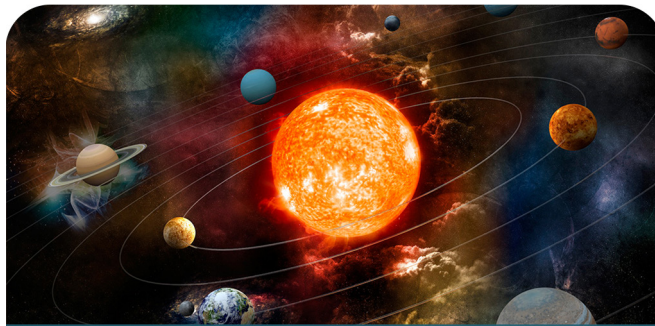




eDynamicLearning

CAREER & ELECTIVE COURSES

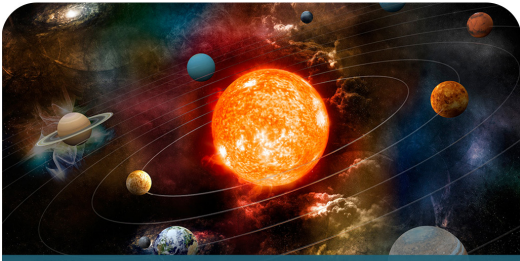


STEM

Astronomy 1b

Exploring the Universe

Course Syllabus



STEM

Astronomy 1b

Exploring the Universe

Astronomy 1b: Exploring the Universe

Course Description

Building upon the prior prerequisite course, this course presents a variety of subjects that allow the student to become more familiar with the universe. Students will explore the solar system, the sun, comets, asteroids, and meteors as well as become familiar with the concepts of space travel and settlements. Students will also examine the life cycle of stars and the properties of planets.

Course Code: EDL133

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Lesson 1: Inner Planets

Lesson Summary

The inner planets of our solar system are more closely related than the outer planets of the solar system. These planets are sometimes referred to as terrestrial planets and include Mercury, Venus, Earth, and Mars. Although all of these planets are notably rocky and dense, each one is unique.

In this unit, we will examine the formation of our solar system and describe the unique features of the four inner planets, Mercury, Venus, Earth, and Mars. We will compare and contrast the characteristics of the inner planets. Finally, you will discover the special attributes that make life on Earth possible.

Learning Objectives

- Describe how planetary matter is distributed within the solar system
- Explain the formation of the solar system
- Differentiate and describe the inner planets within our solar system
- Identify the shared characteristics among all inner planets in the solar system
- Explain the features of Earth that are essential to the development of life



Lesson 2: Outer Planets

Lesson Summary

In this unit, we will examine the outer planets, Jupiter, Saturn, Uranus, and Neptune. We'll learn more about their structure, motion, atmosphere, and moons. We'll examine what space expeditions, observations, and mathematical predictions are telling us about these distant planets and their roles in our Solar System. Finally, we will learn more about the dwarf planet Pluto and examine the controversy over Pluto's reclassification as a dwarf planet from its former classification as our Solar System's ninth planet.

Learning Objectives

- Differentiate and describe the unique characteristics of the outer planets in the Solar System
- Identify the shared features and characteristics among the outer planets in the Solar System
- Describe the arrangement and distances between the outer planets
- Explain why Pluto is no longer classified as a true planet of the Solar System
- Compare and contrast the outer planets with Earth



Lesson 3: The Sun

Lesson Summary

The Sun plays one of the most important roles in our Solar System and certainly life on Earth. In this unit, we will learn more about this closest star to Earth. We'll discuss the structure and composition of the Sun, including the different layers of the Sun's atmosphere. We'll also learn how the Sun creates energy through nuclear fusion and the process by which this takes place. Finally, we'll learn more about solar weather and the events that take place in and around the Sun, including sunspots, solar flares, and coronal mass ejections.

Learning Objectives

- Identify the five regions of the Sun
- Discuss the structure and composition of the Sun
- Learn about nuclear fusion in the Sun, including the proton-proton chain reaction
- Examine solar activity, such as sunspots and solar flares
- Define and discusses solar eclipses



Midterm Exam

Learning Objectives

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first three units in this course (Note: You will be able to open this exam only one time.)



Lesson 4: Comets, Asteroids, and Meteors

Lesson Summary

In this unit, we will examine comets, asteroids and meteors. Although smaller than the Sun, Moon, and planets, these celestial bodies are an important part of our Solar System. They can also produce dramatic visions in Earth's skies and have the potential to collide with Earth. We'll consider their composition, structure, and function in our Solar System.

Learning Objectives

- Define comet, asteroid, meteoroid, meteor, and meteorite
- Examine the origin of comets and how their tails form
- Discuss the location of asteroids in the Solar System
- Learn about the different types of meteorites
- Investigate how comets, asteroids, and meteorites influence life on Earth



Lesson 5: Living and Working in Space

Lesson Summary

With space as vast as it is, it seems wrong that we are confined to just one planet. Sending equipment and satellites out into space is one thing, but sending people out into space is a whole other thing. What is it like to leave Earth? What have people already done in space? What will future space exploration look like? Let's prepare for this information in 20 seconds and counting...T-15 seconds, guidance is internal...12, 11, 10, 9...ignition sequence start...6, 5, 4, 3, 2, 1, 0...all engines running...Houston; we have liftoff!

Learning Objectives

- Reflect some of the history of space travel
- Discover the International Space Station
- Understand how spacesuits protect us in the harsh outer space environment
- See what some of the next steps are in space travel



Final Exam

Learning Objectives

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from all units in this course. (Note: You will be able to open this exam only one time.)