

Keck Institute for Space Studies

List of Short Courses

2024

- [Interferometry Lands on the Moon](#)
(Monday, November 18, 2024)
- [Digital Twins for Solar System Exploration](#)
(Monday, November 4, 2024)
- [Quantifying Emissions through Greenhouse Gases and Transport](#)
(Monday, October 7, 2024)
- [Nano Engineering for Exo Discoveries: Advancing Metasurfaces for Exoplanet Exploration](#)
(Monday, September 23, 2024)
- [Sample Return from all across the Solar System](#)
(Monday, September 9, 2024)

2023

- [Extrasolar Space Weather: The Hidden Hand in Exoplanet Evolution](#)
(Monday, November 6, 2023)
- [What Do We Know About Uranus's Interior? Preparing for a Mission to Uranus](#)
(Monday, September 11, 2023)
- [Understanding and Empowering Soil Management as a Climate Mitigation Option](#)
(Monday, August 28, 2023)
- [Parameters of Biological Validation](#)
(Monday, July 17, 2023)

2022

- [Exoplanet Science Meets Interferometry](#)
(Monday, November 28, 2022)
- [Enabling Fast Response Missions to NEOs, ISOs, and LPCs](#)
(Monday, October 24, 2022)
- [Ocean World Microhabitats: Targeting and Life Detection Techniques](#)
(Monday, September 19, 2022)

2021

- [Planetary Science of Venus and the Promise of In Situ Sampling Techniques](#)
(Monday, June 24, 2021)
- [Planetary Geodesy – Past Discoveries and Future Possibilities](#)
(Wednesday, June 2, 2021)
- [Revolutionizing Access to the Martian Surface](#)
(Thursday, March 25, 2021)

2019

- [Forest Water Dynamics and the Earth System Responses to Droughts](#)
(Monday, October 14, 2019)
- [Approaching the Event Horizon - Black Holes and Their Effect on the Universe](#)
(Monday, September 16, 2019)
- [A World of Data – The Scale of Space Science Data Processing](#)
(Monday, August 26, 2019)
- [Data Driven Approaches to Searches for Technosignatures](#)
(Monday, May 20, 2019)

2018

- [Exploring Once-in-a-Lifetime Targets](#)
(Monday, October 29, 2018)
- [Tidal Heating on Solar System Worlds](#)
(Monday, October 15, 2018)
- [Biodiversity Science and Remote Sensing Fundamentals](#)
(Monday, October 1, 2018)

- [The Whys and Hows of Future Cosmic Microwave Background \(CMB\) Exploration](#)
(Monday, March 19, 2018)
- [Mars Subsurface Exploration - Life and Resources in the Martian Subsurface](#)
(Monday, February 12, 2018)
- [Science, Source Modeling, and Data Analysis for the Space-Based Gravitational-Wave Observatory LISA](#)
(Tuesday, January 16, 2018)

2017

- [Accessing the Subsurface Oceans of Icy Worlds](#)
(Monday, October 9, 2017)
- [Next-Generation Approach for Detecting Climate-Carbon Feedbacks](#)
(Monday, September 18, 2017)
- [The Polar Ice Caps and Climate of Mars](#)
(Tuesday, August 8, 2017)
- [Comets - Connecting the Origins of Solar Systems to the Origins of Life](#)
(Monday, June 5, 2017)

2016

- [What is Exploration Telepresence - and How Can it Help Us Explore Planetary Surfaces of the Solar System?](#)
(Monday, October 3, 2016)
- [Mastering the Wave - The Whys and Hows of Exoplanet Imaging](#)
(Monday, August 22, 2016)
- [Satellite Communication with Laser Beams – The Next Wave](#)
(Monday, July 11, 2016)
- [In-Situ Resource Utilization \(ISRU\) on Mars](#)
(June 28, 2016)

2015

- [Methane on Mars](#)
(December 7, 2015)
- [Fundamentals of Optical Frequency Comb Technology and Applications](#)
(November 2, 2015)
- [Exploring New Multi-Instrument Approaches to Observing Terrestrial Ecosystems and the Carbon Cycle from Space](#)
(October 5, 2015)
- [Using In-Situ Resources for 3D Additive Construction in Space](#)
(August 24, 2015)
- [The Search for Non-Aqueous Life](#)
(July 6-10, 2015)

2014

- [Star Formation \(top to bottom\)](#)
(November 3, 2014)
- [Exploring in the Interstellar Medium](#)
(September 8, 2014)
- [Near-Earth Asteroids: The Next Critical Stepping Stones For Humanity In Space](#)
(August 11, 2014)
- [Probing the Interior of Venus with Innovative Seismological Techniques](#)
(June 2, 2014)
- [Multifunctional Energy Projecting Systems for Planetary Exploration](#)
(May 19, 2014)

2013

- [Satellites, Ocean Robots and the Marine Carbon Cycle](#)
October 7, 2013
- [The Sleeping Giant: Measuring Ocean Ice Interactions in Antarctica](#)
September 9, 2013
- [Magnetic Fields: A Window to a Planet's Interior and Habitability](#)
August 12, 2013

- [Lunar Volatiles](#)
July 22, 2013
- [Airships: A New Horizon for Science](#)
April 30, 2013

2012

- [Measuring Photosynthesis From Space](#)
August 26, 2012
- [Engineering Resilient Space Systems: Leveraging Novel System Engineering Techniques and Software Architectures](#)
July 30, 2012
- [Small Satellites: A Revolution in Space Science](#)
July 16, 2012
- [Quantum Communication, Sensing and Measurement in Space](#)
June 25, 2012
- [Primitive Bodies: Unlocking the Secrets of Solar System Origins](#)
April 30, 2012

2011

- [Asteroid Retrieval Mission Study](#)
September 27, 2011
- [Next Generation UV Instrument Technologies: Overview of Science, Technology Key Points, New Horizons](#)
August 29, 2011
- [Measurements and Models at the Surface of Mars](#)
June 20, 2011
- [Looking for Nuggets in Massive Data Streams](#)
June 7, 2011
- [Climate Physics and Geoengineering](#)
May 23, 2011

2010

- [Cosmic Microwave Background Spectral Distortions from the Early Universe](#)
August 16, 2010
- [Planetary Science of Titan](#)
May 25, 2010