

Cultural Astronomy

OLLI 2022

Short Description

This online course will examine cultural expressions of astronomy throughout human history. We will study how astronomy has influenced (and been influenced by) calendars, language, literature/mythology/folklore/entertainment, agriculture, arts, fashion, architecture, religion, politics, and science. We will examine how astronomy is used to interpret artifacts from ancient cultures such as some of the famous ruins of ancient civilizations for their alignments to astronomical events. To better understand the context of modern astronomical influences in culture, we will also briefly review the state of our knowledge about the lives of stars, the nature of planetary systems, and the evolution of the Cosmos.

Instructor Bio

Dr. Bryan Méndez is an astronomer & education specialist dedicated to inspiring others about the wonder and beauty of the Universe. He develops educational resources for students, teachers, and the public; conducts professional development for science educators; and teaches courses in astronomy and physics.

General Description

This online course will examine the cultural expressions of astronomy across the globe and throughout history (including our modern era). We will study how astronomy has influenced (or been influenced by) calendars, language, literature/mythology/folklore/entertainment (including science fiction), agriculture & cuisine, arts (visual, performing, crafts), fashion (clothing and body art), architecture, religion, politics, economics, and of course science. We will take a dip into archaeoastronomy and examine how astronomy is used to interpret artifacts from ancient cultures. We will study some of the famous ruins of ancient civilizations (Newgrange, Stonehenge, the Giza Necropolis, Chichen Itza, Pueblo Bonito, etc.) for their alignments to astronomical events and examine ways to interpret the meaning placed on these alignments by each culture.

We will begin by exploring the apparent motions of the Sun, Moon, planets, and stars in the sky and the motions of Earth and these bodies through space that explain our ground-based point of view. To better understand the context of modern astronomical influences in culture, we will also briefly review the state of our knowledge about the lives of stars, the nature of planetary systems, and the evolution of the Cosmos.

The course will consist of 8 weekly online lecture sessions of 90 minutes each. There will be weekly assignments which will be a mix of readings and videos (all available online at no cost).

The course will be mostly descriptive with a mild reliance on mathematics. High School knowledge of geometry and algebra will be helpful. High school physical science study is also recommended, though not required.

Course Goals, Objectives, and Outcomes

Goals

- Students will have an appreciation for how astronomical phenomena influence human cultures.
- Students will have an appreciation for how human cultures influence astronomical knowledge.

Objectives

- Students will gain a basic understanding of modern astronomical knowledge.
- Students will explore examples of cultural expressions of astronomical knowledge.
- Students will explore key moments in the history of astronomy.

Learning Outcomes

- Students will identify astronomical origins of various cultural expressions.
- Students will identify cultural influences in the pursuit and use of astronomical knowledge.

Course Schedule

Dates & Times	Lectures	Topics	Resources: Videos/Articles
2022.03.28 12-1:30 pm PDT	Tour of the Cosmos & Calendar in the Sky	-Size & Scale -Cosmic Calendar -Keeping time by the cycles in the sky -Astronomical roots of popular holidays	Cosmic Voyage: part 1: IMAX: Cosmic Voyage HD pt 1/3 part 2: IMAX: Cosmic Voyage HD pt 2/3 part 3: IMAX: Cosmic Voyage HD pt 3/3 - Calendar in the Sky - Halloween/Día de los Muertos - Christmas - Groundhog Day/Dia de la Candelaria - Chinese New Year - Easter (Fat Tuesday)
2022.04.04 12-1:30 pm PDT	The War of the Worlds	-Geocentrism -Heliocentrism -Astrophysics	Video excerpts from the TV Series <i>COSMOS</i> by Carl Sagan: - The Ionian traditions of science - Pythagoras, Plato, and the Suppression of Scientific Thought

			<ul style="list-style-type: none"> -Eratosthenes measures the circumference of Earth -Library of Alexandria -Epicyles of Ptolemy and Kepler
2022.04.11 12-1:30 pm PDT	What's in a name?	<ul style="list-style-type: none"> -Discovery and Naming of worlds in the Solar System -Exploring the Solar System 	Percival Lowell and the canals of Mars
2022.04.18 12-1:30 pm PDT	Our Star: The Sun	<ul style="list-style-type: none"> -Solar Structure -Solar Activity -Space Weather -Language -Mythology -Religion -Art -Architecture 	<ul style="list-style-type: none"> -The Sun is Not An Average Yellow Star -How Earth's Magnetic Field Twists and Buckles During Solar Storms -Solstice at Palenque
2022.04.25 12-1:30 pm PDT	The Lives of Stars	<ul style="list-style-type: none"> -Constellations/Asterisms -Celestial Navigation -Decoding the Stars -Star & Planet Formation -Creating the Elements -The Stellar Graveyard 	<ul style="list-style-type: none"> -Navajo Skies: Planetarium Show Preview (Guide) -Kalepa Baybayan - Hawaiian Navigator -Ka'iu Kimura - Imiloa Astronomy Center in Hawaii https://youtu.be/RGRZxeo-qb8 -The Discovery of Pulsars - A Graduate Student's Story
2022.05.02 12-1:30 pm PDT	A Universe of Galaxies	<ul style="list-style-type: none"> -The Milky Way -Island Universes -Dark Matter -Representation Matters 	<ul style="list-style-type: none"> -Full Spectrum - Diversity in Space Science -A Fresh Perspective For Physics: With Chanda Prescod-Weinstein
2022.05.09 12-1:30 pm PDT	Big Bang Cosmology	<ul style="list-style-type: none"> -The Expanding Universe -The Big Bang -Origins and Fate 	<ul style="list-style-type: none"> -Maya Creation Story -The accelerating expansion of the Universe with Alex Filippenko

<p>2022.05.16 12-1:30 pm PDT</p>	<p>Habitable Worlds & The Search for Life</p>	<ul style="list-style-type: none">-What is life?-Can life exist on other worlds?-Potentially habitable worlds-The Fermi Paradox: Where is everybody?-The search for extraterrestrial life	<ul style="list-style-type: none">-Exoplanets Everywhere-Cosmos: One Voice in the Cosmic Fugue-Where is Everybody?-Searching for ET: An Investment in Our Long Future - Jill Tarter
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