

**College of San Mateo
Official Course Outline**

1. **COURSE ID:** ASTR 103 **TITLE:** Observational Astronomy Lab
Units: 1.0 units **Hours/Semester:** 48.0-54.0 Lab hours
Method of Grading: Letter Grade Only
Prerequisite: MATH 110, and completion of or concurrent enrollment in ASTR 100, ASTR 115 or ASTR 125

2. **COURSE DESIGNATION:**

Degree Credit

Transfer credit: CSU; UC

AA/AS Degree Requirements:

CSM - GENERAL EDUCATION REQUIREMENTS: E5a. Natural Science

CSU GE:

CSU GE Area B: SCIENTIFIC INQUIRY AND QUANTITATIVE REASONING: B3 - Laboratory Activity

IGETC:

IGETC Area 5: PHYSICAL AND BIOLOGICAL SCIENCES: C: Science Laboratory

3. **COURSE DESCRIPTIONS:**

Catalog Description:

Offered as an alternative to Astronomy 101. Students observe the moon, planets, and various star clusters, using CSM observatory 's telescopes. They will have the opportunity to image planets and observe stellar spectra, using the department's CCD cameras and Rainbow Optics eyepiece spectroscope. Use of the department's planetarium projector assists students in becoming familiar with the sky. Focus is on observational techniques. Extra supplies may be required.

4. **STUDENT LEARNING OUTCOME(S) (SLO'S):**

Upon successful completion of this course, a student will meet the following outcomes:

1. Identify some of the major constellations in the sky.
2. Identify some of the brighter double stars seen in the current night sky.
3. Explain the operation of a typical telescope.
4. Analyze and explain the moon's phases.
5. Recognize some of the brighter Messier objects.

5. **SPECIFIC INSTRUCTIONAL OBJECTIVES:**

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

1. Identify some of the major constellations in the sky.
2. Identify some of the brighter double stars seen in the current night sky.
3. Explain the operation of a typical telescope.
4. Analyze and explain the moon's phases.
5. Recognize some of the brighter Messier objects.

6. **COURSE CONTENT:**

Lecture Content:

1. Constellation identification
2. Telescopes
3. Lunar phases
4. Spectral analysis
5. Observation of Messier objects
6. Observation of Binary Stars
7. Observation of Planets

7. **REPRESENTATIVE METHODS OF INSTRUCTION:**

Typical methods of instruction may include:

- A. Other (Specify): Students learn to operate the department's observatory telescopes and use them to conduct observations on the moon, planets, and binary stars. They learn to identify the constellations of the season, as well as lunar features. Students also learn the rudiments of photometry, imaging, and stellar spectroscopy.

8. REPRESENTATIVE ASSIGNMENTS

Representative assignments in this course may include, but are not limited to the following:

Other Outside Assignments:

- A. Students are encouraged to use their planispheres once or twice a week to ensure familiarity with the sky.
- B. Students are also encouraged to attend the monthly planetarium presentations in CSM's planetarium.

9. REPRESENTATIVE METHODS OF EVALUATION

Representative methods of evaluation may include:

- A. Exams/Tests
- B. Students are graded on their weekly lab reports. There should be a final exam counting for at least 20% of their lab grade.

10. REPRESENTATIVE TEXT(S):

Possible textbooks include:

- A. David Chandler. *The Night Sky planisphere*, ed. -, 1992
- B. E. Karkoschka. *The Observer's Sky Atlas*, 3rd ed. Springer, 2007

Other:

- A. Note: The planisphere is copyright dated 1992 and is a standard star/constellation location device used in astronomy labs. It is timeless, since stars' positions don't change.

Origination Date: September 2020

Curriculum Committee Approval Date: October 2020

Effective Term: Fall 2021

Course Originator: Darryl Stanford