assigned pages of any introductory astronomy text book such as:
Fraknoi, Andrew., et al., Voyages Through The Universe. 2nd edition.
New York: John Wiley and Sons, Inc, 2000.

SUGGESTED READING: None.

REQUIRED WRITING:
Approximately 13-14 lab assignments will be given. Most assignments have a written component where students are required to synthesize the information learned so that they may deduce valid conclusions about a particular astronomical concept.

OUTSIDE ASSIGNMENTS:
Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short-term classes.

Each student will be expected to engage in required outside assignments that include studying laboratory notes and practicing learned skills. A field trip to an observatory may be planned.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:
_____ lecture
_X_ laboratory
_____ lecture-laboratory combination
_____ directed study

DISTANCE LEARNING:

This course may be offered as a distance learning course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.
Yes ____ No X__

If yes, check all that apply:

_____ Television Course (Video one-way, e.g. ITV, video cassette, etc.)
_____ Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
_____ Two-Way Video Conferencing (Two-way interactive video and audio)
_____ One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
_____ Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

The course grade is determined from a combination of laboratory assignments and quizzes. The approximate distribution of points should be as follows:

Lab assignments	≈	60.0%
Quizzes	≈	40.0%
Total Grade	=	100.0%

Grades are assigned according to the following grading scale:

A	90%	-	100%
B	80%	-	89%
C	70%	-	79%
D	60%	-	69%
F	0%	-	59%

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?
Yes ____ No X__ Number of times course may be taken for credit: _____

If yes, identify specific provision of Title 5 Division 2 section(s), 55761-55763 and 58161 which qualifies course as repeatable:

CONTACT PERSON:
Mark Lane, Associate Professor, Earth Sciences
(760) 744 – 1150 Ext. 2951

SIGNATURES ON FILE