

# ASTR 115: PLANETARY ASTRONOMY

## Citrus College Course Outline of Record

Heading	Value
Effective Term:	Spring 2022
Credits:	3
Total Contact Hours:	54
Lecture Hours :	54
Lab Hours:	0
Hours Arranged:	0
Outside of Class Hours:	108
Prerequisite:	ENGL 101 or ENGL 101E or ENGL 101H or eligible for ENGL 101 without support.
Strongly Recommended:	Elementary algebra or higher or direct placement based on multiple measures.
District General Education:	B2. Natural Sciences - Physical Sciences
Transferable to CSU:	Yes
Transferable to UC:	Yes - Approved
Grading Method:	Standard Letter, Pass/No Pass

## Catalog Course Description

The astronomy of the solar system including the history of astronomy, the physics of motion, energy, and light, and the processes that determine the formation and evolution of planets, moons, and other bodies in our solar system and others. 54 lecture hours.

## Course Objectives

- have a perspective of the size and scale of the solar system and its relationship to the larger universe.
- identify and describe various bodies which make up the solar system, such as planets, satellites, comets, and asteroids
- understand methods and tools of studying astronomy
- explain astronomical phenomena in simple terms
- connect the observed motions of objects in the sky to the actual movement of the Earth, Moon, and planets.
- make predictions on the behavior of simply physical systems based on the physics of forces, energy, and light.
- connect solar system formation to physical processes such energy transfer and conservation.
- relate physical parameters such as mass, composition, and rotation to the processes that shape planetary surfaces.
- predict effects of physical processes such as greenhouse warming, Coriolis effect, and thermal escape on a planet's atmospheric structure and long-term evolution.

## Major Course Content

1. The Size and Scale of the Universe
2. The Motions of the Earth and Sky
3. The Development of Modern Science

4. The Physics of Astronomy
5. Energy, Force, and Matter
6. Light
7. The Solar System
8. General Properties of the Solar System
9. Origin of the Solar System
10. The Evolution of Planets and Moons
11. Geology of Terrestrial Planets
12. Atmospheres of Terrestrial Planets
13. Jovian Planets and their Moons
14. Other Relevant Topics
15. Small bodies in the solar system
16. Extrasolar planetary systems
17. The Sun and its affects on the planets
18. Life in the Solar System

## Suggested Reading Other Than Required Textbook

Popular astronomy internet web sites produced by NASA, USGS, and major observatories.

## Examples of Required Writing Assignments

Write a short essay describing a picture from the "Astronomy Picture of the Day" web site.

Exam question. Describe in a paragraph the steps in the formation of the solar system.

Imagine your are standing on the surface of the Moon facing the Earth. Explain whether or not the Sun rises and sets and how you can tell. Explain whether or not the Earth rises and sets and how you can tell.

## Examples of Outside Assignments

Given information about a planet's mass and radius, calculate the escape velocity from the surface.

Given information about mass, radius, and distance from its star, describe the likely geologic processes acting on the surface of a planet.

## Instruction Type(s)

Lecture, Online Education Lecture

## IGETC Area 5: Physical and Biological Sciences

5A. Physical Science