CVA Astronomy

Class Description

This course will provide the student with an introduction to the concepts of modern astronomy, the origin and history of the Universe, and the formation of the Earth and the solar system. Students will compare the Earth's properties with those of the other planets and explore how the heavens have influenced human thought and action. The course gives a description of astronomical phenomena using the laws of physics. The course treats many standard topics including planets, stars, the Milky Way and other galaxies, and black holes. Laboratory exercises include experiments in light properties, measurement of radiation from celestial sources, and observations at local observatories and/or planetariums

This course has three sections: CVA Astronomy A is the first half of the class and includes Units 1-3. CVA Astronomy B is the second half of the class and includes Units 4-6. CVA Astronomy Y is the entire class and includes Units 1-6.

Click HERE for the Class Schedule which outlines the Units, Lessons, and Assessments for this course.

Click HERE for the State standards.

Class Outline

Unit 1: The History of Astronomy
In this unit, students will explore how ancient civilizations studied the sky and the tools they used for navigation and timekeeping. They will learn about their observations of celestial bodies and how these early insights shaped their understanding of the universe. They will also study Isaac Newton's work on the laws of motion and gravity, which helped explain the movements of the planets. Finally, they will take a closer look at the history of telescopes, tracing their development from the early instruments used by Galileo to the advanced telescopes that continue to expand our knowledge of the universe today.

Unit 2: Astronomical Observations
In this unit, students will explore the familiar phases of the Moon and how the positions of the Earth, Moon, and Sun affect what we observe in the night sky. They will also look at how eclipses have been used to study Earth's rotation and its changes over time, with eclipse data providing insights into how Earth's spin has gradually slowed. Additionally, They will discuss the Doppler Effect, redshift, and how spectroscopic data aids astronomers in analyzing distant celestial objects.

Unit 3: The Planets and Other Solar Bodies
In this unit, students will explore theories that explain how order arises from disorder. They will dive into the chemistry of the solar system, focusing on how nuclear fusion in the Sun creates elements and how these elements play a role in the formation of planets, comets, and asteroids. They will also examine the composition of planets and how their materials come together.

Unit 4: The Earth
In this unit, students will explore how the Sun supports life on Earth. They will examine Earth's atmosphere and its role in sustaining life. Students will also learn what causes tides, how they impact Earth's climate, and the role astronomical cycles play in these processes.

Unit 5: The Stars
In this unit, students will examine how star distance, size, brightness, and temperature are analyzed to understand the differences between types of stars. They will explore the concept of stellar evolution. In this lesson, students will learn how high-mass stars undergo dramatic deaths, resulting in neutron stars, black holes, and supernovae.

Unit 6: Cosmology and Modern
In this unit, students will gain an understanding of how our observable universe evolved. They will learn how galaxies formed and explore how forces like dark matter and dark energy influence the universe we can observe. Students will also investigate the search for habitable zones.

CVA Work Policy

- All classwork must be completed and submitted using the links in CTLS by the DUE DATE listed on the Class Schedule.
- Work should be completed in the order it is assigned on the Class Schedule.
- All work submitted on time will be graded within 48 hours.
- Assignments not submitted by the due date will be marked missing. Missing assignments are calculated as zeros in the coursework average. When students submit missing work, the assignment will be graded and calculated into the coursework average.

The CVA term ends prior to the end of the traditional school semester. The final date work will be accepted each term is posted on the CVA website (cobbvirtualacademy.org) and the Class Schedule.

Grading

Grades for this course are calculated based on category percentages as follows:

Category	Weight
Assignments	20%
Experiments	25%
Quizzes	15%
Tests	30%
Final Exam	10%

CVA Exemption Incentive

To qualify for CVA's exemption incentive and exempt the Final Exam/lowest unit test or major assessment grade, CVA students must:

- Submit ALL assignments on OR before the due date

- Have an 85% coursework average or higher before the final exam
- Have no more than one academic integrity violation

Academic Integrity

Academic integrity is the cornerstone of learning at CVA, and we take the integrity and authenticity of student work very seriously. When academic integrity is maintained, students will make decisions based on values that will prepare them to be productive, meaningful, and ethical citizens.

Students are required to abide by the CVA Academic Integrity Policy. Academic dishonesty in any form will not be tolerated. The CVA Academic Integrity Policy outlines the consequences if students fail to maintain academic integrity in their course. For additional information, the CVA Academic Integrity Policy is posted on the CVA website.

Academic Integrity Process

Consequences	1st	2nd	3rd	4th
Parent contact by teacher	✓	✓	✓	✓
Resubmit work for full credit	✓			
Resubmit work for half credit		✓		
Automatic zero			✓	✓
Parent contact by CVA administration			✓	✓
Notification by CVA administration to local school			✓	✓
Mandated proctored exam or coursework				✓
Other as designated by CVA or local school administration	✓	✓	✓	✓

General Information

- The Cobb Teaching and Learning System (CTLS) is the platform used to deliver Cobb Virtual Academy classes.
- Students must earn 100% on the Student Orientation Quiz located inside each CVA Digital Classroom before they begin their Student Coursework.
- All coursework must be submitted through CTLS.
- All CCSD students have access to Microsoft 365 applications and must submit assignments in the requested format.

- Students in all sections of this course will take an online final exam during the window of time published on the CVA website and the Class Schedule.

Course Specific Information

There is no required textbook for this course. All content is digital and available in the online course.

Technology Requirements

CTLS is geo-restricted to the United States.

- A modern PC or Mac Computer
  - Lightweight or mobile devices such as Chromebooks, iPads, Android tablets, or smartphones **may not** be compatible with many of our courses.
  - Windows or Mac based computer
- Access to Microsoft 365
- Internet access

CVA Expectations

Student

- Maintain consistent access to a computer and internet
- Login to the course daily and review the announcements
- Adhere to the deadlines listed on the Class Schedule
- Read and promptly respond to teacher communication
- Contact the teacher with questions
- Manage your time wisely

Teacher

- Welcome Phone Call in the first two weeks
- 24 – 48-hour turnaround on all communication
- 24 – 48-hour turnaround on grading for items submitted by the due date
- Provide relevant feedback on assignments
- Be accessible via email and phone or text during published hours
- Provide two or more live sessions per term

Remind

CVA students and parents are automatically enrolled in their CVA teacher's Remind class based on the phone numbers provided during registration. If a parent and student provide the same cell phone number, they will not sync to Remind and will have to join the class manually using the join code posted on the Teacher Information page of their course.

Student Support

A student's first source for support is their CVA teacher. However, additional support is available. The **CVA Learning Center** is staffed with facilitators and is available both **in person** and **virtually**.

Facilitators can assist students with getting started, class navigation, assignment instructions, submitting work, technical issues, and strategies for online success.

The in-person Learning Center is on the Cobb Horizon High School campus at 1765 The Exchange Atlanta, GA.

All CVA students are enrolled in the Student Support digital classroom which provides access to the Virtual Learning Center (VLC). Students use the CTLS chat feature to send a message to the Student Support Team during the hours it is open.

Live Sessions

Your teacher will post live session information to the Class Board.