American Public University System
American Military University | American Public University

SPST653

Course Summary

Course : SPST653 **Title :** Small Bodies of the Solar System
Length of Course : 8 **Prerequisites :** NA **Credit Hours :** 3

Description

Course Description: This class will cover a variety of objects within the solar system considered "small." This includes dwarf planets, moons, asteroids, meteorites, comets, and planetary rings. We will cover the composition, history, and role of these objects within the solar system. We will also address their influence on the Earth and other bodies, and what they tell us about the formation of planetary systems around other stars.

Course Scope: Small Bodies of the Solar Systems deals with objects of relatively low mass and size. They are often objects that are considered leftovers, as in the left over material from the formation of the "important" objects in the solar system, as well as objects that are left out from the topic list of other planetary science classes.

In this class you will investigate these objects and their importance to planetary sciences. Topics include meteorites, asteroids, near-Earth objects, comets, dwarf planets, transneptunian objects, planetary moons (excluding the Earth's Moon), and planetary rings. We will cover these objects within our solar system, as well as small bodies orbiting other stars.

Objectives

Upon completion of this course, the student will be able to:

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-2: Discuss a variety of topics related to each type of small body.
- CO-3: Appraise past, current, and planned planetary science missions.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-5: Link the knowledge about small bodies in our solar system to the research focused on planetary systems around other stars.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Outline

Week 1: Welcome and Introduction

Course Objective(s)

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-5: Link the knowledge about small bodies in our solar system to the research focused on planetary systems around other stars.

Readings

Planetary Sciences Ch. 1

Additional readings posted in the Week 1 Lesson

Assignment(s)

Welcome Discussion (Post #1)

Week 2: Meteorites

Course Objective(s)

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-2: Discuss a variety of topics related to each type of small body.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Readings

Planetary Sciences Ch. 8

Additional readings posted in the Week 2 Lesson

Assignment(s)

Discussion #2- Meteors and Meteorites

Final Project: Moon Selection

Week 3: Asteroids and NEOs

Course Objective(s)

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-2: Discuss a variety of topics related to each type of small body.
- CO-3: Appraise past, current, and planned planetary science missions.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Readings

Planetary Sciences start Ch. 9

Additional readings posted in the Week 3 Lesson

Assignment(s)

Discussion #3- Asteroids and NEOs

Homework Week 3

Week 4: Dwarf Planets and TNOs

Course Objective(s)

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-2: Discuss a variety of topics related to each type of small body.
- CO-3: Appraise past, current, and planned planetary science missions.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Readings

Planetary Sciences finish Ch. 9

Additional readings posted in the Week 4 Lesson

Assignment(s)

Discussion #4- Dwarf Planets and TNOs

Final Project: Annotated Bibliography

Week 5: Comets

Course Objective(s)

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-2: Discuss a variety of topics related to each type of small body.

- CO-3: Appraise past, current, and planned planetary science missions.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-5: Link the knowledge about small bodies in our solar system to the research focused on planetary systems around other stars.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Readings

Planetary Sciences Ch. 10

Additional readings posted in the Week 5 Lesson

Assignment(s)

Discussion #5- Comets

Homework Week 5

Week 6: Planetary Rings

Course Objective(s)

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-2: Discuss a variety of topics related to each type of small body.
- CO-3: Appraise past, current, and planned planetary science missions.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Readings

Planetary Sciences Ch. 11

Additional readings posted in the Week 6 Lesson

Assignment(s)

Discussion #6- Planetary Rings

Final Project: Draft

Week 7: Planetary Moons

Course Objective(s)

- CO-1: Assess the key characteristics of various categories of small bodies found in our solar system.
- CO-2: Discuss a variety of topics related to each type of small body.
- CO-3: Appraise past, current, and planned planetary science missions.

- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-5: Link the knowledge about small bodies in our solar system to the research focused on planetary systems around other stars.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Readings

Planetary Sciences Sections 5.5.4.6 to 5.5.8 and 6.3.5

Additional readings posted in the Week 7 Lesson

Assignment(s)

Discussion #7- Planetary Moons

Homework Week 7

Week 8: Conclusions and The Future

Course Objective(s)

- CO-3: Appraise past, current, and planned planetary science missions.
- CO-4: Examine the formation history and role of small bodies in the solar system.
- CO-6: Develop writing skills by synthesizing scholarly articles and designing your own planetary mission.

Readings

Additional readings posted in the Week 7 Lesson

Assignment(s)

Discussion #8- Final Thoughts

Final Project: Submission

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 a substantial comment of several well-written paragraphs in each session and a similar comment or reflection in reply 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/or other course content, as well as outside research by the student. Information on homework assignments will be posted within the Assignments area of the classroom.

Final Project: The main project for this course will be developing a planetary mission to a moon of our solar system. Students will select the target moon for their mission and assemble the proposal following the instructions and format detailed in the assignment description. Several assignments spaced throughout the course are associated with the final project and help to ensure that students are working on the proposal throughout the class.

Specific information about the final project and the related assignments are posted in the Assignment area of the classroom.

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.

SUBMISSION INSTRUCTIONS

All written submissions should be submitted in a font and page set-up that is readable and neat. All essays should be prepared in Microsoft Word and uploaded as docx or PDF files to the appropriate online assignment.

Grading:

Name	Grade %
Discussions	28.00 %
Week 1: Welcome	2.00 %
Week 2: Meteors and Meteorites	4.00 %
Week 3: Asteroids and NEOs	4.00 %
Week 4: Dwarf Planets and TNOs	4.00 %
Week 5: Comets	4.00 %
Week 6: Planetary Rings	4.00 %
Week 7: Planetary Moons	4.00 %
Week 8: Final Thoughts	2.00 %
Homework	27.00 %
Homework Week 3	9.00 %
Homework Week 5	9.00 %
Homework Week 7	9.00 %
Final Project	45.00 %

Moon Selection	2.00 %
Annotated Bibliography	15.00 %
Draft of Project	8.00 %
Final Project	20.00 %

Materials

Book Title: Planetary Science, Updated 2nd Edition- e-book available in the APUS Online Library
Author: Imke de Pater and Jack J. Lissauer
Publisher: Cambridge University Press
ISBN: 9781316165270

Course Guidelines

Citation and Reference Style

- 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 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 or PDFs 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.

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.

Disclaimers

Please note that course content – and, thus, the syllabus – may change between when a student registers for a course and when the course starts. Course content may vary from the syllabus' schedule to meet the needs of a particular group.

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.