PATHWAY TO SPACE ASEN 1969



SCHEDULE - SPRING 2026

All course topics, special guests, STARS, and other assignment deadlines are below. Bring your Clicker to class each day as its use contributes directly to your grade. **All assignments are due by class unless otherwise stated. The Syllabus and assignment guidelines can be found in Canvas > Modules > Course Overview and Admin.**

WEEK 1

01 | THURSDAY 1/08 - BARBRA SOBHANI - COURSE OVERVIEW

TOPIC

Welcome to *Pathway to Space*!

LEARNING OBJECTIVES

1. Overview of the course.
2. Review syllabus, schedule, expectations, and assignments.
3. Short walk-through of the course format.

STARS:	*Teams Announced - see list in Canvas (STARS Guidelines)*
Video Capsule:	*None*
ePortfolio:	*Assigned - Review ePortfolio Guidelines (final ePortfolio is due 04/23 by 11 PM)*
Homework:	*Assigned - HW #1 Canvas Quiz (due 01/21 by 3:30 PM)*
Book:	*Assigned - Read Chapter 1 (Quiz #1 due 01/23 by 11 PM)*
Other:	*Assigned - Bring your clicker to class on or before 1/20 at 3:30 PM*

WEEK 2

02 | TUESDAY 1/13 - VALERIO FERME - SPACE AND WONDER

TOPIC

Explore the inextricable connection with space and wonder to our journey to make sense of our existence and place in the cosmos.

LEARNING OBJECTIVES

1. Examine the connection between space and wonder through the use of stories
2. Review how imagination ties space and our journey of wonder together
3. Recognize how our journey of wonder drives human space exploration and cosmic discovery

STARS:	*None*
Video Capsule:	*DUE Today by 3:30 PM - Space and Wonder (~13 minutes)*
ePortfolio:	*Assigned - ePortfolio Plan (due 01/23 by 11 PM)*
Homework:	*None*

Book: *None*
Other: *Assigned - Reflection Report #1 - Space and Me (due 01/30 by 11 PM)*

03 | Thursday 1/15 - Erica Ellingson - A Tour of the Cosmos

Topic

A tour of the Solar System and universe from the perspectives of size, scale and time.

Learning Objectives

1. Define the age of the universe
2. Describe different objects in the cosmos (planets, stars, the solar system, galaxies, the universe).
3. Conceptualize the size and scale of the universe with light travel time
4. Identify our cosmic address - our place in the cosmos

STARS: *Team 1*
Video Capsule: *DUE Today by 3:30 PM - A Tour of the Cosmos (~25 minutes)*
ePortfolio: *None*
Homework: *DUE 01/21 by 3:30 PM - HW #1, Assigned - HW #2 (due 02/21 by 11 PM)*
Book: *None*
Other: *DUE 01/20 by 3:30 PM - Bring your clicker to class on or before 1/20*

Week 3

04 | Tuesday 1/20 - Kevin France - Astrophysics

Topic

A basic overview of astrophysics and the tools used, such as the Hubble Space Telescope, to understand the cosmos and our place in it.

Learning Objectives

1. Identify the difference between astrophysics and astronomy
2. Review the big picture questions astrophysics are addressing
3. Examine how astrophysicists use spectroscopy to understand the cosmos
4. Explore the many discoveries made by Hubble Space Telescope
5. Define and discuss exoplanets and what they represent

STARS: *Team 2*
Video Capsule: *DUE Today by 3:30 PM - Astrophysics (~28 minutes)*
ePortfolio: *None*
Homework: *None*
Book: *Assigned – Chp 2 (Quiz #2 due 02/01)*
Other: *Assigned - Event Attendance (due 04/22 by 11 PM)*

05 | Thursday 1/22 - Chris Koehler - Near Space

Topic

An overview of suborbital balloon, plane, and rocket technology to study the region between the reach of aeronautics vehicles and spacecraft.

Learning Objectives

1. Define near space and the layers of the atmosphere.
2. Discuss the tools used to explore near space.
3. Describe the benefits of using near space vs. orbiting satellites to explore space.

STARS: *Team 3*
Video Capsule: *DUE Today by 3:30 PM - Near Space (~19 minutes)*
ePortfolio: *DUE 01/23 by 11 PM - ePortfolio Plan*
Homework: *None*
Book: *DUE 01/25 by 11 PM - Quiz #1*
Other: Optional Paper airplane entries at 01/28 by 11 PM (see Canvas Modules for details)

Week 4

06 | Tuesday 1/27 - Kimberly Ennico-Smith - Aeronautics

Topic

A personal perspective of aeronautics, and how these technologies are expanding the capabilities of Earth-observation systems.

Learning Objectives

1. Define aeronautics and describe its connection to space
2. Understand the role of the SOPHIA mission
3. Define some of the ways that aeronautics contributes to space
4. Describe the ways that aeronautic principles can be applied beyond Earth's surface

STARS: *Team 4*
Video Capsule: *DUE Today by 3:30 PM - Aeronautics*
ePortfolio: *None*
Homework: *None*
Book:
Other: *DUE - Optional Paper airplane entries at 01/28 by 11 PM (see Canvas Modules for details)*

07 | Thursday 1/29 - Paul Hayne and Carolyn Crow - Space Exploration: Going There

Topic

Discovering the cosmos through spacecraft missions that Go There, such as Apollo, New Horizons, and Juno

LEARNING OBJECTIVES

1. Differentiate between "going there" and "viewing there" as two ways to explore the cosmos
2. Breakdown the stages of exploration and how the skills needed for each change
3. Compare and contrast the tools used by robots and humans when visiting other bodies in the solar system
4. Discuss the advantages of visiting other places in the cosmos

STARS: *Team 5*
Video Capsule: *DUE Today by 3:30 PM - Space Exploration: Going There (~38 minutes)*
ePortfolio: *Assigned - Resume (due 02/04 by 11 PM)*
Homework: *None*
Book: *DUE 2/1 Quiz #2, Assigned – Chp 3 Why Space? (due 2/08 by 11 PM)*
Other: *DUE 01/29 by 11 PM - Reflection Report #1, Assigned - Reflection Report 2 - My Connections with Space (due 03/13 by 11 PM)*

WEEK 5

08 | TUESDAY 2/3 - DAVE BRAIN - EXTENDING SCIENCE BEYOND EARTH: PART 1

TOPIC

Understanding Earth's climate and environment through the comparison and study of other planets in our solar system.

LEARNING OBJECTIVES

1. Examine the atmospheric differences between Venus, Earth, Mars
2. Explain how these atmospheres formed
3. Identify the source and loss processes responsible for atmospheric changes
4. Recognize how discoveries about other planets' features help us understand our own planet's environment.
5. Identify tools used to explore these features

STARS: *Team 6*
Video Capsule: *DUE Today by 3:30 PM - Extending Science Beyond Earth: Part 2 (~35 minutes)*
ePortfolio: *DUE 02/04 by 11 PM - Resume, Assigned - Space Minor Planning (due 02/11 by 11 PM)*
Homework: *None*
Book: *Assigned - The 1st Space Age (Quiz #4 due 02/15)*
Other: *None*

09 | THURSDAY 2/5 - NICK SCHNEIDER - EXTENDING SCIENCE BEYOND EARTH: PART 2

TOPIC

How remote sensing techniques used to study the Earth, along with spectroscopy, are applied to our solar system and beyond.

LEARNING OBJECTIVES

1. Recall how remote sensing is used beyond Earth
2. Review the electromagnetic spectrum and how it is used to explore the cosmos

3. Explore how measuring infrared light can detect changes in planetary features
4. Discuss how to use other parts of the spectrum in instrumentation

STARS: *Team 7*
Video Capsule: *DUE Today by 3:30 PM - Extending Science Beyond Earth: Part 1 (~25 minutes)*
ePortfolio: *None*
Homework: *None*
Book: *DUE 02/08 by 11 PM - Quiz #3*

WEEK 6

10 | TUESDAY 2/10 - KATYA ARQUILLA - HUMAN EXPLORATION: PART 1

TOPIC

A deep dive into how space affects the human body and ways to mitigate these effects.

LEARNING OBJECTIVES

1. Identify the three effects of space that have the biggest impact on astronauts
2. Examine the effect of microgravity and its countermeasures
3. Examine the effect of radiation and its countermeasures
4. Examine the psychological effects of being in space and its countermeasures

STARS: *Team 8*
Video Capsule: *DUE Today by 3:30 PM - Human Exploration: Part 1 (~23 minutes)*
ePortfolio: *DUE 02/11 by 11 PM - Space Minor Planning*
Homework: *None*
Book: *Assigned – Destinations (Quiz #5 due 2/22 at 11PM)*
Other: *None*

11 | THURSDAY 2/12 - DAVE MURROW - LAUNCH VEHICLES

TOPIC

Cover the basics of launch vehicles from the types to the components to how they work and get spacecraft into space.

LEARNING OBJECTIVES

1. Define what a rocket is and how it works
2. Distinguish between the two primary types of launch vehicles: suborbital and orbital.
3. Identify the main components of a launch vehicle
4. Discuss the importance of the launch site and launch direction
5. Explore the new and upcoming launch vehicles

STARS: *Team 9*
Video Capsule: *DUE Today by 3:30 PM - Launch Vehicles (~17 minutes)*
ePortfolio: *Assigned - Sample of Work - Idea (due 02/25 by 11 PM)*

Homework: *None*
Book: *DUE 2/15 by 11PM – Quiz #4*
Other: *None*

WEEK 7

12 | TUESDAY 2/17 - BRIAN HYNEK - THE SEARCH FOR LIFE ELSEWHERE

TOPIC

A geological discussion of whether there could be life on other planets or moons in our solar system, or on any of the planets recently discovered orbiting other stars.

LEARNING OBJECTIVES

1. Identify the signs and conditions required for life as we know it.
2. Understand the methods used to find evidence of life beyond Earth.
3. Evaluate any evidence of found life in space
4. Predict future destinations to explore for life

STARS: *Team 10*
Video Capsule: *DUE Today by 3:30 PM - The Search for Life Elsewhere (~25 minutes)*
ePortfolio: *DUE 02/18 by 11 PM - Vision Statement*
Homework: *None*
Book: *Assigned - The Human Factor (Quiz #6 due 03/1)*
Other: *None*

13 | THURSDAY 2/19 - ANGEL ABBUD-MADRID - SPACE EXPLORATION: ISRU

TOPIC: RESOURCES IN SPACE: EXPLORING THE MOON, MARS AND BEYOND.

LEARNING OBJECTIVES

1. Identify what constitutes a resource in space.
2. Understand the methods used to find resources beyond Earth.
3. Evaluate the potential of lunar resource extraction and use.
4. Predict future uses of space resources.

STARS: *Team 11*
Video Capsule: *DUE Today by 3:30 PM - Space Resources (~25 minutes)*
ePortfolio: *Assigned - Comm. Service Idea (due 03/04 by 11 PM)*
Homework: *None*
Book: *DUE 02/22 by 11 PM - Quiz #5*

Other: *None*

WEEK 8

14 | TUESDAY 2/24 - CHRIS KOEHLER AND GUESTS - SPACECRAFT SYSTEMS

TOPIC

The basics of the spacecraft design process, systems engineering, and the numerous subsystems that make up a satellite.

LEARNING OBJECTIVES

1. Compare and contrast satellites and spacecraft and their sizes
2. Review the spacecraft design process
3. List the basic systems of a spacecraft and describe their functions
4. Understand the systems engineering role
5. Review the cost and complexity of these systems and how to test them

STARS: *Team 12*
Video Capsule: *DUE Today by 3:30 PM - Spacecraft Systems Part 2 (~40 minutes)*
ePortfolio: *DUE 02/25 by 11 PM - Sample of Work Idea*
Homework: *None*
Book: *Assigned – Space Entrepreneurs (Quiz #7 due 03/08), DUE 3/1 at 11 PM Quiz #6*
Other: *None*

THURSDAY 2/26 NO CLASSES

WEEK 9

15 | TUESDAY 3/3 - STEVE NEREM - ORBITS

TOPIC

A basic overview of orbits, types and applications of orbits, Hohmann transfers, and gravity assists.

LEARNING OBJECTIVES

1. Define an orbit
2. Identify the properties that define an orbit, including time, velocity, altitude, shape, and inclination.
3. Discuss the different types of orbits and how they are used.
4. Examine how a spacecraft can change from one orbit to another.

STARS: *Team 13*
Video Capsule: *DUE Today by 3:30 PM - Orbits (~11 minutes)*
ePortfolio: *DUE 03/04 by 11 PM - Community Service Idea*
Homework: *None*
Book: *Assigned - A New Space Race (Quiz # 8 due 3/15)*
Other: *Assigned - Reflection Report 3 - My Connections*

16 | THURSDAY 3/5 - ALIRES ALMON - SOCIOLOGY OF SPACE

TOPIC: HUMAN SOCIOLOGY CONSIDERATIONS FOR LIFE AND TRAVEL IN SPACE

LEARNING OBJECTIVES

1. Define the human social, cultural, and behavioral dimensions of space.
2. Analyze the challenges of long-duration missions and colonization.
3. Discuss social problems that arise in an environment hostile to life such as outer space.
4. Examine the need for collaboration between the social sciences/humanities and STEM fields to ensure sustainable and successful space exploration.

STARS:	*Team 14*
Video Capsule:	*DUE Today by 3:30 PM – Sociology of Space (~20 minutes)*
ePortfolio:	*None*
Homework:	*None*
Book:	*DUE 3/8 Quiz #7, Assigned – Space Between Nations (Quiz #9 due 03/22)*
Other:	*Assigned - Reflection Report 3 - My Connections*

WEEK 10

17 | TUESDAY 3/10 - CHRIS MULDROW - THE POLITICS OF SPACE

TOPIC

An overview of how political entities enable and define space exploration and space policy through an elaborate and highly contributed to budget process.

LEARNING OBJECTIVES

1. Define politics.
2. Explain how/why governments enable space exploration.
3. Outline the basic steps required to turn budgets into funded projects.
4. Explore the politics that inform the budget process and resulting space policy
5. Understand higher education's role in the politics of space

STARS:	*Team 15*
Video Capsule:	*DUE Today by 3:30 PM - The Politics of Space (~30 minutes)*
ePortfolio:	*None*
Homework:	*None*
Book:	*Assigned – The China Wildcard (Quiz #10 due 03/29)*
Other:	*None*

18 | THURSDAY 3/12 - ZACK DONOHEW AND ERIC ALSTON - SPACE GOVERNANCE

TOPIC

Explore the inevitable role Governance has played and will play in the exploration of space.

LEARNING OBJECTIVES

1. Define what is governance
2. Discuss the types of governance
3. Review analog examples where governance made a difference in a frontier
4. Identify emerging space governance issues

STARS: *Team 16*
Video Capsule: *DUE Today by 3:30 PM - Space Governance (~50 minutes)*
ePortfolio: *None*
Homework: *DUE 03/13 by 11 PM - HW #3, Assigned - HW #4 (due 04/10 by 11 PM)*
Book: *DUE 03/15 by 11PM – Quiz #8, 03/22 by 11 PM - Quiz #9*
Other: *DUE 03/13 by 11 PM - Reflection Report #2*

WEEK 11

19 | TUESDAY 3/24 - SPACE AND MUSIC

TOPIC

An examination of the ways we use music to think about space, and space to think about music.

LEARNING OBJECTIVES

1. Define what music is
2. Discuss the concept of music as a method of transportation
3. Explore how music has shaped humanity's perception of space into something wonderful as opposed to fearful
4. Review examples of musical works that played a role in humanizing space

STARS: *Team 17*
Video Capsule: *DUE Today by 3:30 PM - Space and Music (~23 minutes)*
ePortfolio:
Homework:
Book:
Other: *None*

20 | THURSDAY 3/26 - JIM STUART - SPACE ENTREPRENEURSHIP: STARTING THE 2ND SPACE AGE

TOPIC

An examination of entrepreneurship's role in the development of the space industry and civilian engagement in space exploration and science.

LEARNING OBJECTIVES

1. Define entrepreneurship

2. Evaluate the space industry before entrepreneurship
3. Examine how entrepreneurship has advanced space exploration
4. Outline the qualities of a successful space entrepreneur
5. Review today's current space entrepreneurs

STARS: *Team 18*
Video Capsule: *DUE Today by 3:30 PM - Space Entrepreneurship: Starting the 2nd Space Age (~33 minutes)*
ePortfolio: *DUE 03/27 by 11 PM - Career Service Workshop*
Homework: *None*
Book: *DUE 03/29 by 11 PM - Quiz #10*
Other: *None*

WEEK 12

21 | TUESDAY 3/31 - ERNESTO ACEVEDO-MUÑOZ - SPACE IN MOVIES

TOPIC

An overview of how movies transport our minds and alter our perceptions of space

LEARNING OBJECTIVES

1. Explore the early history of movies and radio that made space as accessible
2. Examine the juncture of pop culture and the real world displayed in movies
3. Identify the movies that played significant roles in shaping humanity's perception of space
4. Discuss why some space movies are better than others and remain relevant

STARS: *Team 19*
Video Capsule: *DUE Today by 3:30 PM - Space In Movies (~34 minutes)*
ePortfolio: *None*
Homework: *None*
Book: *Assigned – Settling the Final Frontier (Quiz #12 due 04/12)*
Other: *None*

22 | THURSDAY 4/2 - ERIN ESPELIE - THE ART OF SPACE

TOPIC

An examination of the role of art in space and its influences on our human nature to contribute to the larger understanding of the cosmos and our place in it.

LEARNING OBJECTIVES

1. Recognize our human nature to understand the universe
2. Identify ways we all can contribute to the understanding of the cosmos
3. Discuss how one's art can illustrate our place in the cosmos
4. Examine how art and science are similar

STARS:	*Team 20*
Video Capsule:	*DUE Today by 3:30 PM - The Art of Space (~10 minutes)*
ePortfolio:	*None*
Homework:	*None*
Book:	*DUE Quiz #11 04/05 by 11PM*
Other:	EXAM due 04/05

WEEK 13

23 | TUESDAY 4/7 - PAUL DAUGHERTY - THE JOURNALISM OF SPACE

TOPIC

Explore the tools of an effective science journalist and discover how their reporting on science influences the politics, policy, and public perception of space.

LEARNING OBJECTIVES

1. Differentiate between science reporting and reporting on other subject areas
2. Examine the tools and methods of effective science journalists
3. Define and understand the concept of false balance in journalism
4. Review examples of those who influenced politics, policy, and the public perception of space

STARS:	*Team 21*
Video Capsule:	*DUE Today by 3:30 PM - The Journalism of Space (~27 minutes)*
ePortfolio:	*None*
Homework:	*None*
Book:	*Assigned – A New Age Dawns (Quiz #13 due 04/19)*

24 | THURSDAY 4/09 - BARRY HAMILTON - THE BUSINESS OF SPACE

TOPIC

An overview of the societal role of space, government space exploration programs, and the future of space in academia and industry.

LEARNING OBJECTIVES

1. Recognize the size of the space industry.
2. Identify the types of entities involved in the space industry.
3. Explore what drives/motivates the space industry.
4. Discuss the potential of growth in the space industry.

STARS:	*Team 22*
Video Capsule:	*DUE Today by 3:30 PM - The Business of Space*
ePortfolio:	*DUE 04/10 by 11 PM - Sample of Work*
Homework:	*DUE 04/10 by 11 PM - HW #4 by 11 PM*
Book:	*DUE 04/12 by 11 PM - Quiz #12*

WEEK 14

25 | TUESDAY 4/14 - SCOTT MILLSPAUGH - SPACE THROUGH THE AGES

TOPIC

A look at the role art and science fiction play in shaping and creating new realities and understandings of our world and the cosmos.

LEARNING OBJECTIVES

1. Examine why science and science fiction are similar
2. Discuss how an idea becomes real
3. Explore how art and science are both generative
4. Discover the importance of struggle in finding one's path

STARS:	*Team 23*
Video Capsule:	*DUE Today by 3:30 PM - Space Through the Ages (~52 minutes)*
ePortfolio:	*Reminder - Final ePortfolio due next week (4/24)*
Homework:	*None*
Book:	*Assigned – Your Place in Space 2.0 (Quiz #14 due 04/25)*

26 | THURSDAY 4/16 - TBA - SCIENCE FICTION

TOPIC

A look at the role art and science fiction play in shaping and creating new realities and understandings of our world and the cosmos.

LEARNING OBJECTIVES

1. Examine why science and science fiction are similar
2. Discuss how an idea becomes real
3. Explore how art and science are both generative
4. Discover the importance of struggle in finding one's path

STARS:	*Team 24*
Video Capsule:	*DUE Today by 3:30 PM - Science Fiction (~30 minutes)*
ePortfolio:	*DUE 04/17 by 11 PM- Community Service Reaction & Photo,*
Homework:	*None*
Book:	*DUE 04/19 Quiz #13*
Other:	*None*

XX | SUNDAY 4/19 - 10TH ANNUAL MOONWALK DANCE

RSVP

WEEK 15

27 | TUESDAY 4/21 - ASTRONAUT DAY- HUMAN EXPLORATION: PART 2

TOPIC

The rationale behind and challenges with human space exploration from a real astronaut's perspective.

LEARNING OBJECTIVES

1. Discover what it is like to be an astronaut.
2. Recognize the reasons for and challenges with human space exploration.
3. Discuss the benefits of human exploration vs. robotic exploration
4. Evaluate the next destination for human space exploration

STARS:	*Team 25*
Video Capsule:	*DUE Today by 3:30 PM - Human Exploration: Part 2 (~38 minutes)*
ePortfolio:	*None*
Homework:	*None*
Book:	*None*

28 | THURSDAY 4/23 - BARBRA SOBHANI - ONE PATHWAY TO SPACE

TOPIC

An exploration of how many different disciplines can lead to an immersion in space.

LEARNING OBJECTIVES

1. Explain how the search for life beyond Earth has influenced the exploration of space.
2. List some of the great science communicators and how they found their pathways to space.
3. Understand how their work paved the way for our world of space today.
4. Did you find your path?

STARS:	*Team 26*
Video Capsule:	*DUE Today by 3:30 PM - One Pathway to Space (~31 minutes)*
ePortfolio:	*DUE 04/24 by 11 PM - Final ePortfolio*
Homework:	*None*
Book:	*DUE 04/25 by 11 PM - Quiz #14 by 11 PM*
Other:	*DUE 04/24 by 11 PM - Event Attendance x 2 and Reflection Report #3*

FINAL EXAM

THURSDAY, APRIL 30TH 4:00 - 7 PM - LOCATION @ TBD