Course Summary

Description

Course Description: REQUIRED FIRST COURSE before taking any 300 or 400 series core or major course in the BS in Aerospace. Space studies, by its very nature, is an interdisciplinary subject. These various disciplines will be surveyed in this course, at a level appropriate for the non-specialist, including the space environment, policy, astrodynamics, systems design, technologies, business and management, law, applications, physical and life sciences, and space and society. This course provides a foundation for more in-depth study of these areas. (Prerequisite: MATH111 or MATH225)

Course Scope:

This course is designed to introduce the student to a variety of subjects, which together comprise the overall field of space studies. This includes the space environment, astrodynamics, launch vehicles, spacecraft, space operations, commerce, space law, policy, telecommunications, space navigations, remote sensing, space resources, space physical sciences, and space life sciences. All of these topics will be addressed with a very broad brush, as the student will study them more in-depth during later courses in the aerospace studies degree program. Instruction is primarily through readings (both textbook and online), along with weekly classroom discussions.

As the first space studies course in the B.S. in Space Studies program, this course also focuses on research and writing methods appropriate to space studies. The web readings listed under “Web Resources” will discuss critical elements of research, writing, style and formatting. The Turabian style (also known as the Chicago style) is required for all courses in this program. The course will introduce the student to a variety of research sources that will be useful in future space studies courses. Some of these sources will be utilized in preparation of a 7-10 page research paper discussing some aspect of the disciplines introduced in the course. The paper will be turned in periodically, in various stages of development, as an encouragement to fully use a draft and edit process, as well as to avoid turning in papers that are put together at the last minute. While it may seem like a lot of work at first glance, it is a lot less work in chunks than trying to throw together a large research project in the last week of a class.

This course is fast-paced, and I highly encourage you to keep up with the work. Some assignments are not eligible for extensions beyond a certain point, because the benefit of them decreases rapidly if they are late (such as discussion board assignments that are intended to be interactive).

Objectives

Upon completion of this course, the student will be able to:
Discuss the basics of rocket propulsion and orbital mechanics LO-1
Recall the basic principles of space flight LO-2
Discuss the history of the U.S. Civil Space Program LO-3
Review the history of communication, navigation and weather satellites LO-4
Examine the fundamentals of space law and its sources LO-5
Examine the history of the Soviet/Russian and Chinese space programs. LO-6
Analyze the arguments for and against weaponizing space LO-7
Examine the history of the Space Shuttle and the International Space Station LO-8
Discuss the future of U.S. space transportation systems LO-9
Apply research, writing, and editing techniques to evaluate a segment of space studies in a research paper LO-10

Outline

Week 1: Rocketry Basics

Learning Objectives

LO-1

Reading(s)

Brain, "How Rocket Engines Work"; Braeunig, "Rocket Propellants"; Basics of Space Flight Tutorial, Section I (Chapters 1 through 6)

Assignment(s)

Introductions
End of week 1

Quiz 1
End of week 1

* Due Dates

Week 2: Basics of Space Flight

Learning Objectives

LO-2

Reading(s)

Brain, "How Rocket Engines Work"; Braeunig, "Rocket Propellants"; Basics of Space Flight Tutorial, Section I (Chapters 1 through 6)

Assignment(s)

Forum 2
End of week 2

Quiz 2
End of week 2

Research Proposal
End of week 2
* Due Dates

Week 3: History of U.S. Civil Space Program

Learning Objectives

LO-3

Reading(s)

Launius, pp. 3-80

Assignment(s)

Forum 3
End of week 3

Quiz 3
End of week 3

* Due Dates

Week 4: History of Commercial, Navigation, and Weather Satellites

Learning Objectives

LO-4

Reading(s)

Gavaghan, pp. 1-125

Assignment(s)

Forum 4
End of week 4

Annotated Bibliography
End of week 4

* Due Dates


Learning Objectives

LO-4

Reading(s)

Gavaghan, pp. 127-224

Assignment(s)

Forum 5
End of week 5

Quiz 4
End of week 5

* Due Dates

**Week 6: Space Law and International Issues**

---

**Learning Objectives**

LO-5

LO-6

**Reading(s)**

Gabrynowicz

Outer Space Treaty

Berryhill

West

**Assignment(s)**

Forum 6

End of week 6

Research Paper Rough Draft

End of week 6

* Due Dates

**Week 7: Weaponizing Space?**

---

**Learning Objectives**

LO-7

**Reading(s)**


**Assignment(s)**

Forum 7

End of week 7

Quiz 5

End of week 7

* Due Dates

**Week 8: ISS and the Future**

---

**Learning Objectives**

LO-8
Evaluation

The grading will be based on eight graded discussion board assignments, five quizzes, and a research project submitted in four stages.

1. Discussion Boards (Forums)
Eight discussion board Forums will be conducted during the course. Topics are assigned weekly. Forums (Initial Post and Responses) must be completed by 11:55 pm ET on Sunday.

You need to respond to at least two other students’ initial posts. Your responses should include either something you learned from their post, or additional information about something they said. The goal is to further the discussion. Additionally, you are expected to revisit the Forums frequently during the week to answer any questions posed to you.

Use your readings and the supplementary websites, but do not merely write what they say, show that you are thinking about what you are reading. Any direct quotations or paraphrasing must be properly cited, using the Turabian (Chicago style) format. Treat these Forums as mini-essays and formal writing is expected. I recommend drafting your posts in a word processor program instead of the online classroom to take advantage of spell-checking tools and to make quick edits. This method also prevents losing your post if the website experiences problems.

A good response should be at least 100 words, and they need to be substantive, and include the items listed above, not simply saying "good post" or "I agree." Each discussion will count for 2.5% of the final grade (for a total of 20% of your course grade).

Please try not to post at the last minute, as this hinders your classmates’ ability to do their work on time.

2. Quizzes
Five quizzes will be conducted based upon the readings. The format varies, but are primarily multiple choice and short answer. For the short answers - your answers may be brief, as long as they completely answer the question. Each quiz is worth 8% of your course grade.

3. Research Project
You will be writing a 2100-2700 word (approximately 7-10 double-spaced pages) research paper. The title page, bibliography, notes, and any charts or tables do not count toward the required word count. The paper must have at least five sources, at least one of which must be a primary source. One additional note: Wikipedia is not an acceptable source for your essays. You may use Wikipedia to help guide you to further
information. Your sources should be attributable to an identifiable person or organization, and you should strive to have some primary sources.

You will submit your paper in four stages. Full details of each are located in the "Research Paper" packet. This method is designed to help develop your writing skills, as it enforces a draft and edit process, and helps to prevent procrastination. All of these should be uploaded in the assignments area of the online classroom. If you are unfamiliar with this process and need help, please let me know.

You must complete all assigned tasks to pass the course. Reading assignments for the semester are listed in the Lessons area. Your knowledge of the reading is reflected in your quiz scores and your ability to actively participate in the discussions.

**Grading:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussions</td>
<td>20.00%</td>
</tr>
<tr>
<td>Introduction Week 1</td>
<td>2.50%</td>
</tr>
<tr>
<td>Forum Week 2</td>
<td>2.50%</td>
</tr>
<tr>
<td>Forum Week 3</td>
<td>2.50%</td>
</tr>
<tr>
<td>Forum Week 4</td>
<td>2.50%</td>
</tr>
<tr>
<td>Forum Week 5</td>
<td>2.50%</td>
</tr>
<tr>
<td>Forum Week 6</td>
<td>2.50%</td>
</tr>
<tr>
<td>Forum Week 7</td>
<td>2.50%</td>
</tr>
<tr>
<td>Forum Week 8</td>
<td>2.50%</td>
</tr>
<tr>
<td>Quizzes (5)</td>
<td>40.00%</td>
</tr>
<tr>
<td>Quiz 1</td>
<td>8.07%</td>
</tr>
<tr>
<td>Quiz 2</td>
<td>2.90%</td>
</tr>
<tr>
<td>Quiz 3</td>
<td>8.07%</td>
</tr>
<tr>
<td>Quiz 4 (week 5)</td>
<td>12.90%</td>
</tr>
<tr>
<td>Quiz 5 (Week 7)</td>
<td>8.07%</td>
</tr>
<tr>
<td>Research Proposal/Outline</td>
<td>7.50%</td>
</tr>
<tr>
<td>Research Proposal</td>
<td>7.50%</td>
</tr>
<tr>
<td>Annotated Bibliography</td>
<td>7.50%</td>
</tr>
<tr>
<td>Annotated Bibliography</td>
<td>7.50%</td>
</tr>
<tr>
<td>Research Paper Rough Draft</td>
<td>10.00%</td>
</tr>
<tr>
<td>Rough Draft</td>
<td>10.00%</td>
</tr>
<tr>
<td>Research Paper Final</td>
<td>15.00%</td>
</tr>
<tr>
<td>Final Paper</td>
<td>15.00%</td>
</tr>
</tbody>
</table>

**Materials**

**Book Title:** Frontiers of Space Exploration, 2nd Ed-E-book provided inside the APUS Online Library

**Author:** Launius, Roger

**Publication Info:** ABC-CLIO

**ISBN:** 9780313325243
**Book Title:** Something New Under the Sun: Satellites and the Beginning of the Space Age - eBook available through the APUS Online Library.

**Author:** Gavaghan, Helen

**Publication Info:** Copernicus

**ISBN:** 9780387949147

---

**Book Title:** To find the library e-book(s) req'd for your course, please visit [http://apus.libguides.com/er.php](http://apus.libguides.com/er.php) to locate the eReserve by course #. You must be logged in to eCampus first to access the links.

**Author:** N/A

**Publication Info:** N/A

**ISBN:** N/A

---

**Required Texts**


**Gavaghan, Helen. 1998. Something New Under the Sun: Satellites and the Beginning of the Space Age. Copernicus (Springer-Verlag).**

Jet Propulsion Laboratory. *Basics of Space Flight tutorial.* Available at: [http://www2.jpl.nasa.gov/basics/](http://www2.jpl.nasa.gov/basics/)


---

**Optional Readings**
Online Readings

Web-based readings are accessible through the weekly packets in the course materials section of the online classroom, and can also be accessed at the listed web address.

Software Requirements

- Web Browser
- Word Processor
- PDF viewer, such as Adobe Acrobat Reader
- A calculator may be required for some assignments

Selected Bibliography

This is a very small selection of sources relating to space studies. See the "Research Paper Packet" for more.


---

**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 20% 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 ongoing 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.

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

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.