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# SPST426

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## Course Summary

**Course :** SPST426 **Title :** Space Habitats

**Length of Course :** 8 **Faculty :**

**Prerequisites :** N/A **Credit Hours :** 3

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## Description

### Course Description:

This course introduces students to the fundamentals of space and planetary habitats, not limited to space stations but including lunar, asteroid, and Martian structures. It will provide an understanding of the cost and value of such habitats and how they can be built. (Prerequisite SPST307)

### Course Scope:

An overview of the research and design associated with habitats and habitability principles that allow humans to live and thrive in isolated and confined environments. The course will provide an overview of past, present, and plans for future space habitats. As well as, an overview of habitability studies in extreme environments including a wide variety of analog missions. Students will analyze and discuss the design of, experience in, and research output from these facilities. Students will also have an opportunity to develop their own project related to an analog mission or space habitat with an emphasis on creativity and independent research.

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## Objectives

The successful student will fulfill the following learning objectives:

Appraise the evolution of space habitats starting from the Salyut Program through to future missions to the Moon and Mars.

Summarize and critique the research related to space habitats, habitability of isolated and confined environments, and human spaceflight.

Assess the benefits and limitations of analog missions for space habitat and human spaceflight research.

Evaluate the elements of critical operations and habitability that are needed to thrive in an isolated and confined environment.

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Examine the experience of individuals that lived and worked in isolated and confined environments.

Develop an original project related to analog missions or space habitats.

## Outline

### Week 1:

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#### Learning Objective

Appraise the evolution of space habitats starting from the Salyut Program through to future missions to the Moon and Mars.

Evaluate the elements of critical operations and habitability that are needed to thrive in an isolated and confined environment.

#### Reading Assignment

Space Habitats and Habitability- Chapters 1 and 2

#### Assignments

Welcome Discussion

### Week 2:

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#### Learning Objective

Evaluate the elements of critical operations and habitability that are needed to thrive in an isolated and confined environment.

Examine the experience of individuals that lived and worked in isolated and confined environments.

Develop an original project related to analog missions or space habitats.

#### Reading Assignment

Space Habitats and Habitability- Chapter 3

#### Assignments

W2 Discussion

Topic and Style Selection for Final Project

### Week 3:

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#### Learning Objective

Appraise the evolution of space habitats starting from the Salyut Program through to future missions to the Moon and Mars.

Summarize and critique the research related to space habitats, habitability of isolated and confined environments, and human spaceflight.

Evaluate the elements of critical operations and habitability that are needed to thrive in an isolated and confined environment.

#### Reading Assignment

Space Habitats and Habitability- Chapter 4

#### Assignments

W3 Discussion

Homework 1

### **Week 4:**

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#### Learning Objective

Assess the benefits and limitations of analog missions for space habitat and human spaceflight research.

Develop an original project related to analog missions or space habitats.

#### Reading Assignment

Space Habitats and Habitability- start Chapter 5

#### Assignments

W4 Discussion

Annotated Bibliography

### **Week 5:**

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#### Learning Objective

Appraise the evolution of space habitats starting from the Salyut Program through to future missions to the Moon and Mars.

Summarize and critique the research related to space habitats, habitability of isolated and confined environments, and human spaceflight.

Evaluate the elements of critical operations and habitability that are needed to thrive in an isolated and confined environment.

#### Reading Assignment

Space Habitats and Habitability- finish Chapter 5

#### Assignments

W5 Discussion

Homework 2

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## **Week 6:**

### Learning Objective

Evaluate the elements of critical operations and habitability that are needed to thrive in an isolated and confined environment.

Develop an original project related to analog missions or space habitats.

### Reading Assignment

Space Habitats and Habitability- Chapter 6

### Assignments

W6 Discussion

Draft of Final Project

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## **Week 7:**

### Learning Objective

Appraise the evolution of space habitats starting from the Salyut Program through to future missions to the Moon and Mars.

Summarize and critique the research related to space habitats, habitability of isolated and confined environments, and human spaceflight.

Evaluate the elements of critical operations and habitability that are needed to thrive in an isolated and confined environment.

### Reading Assignment

Space Habitats and Habitability- start Chapter 7

### Assignments

W7 Discussion

Homework 3

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## **Week 8:**

### Learning Objective

Assess the benefits and limitations of analog missions for space habitat and human spaceflight research.

Examine the experience of individuals that lived and worked in isolated and confined environments.

Develop an original project related to analog missions or space habitats.

### Reading Assignment

Space Habitats and Habitability- finish Chapter 7

Assignments  
W8 Discussion

Final Project

## Evaluation

**Discussions:** A discussion forum is posted each week with various prompts on the topics covered in the class. Participation is mandatory and will count towards the course grade. You are expected to provide substantial, well-written paragraphs addressing each prompt and responses to peers. Statements such as “I agree” or “good post” will not count as a reply. Full expectations are detailed in the Discussion Guidelines.

**Homework Assignments:** There are three homework assignments in this course, each covering topics assigned in the course readings and outside research of the student. Information on homework assignments will be posted within the Assignments area of the classroom.

**Final Project:** Specific information about the final project and the assignments building up to the final project are posted in “Assignments”. Students can select a topic for their final project from the list given or propose their own topic for instructor approval. Students will also select the format for their final project. Options include a written paper or power point presentation.

### Grading:

Name	Grade %
Discussions	30.00 %
Week 1: Welcome Discussion	2.00 %
Week 2: Experiences in ICEs	4.00 %
Week 3: Tour of a Space Habitat	4.00 %
Week 4: Analog Missions	4.00 %
Week 5: Essential Functions	4.00 %
Week 6: Habitability	4.00 %
Week 7: Future Space Habitats	4.00 %
Week 8: Legendary Tales and Projects	4.00 %
Homework	21.00 %
Homework 1 (Week 3)	7.00 %
Homework 2 (Week 5)	7.00 %
Homework 3 (Week 7)	7.00 %
Final Project	49.00 %
Topic Selection	5.00 %
Annotated Bibliography	15.00 %
Draft of Project	9.00 %

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Final Project	20.00 %
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## Materials

**Book Title:** Space Habitats and Habitability: Designing for Isolated and Confined Environments on Earth and in Space

**Author:** Hauplik-Meusburger, Sandra; Bishop, Sheryl

**Publication Info:** Springer Nature Switzerland AG 2021

**ISBN:** ERESERVE NOTE

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## Course Guidelines

### Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

### Tutoring

- [Tutor.com](https://www.tutor.com) offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours\* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

### Late Assignments

- The University encourages all work to be completed according to the course schedule. The University Late Work Policy can be found in the Student Handbook [here](#).

### Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

### Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others.

The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

## **Submission Guidelines**

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

## **Disclaimer Statement**

- Course content may vary from the outline to meet the needs of this particular group.

## **Communicating on the Discussion**

- Discussions are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the discussion. The purpose of the discussions is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

## **Identity Verification & Live Proctoring**

- Faculty may require students to provide proof of identity when submitting assignments or completing assessments in this course. Verification may be in the form of a photograph and/or video of the student's face together with a valid photo ID, depending on the assignment format.
- Faculty may require live proctoring when completing assessments in this course. Proctoring may include identity verification and continuous monitoring of the student by webcam and microphone during testing.

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# **University Policies**

## [Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected,

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relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.