

Astronomy, Part 2



How to Take This Course

Complete all the quizzes and the assignment in each unit. Once the quizzes for a unit are complete, you will have access to the unit test. We recommend you complete the unit assignment before you attempt the unit test, the assignment will help you prepare. You will have access to the final when all unit tests are complete and your assignments are graded.

Allow 2-3 days for an assignment to be graded. Read the full course instructions to understand the course grading.

[Instructions for the course](#)

[How This Course Works and Suggested Timeline](#)

[Submitting Your Assignments](#)

[Ask The Teacher](#)

Meet your teacher for this course and ask a question.

[MANDATORY QUIZ - You have to take this quiz before you begin the course!](#)



Unit 1. Stars

In this unit we will learn:

- The basics of stars and spectroscopy, including what stars are and stellar evolution.
- To classify stars, and the Hertzsprung-Russell Diagram.
- About binary star systems and star clusters.

[1.1 What are Stars?](#)

[1.1 Quiz](#)



[1.2 Stellar Evolution and Classification](#)

[1.2 Quiz](#)



[1.3 The Hertzsprung-Russell \(H-R\) Diagram](#)

[1.3 Quiz](#)



[1.4 Binary Star Systems](#)

[1.4 Quiz](#)



[1.5 Variable Stars](#)

[1.5 Quiz](#)



[1.6 Layers of the Sun](#)

[1.6 Quiz](#)



[Unit 1 Assignment: Plotting Stars on an H-R Diagram Lab](#)



Unit 2. Galaxies

In this unit we will learn:

- The basics of galaxies, including their types and classifications. The Milky Way galaxy and the Laniakea Supercluster.
- About the Hubble deep field and ultra deep field, and about galactic collisions.

[2.1 Galaxy Types and Classification](#)

[2.1 Quiz](#)



[2.2 Superclusters and the Laniakea Supercluster](#)

[2.2 Quiz](#)



[2.3 The Milky Way](#)

[2.3 Quiz](#)



[2.4 Hubble Deep Field and Ultra Deep Field](#)

[2.4 Quiz](#)



[2.5 Galactic Collisions](#)

[2.5 Quiz](#)



[Unit 2 Assignment - Citizen Science Galaxy Classification Lab](#)



Unit 3. The Search for Life: Exoplanets and Astrobiology

In this unit we will learn:

- About astrobiology and the status of the search for life in the solar system.
- About Europa and Enceladus, and their potential for harboring the existence of life.
- More about the search for life, and the Drake equation.
- About exoplanets, and methods for detecting them.

[3.1 The Drake Equation](#)

[3.1 Quiz](#)



[3.2 What is Astrobiology?](#)

[3.2 Quiz](#)



[3.3 Exoplanets and Methods of Detecting Exoplanets](#)

[3.3 Quiz](#)



[3.4 The Search for Life in the Solar System: Europa and Enceladus](#)

[3.4 Quiz](#)



[Unit 3 Assignment - Planning and Modeling a Research Mission](#)



Unit 4. Space and its Properties

In this unit we will learn:

- The properties of space and interstellar medium.
- About the principles of Einstein's theory of relativity, and the of Spacetime.
- About dark matter and dark energy.
- The Higgs Field about elementary particles.

[4.1 The Interstellar Medium](#)

[4.1 Quiz](#)



[4.2 Principles of Spacetime: A Basic Introduction to Einstein's Relativity](#)

[4.2 Quiz](#)



[4.3 Dark Matter](#)

[4.3 Quiz](#)



[4.4 The Higgs Field and Elementary Particles](#)

[4.4 Quiz](#)



[4.5 Dark Energy](#)

[4.5 Quiz](#)



[4.6 Cosmic Microwave Background Radiation](#)

[4.6 Quiz](#)

[Unit 4 Assignment - Online Lab: Collecting Evidence for Dark Matter](#)



Unit 5. Exotic Objects and Phenomena

In this unit we will learn:

- About exotic objects and phenomena, including supernovae, neutron stars, black holes, and quasars.

[5.1 Supernovae](#)

[5.1 Quiz](#)



[5.2 White Dwarfs and Planetary Nebulae](#)

[5.2 Quiz](#)



[5.3 Brown Dwarfs](#)

[5.3 Quiz](#)



[5.4 Neutron Stars](#)

[5.4 Quiz](#)

[5.5 Black Holes, Pulsars and Quasars](#)

[5.5 Quiz](#)



[Unit 5 Assignment - Supernova Lab](#)



Unit 6. The Universe

In this unit we will learn:

- Key characteristics of the universe, including how it began and how it continues to expand.
- Common misconceptions about the universe.
- That the universe is accelerating, and the three potential fates of the universe.

[6.1 The Beginning of the Universe](#)

[6.1 Quiz](#)



[6.2 The Expanding Universe](#)

[6.2 Quiz](#)



[6.3 Misconceptions About the Universe](#)

[6.3 Quiz](#)



[6.4 The Accelerating Universe](#)

[6.4 Quiz](#)

[6.5 The Three Fates of the Universe](#)

[6.5 Quiz](#)

[6.6 A Multiverse](#)

[6.6 Quiz](#)

[Unit 6 Assignment - Hubble's Law Lab](#)



Final Exam

Complete all the assignments and unit tests in this course. Once they are complete and [the assignments have been graded](#), the Final will be made available and appear below the Practice Final.

Warning: You have only ONE attempt at the Final. There is a 3 hour time limit.

Are you ready to take the Final? We highly recommend you take the Practice Final first and if you are weak in any area, review the relevant course material again. You have unlimited attempts at the practice final; it will help you to prepare.

Good Luck!!

[Practice Final](#)

Course Completion

The "Certificate" and "Course Completion Record Request" links below are not active, they cannot be accessed until you have taken the final. Upon satisfying this requirement the links will become active and you can use them.

Before you go, we would appreciate your opinion on the course, please take 1 minute to complete the feedback form.

We hope you enjoyed this course!

[Course Feedback](#)

Thank you for taking this course! Let us know what you think about it.

[Request a Course Completion Record](#)

If you need SVHS to send proof of your course completion directly to your school complete this form.

Restricted Not available unless: The activity **Final Exam** is marked complete

[Certificate of Completion](#)

Restricted Not available unless: The activity **Final Exam** is marked complete