

# SPST501

**STUDENT WARNING:** This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

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## Course Summary

**Course :** SPST501 **Title :** Introduction to Space Studies

**Length of Course :** 8 Brian Anderson

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

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## Description

**Course Description:** This course evaluates space programs and operations and their meaning for future international and national economic and national security. The course will provide an overview of major policy, program, scientific, and technical issues in space for the non-scientist.

### Course Scope:

The intent of this course is to introduce students to the field of space studies. The field of space studies encompasses not only technical areas but non-technical areas in the realm of policy, management, operations, etc. This course lays the groundwork for future courses in space studies and provides interested students from other programs a general understanding of the field. Upon completion of this course, the student should have a greater appreciation of the many broad areas covered by the field of space studies.

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## Objectives

After successfully completing this course, you will be able to

- Analyze the key historical science discoveries that led up to the exploration of space;
  - Examine the history of the National Aeronautics and Space Administration (NASA), including space projects/programs (both past and current);
  - Examine the purpose of various space laws and policies;
  - Apply the basics of rocket propulsion;
  - Illustrate the basic principles of orbital mechanics;
  - Justify the purpose and impact of various space programs;
  - Examine the basic psychological, physiological and social challenges facing human space travel; and -
  - Examine a variety of scientific concepts associated with satellite communications and remote sensing systems.
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## Outline

## Week 1:

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### Topic(s)

Prelude to the Space Age

Eisenhower, Open Skies, and Freedom of Space

The Evolution of U.S. Space Policy and Plans

Current Space Law and Policy

NASA

The Development of International Space Cooperation

The History of Civilian-Military Relations in Space

### Learning Objectives

**LO1:** Analyze the key historical science discoveries that led up to the exploration of space

**LO2:** Examine the history of the National Aeronautics and Space Administration (NASA), including space projects/

programs (both past and current)

**LO3:** Examine the purpose of various space laws and policies

### Readings

#### Text Readings:

*Exploring the Unknown, Vol. I, Chapters 1-4*

*AU-18, Chapter 3*

*Exploring the Unknown, Vol. II, Chapters 1-2*

#### Website:

45 Moments in NASA history

<http://www.nasa.gov/externalflash/NASA45th/loadmovie.html>

### Assignment

Forum Post #1

Assignment #1

## Week 2:

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### Topic(s)

The Space Environment

Basic Orbital Mechanics

## Rocket Systems/ Propulsion

### Spacecraft Design, Structure, and Operations

#### Learning Objectives

**LO4:** Apply the basics of rocket propulsion

**LO5:** Illustrate the basic principles of orbital mechanics

**LO7:** Examine the basic psychological, physiological and social challenges facing human space travel

#### Readings

##### **Text Readings:**

*AU-18, Chapter 7*

*Thiokol*

*Lee, Chapter 2*

*Lee, Chapter 3*

*AU-18, Chapter 22*

##### **Website:**

Naval Space Command, "Space Flight: Application of Orbital Mechanics"

(1994) Naval Space Command / NASA Video (free) via YouTube

[http://www.youtube.com/watch?v=d\\_\\_hN6nqi-k](http://www.youtube.com/watch?v=d__hN6nqi-k)

Braeunig, R. A., "Rocket & Space Technology: Rocket Propulsion" (2009)

Available via

<http://www.braeunig.us/space/propuls.htm>

Note: Don't worry about the mathematics (unless interested) – several concepts nicely explained.

#### Assignment

Forum Post #2

Assignment #2

#### **Week 3:**

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#### Topic(s)

History of Satellite Communications

Observing the Earth from Space

Satellite Communications

## Remote Sensing

### Learning Objectives

**LO1:** Analyze the key historical science discoveries that led up to the exploration of space

**LO2:** Examine the history of the National Aeronautics and Space Administration (NASA), including space projects/

programs (both past and current)

**LO8:** Examine a variety of scientific concepts associated with satellite communications and remote sensing systems

### Readings

#### **Text Readings:**

*Exploring the Unknown, Vol. III, Ch. 1*

*JISC SatCom Reading a*

*Exploring the Unknown, Vol. III, Ch. 2*

*Canada Centre for Remote Sensing / Fundamentals of Remote Sensing (first two sections – Introductions / Satellites and Sensors). Found via:*

<http://www.nrcan.gc.ca/earth-sciences/geography-boundary/remote-sensing/fundamentals/1430>

#### **Website:**

Boeing Corporation, "Wideband Global SATCOM Overview." A good video representation of just one of many SatCom systems built to support the military. A bit of marketing, but a good video regardless.

Free via YouTube |

<http://www.youtube.com/watch?v=vcMIMRV23Qg>

"Remote Sensing of Global Change | Oil Spills." A nicely done slide show (author unknown) on how remote sensing is used to track oil

spills. Free via YouTube |

<http://www.youtube.com/watch?v=TRBM-0zd7uM>

### Assignment

Forum Post #3

Assignment #3

#### **Week 4:**

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### Topic(s)

Saturn V

Developing the Space Shuttle

Space Lift Systems

## Learning Objectives

**LO1:** Analyze the key historical science discoveries that led up to the exploration of space

**LO2:** Examine the history of the National Aeronautics and Space Administration (NASA), including space projects/

programs (both past and current)

## Readings

### Text Readings:

*Exploring the Unknown, Vol. IV, Ch. 1*

*Exploring the Unknown, Vol. IV, Ch. 2*

*AU-18, Chapter 20*

### Website:

Enter the following link into your browser:

[http://www.youtube.com/results?search query=saturn+v&search type=](http://www.youtube.com/results?search+query=saturn+v&search+type=)

The link will provide search results from YouTube, with dozens of links to Saturn V videos (including early testing, close-up launch videos, etc.).

“The Apollo Saturn Reference Page.” Available via:

<http://www.apollosaturn.com/>

Excellent series of images/links/

descriptions of the Saturn V and supporting equipment/facilities.

[http://www.nasa.gov/mission\\_pages/shuttle/multimedia/index.html](http://www.nasa.gov/mission_pages/shuttle/multimedia/index.html)

This is the link for NASA’s Space Shuttle Multimedia website.

## Assignment

Forum Post #4

Assignment #4

## Week 5:

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### Topic(s)

Solar and Space Physics

Life Sciences in Space

The Evolution of Earth Science Research

Space Weather

Space Physiology and Psychology

## Learning Objectives

**LO7:** Examine the basic psychological, physiological and social challenges facing human space travel

## Readings

### **Text Readings:**

*Exploring the Unknown, Vol. V, Chapters 1, 2 and 3*

*Exploring the Unknown, Vol. VI, Chapter 1 (pp 1-6 only)*

*Exploring the Unknown, Vol. VI, Chapters 2 and 3*

*Exploring the Unknown, Vol. VI, Chapter 4 (disregard all tabled data)*

*Nicogossian, Ch. 10*

### **Website:**

Visit the Exploratorium Space Weather Research Explorer website located at:

<http://www.exploratorium.edu/spaceweather/>

Just peruse and get a general feel for what space weather is and how it impacts space operations (a nicely done/concise website).

## Assignment

Forum Post #5

Assignment #5

## **Week 6:**

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### Topic(s)

Project Mercury

Project Gemini

Project Apollo

Apollo Soyuz Test Project (ASTP)

Skylab

Space Transportation System

## Learning Objectives

None

## Readings

### **Text Readings:**

*Exploring the Unknown, Vol. VII, Chapter 1*

*Exploring the Unknown, Vol. VII, Chapter 2*

Visit/review the following websites:

*“Skylab – America’s First Space Station” located at:*

<http://www.nasa.gov/centers/marshall/history/skylab.html>

*“The Flight of Apollo-Soyuz” located at:*

<http://history.nasa.gov/apollo/apsoyhists.html>

*“The Shuttle Reference Manual” located at:*

<http://spaceflight.nasa.gov/shuttle/reference/shutref/verboseindex.html>

*(only the “Space Transportation System” portion required; browse the remainder only if you have time to do so).*

*“Short Tour: A Quick Overview and Timeline of Shuttle-Mir” located at:*

<http://spaceflight.nasa.gov/history/shuttle-mir/history/h-t-short.htm>

### **Website:**

NASA’s “History of Human Space Flight” website, located at:

<http://spaceflight.nasa.gov/history/>

– NASA RSS Feeds, found via:

<http://www.nasa.gov/rss/index.html>

– NASA Missions website, located at

<http://www.nasa.gov/missions/index.html>

Assignment

Forum Post #6

Assignment #6

### **Week 8:**

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Topic(s)

Space as an Investment in Economic Growth

Commercial and Economic Impact of Spaceflight

Applications Satellites, the Environment, and National Security

Using Social History to Interpret the Social Impacts of Spaceflight

International Space Station

Orion

Future Space Transportation Possibilities

Learning Objectives

**LO6:** Justify the purpose and impact of various space programs

Readings

**Text Readings:**

*Societal Impact of Spaceflight, Chapter 8*

*Seeking a Human Spaceflight Program Worthy of a Great Nation, pp. 19-114*

**Website:**

Check the NASA website for amplifying files of interest on the transition to commercial spaceflight.

Do an Internet search for the latest information on commercial space pursuits by corporations such as SpaceX, Bigelow, Boeing and

United Space Alliance.

Assignment

Forum Post #7

Forum Post #8

Assignment #7

Assignment #8

**Week 7:**

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Topic(s)

Space as an Investment in Economic Growth

Commercial and Economic Impact of Spaceflight

Applications Satellites, the Environment, and National Security

Using Social History to Interpret the Social Impacts of Spaceflight

International Space Station

Orion

Future Space Transportation Possibilities

Learning Objectives

**LO6:** Justify the purpose and impact of various space programs

Readings

**Text Readings:**

*Societal Impact of Spaceflight, Chapter 8*

*Seeking a Human Spaceflight Program Worthy of a Great Nation, pp. 19-114*

**Website:**

Check the NASA website for amplifying files of interest on the transition to commercial spaceflight.

Do an Internet search for the latest information on commercial space pursuits by corporations such as SpaceX, Bigelow, Boeing and

United Space Alliance.

Assignment

Forum Post #7

Forum Post #8

Assignment #7

Assignment #8

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## Evaluation

Please see the [Student Handbook](#) to reference the University's [grading scale](#).

### Forum Postings

Eight times throughout this course discussion items will be posted within the Forum area of the classroom. Your responses must be between 100-300 words depending on the forum, be in YOUR OWN WORDS, well written and grammatically correct. Sources used must be cited at the end of your posting (not included in the word count). Your responses will clearly show whether you have completed assigned classroom readings. Opinions are always welcome... However, postings providing only opinions will be graded accordingly! Be sure to read the directions associated with each posting. Also, forums are about interaction so your initial response to the forum question is due by midnight Wed. to allow other students to read and comment on it. A late initial post costs 20 points for the first day late and 10 points each day thereafter. You are required to respond to at least two posts by other students. Failure to do so results in a deduction of 30 points per missing response.

### Homework Assignments

There are eight homework assignments for this course, each covering various aspects of assigned course readings. Information on homework assignments will be posted within the Assignments area of the classroom, on the days listed in the Announcements (home) page.

Here are some common writing deductions to try and avoid in assignments. The first two assignments are more leniently graded to give students who have not written in a while a chance to improve to the course standard. These deductions will be assessed in addition to deductions made for inadequate content.

For assignments 1 and 2:

Not indenting paragraphs: warning

Not using gender neutral language: warning

Single sentence paragraphs: warning

Using clichés: warning

Overuse/Unnecessary Quotes: warning

Not double spacing text and references: -2 (only assessed once per paper)

Using contractions: -2 (only assessed once per paper)

Not writing in third person: -1 per infraction (limit 5)

Starting Sentence with “and” or “but”: -2 (only assessed once per paper)

Sentence fragments/sentence does not make sense: -2 per infraction

Misspelt words: -2 per word

Using Wikipedia or other similar sources as references: -2

No citations and/or references: assignment receives grade of 0 until returned properly cited and referenced, then -5

Using less than the required number of references: -5

#### For all other assignments

Not indenting paragraphs: -2 first paragraph, -1 all others

Not using gender neutral language: -2 first infractions, -1 each thereafter

Single sentence paragraph: -5

Using clichés: -2 per use

Overuse/Unnecessary Quotes: -2 per infraction

Not double spacing text and references: -4 (only assessed once per paper)

Using contractions: -2 first infraction, -1 each thereafter

Not writing in third person: -1 per infraction (limit 5)

Starting Sentence with “and” or “but”: -2 each infraction

Sentence fragments/sentence does not make sense: -5 per infraction

Misspelt words: -2 per word

Using Wikipedia or other similar sources as references: -10

No citations and/or references: assignment receives grade of 0 until returned properly cited and referenced, then -10

Using less than the required number of references: -10

#### Grading:

Name	Grade %
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## Materials

**Book Title:** There are no required books for this course.

**Author:** N/A

**Publication Info:** N/A

**ISBN:** N/A

Other Resources:

The APUS Online Library

– An outstanding source for research information

The NASA homepage – <http://www.nasa.gov>

– Current and historical spaceflight information and an extensive gathering of open source literature

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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](http://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

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

### 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 Forum

- Forums 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 forum. The purpose of the forums 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](#)

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