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SPST634

Course Summary

Course : SPST634 **Title :** Comets, Asteroids, and Meteorites

Length of Course : 8 **Faculty :** Edward Albin **Prerequisites :** SPST500, SPST501 **Credit Hours :** 3

Description

Course Description:

Asteroids, meteorites and comets, the leftover material from the formation of our solar system, are all key to understanding its origin. The composition, history and interrelationships of these objects will be covered, as well as their influence on the Earth and other bodies, and what they tell us about the early solar system.

(Prerequisites: SPST500, SPST501).

Course Scope:

This course covers the most common objects in the solar system – the asteroids and comets – as well as some of the only astronomical objects we get to study up close – the meteorites that hit the Earth. Our solar system consists of eight planets, several dwarf planets (like Pluto and Eris) at least 166 moons, over 65,000 numbered asteroids, and in excess of 1,600 known comets. The numbers of detected asteroids and comets will continue to increase as observation techniques improve given that there are likely millions of asteroids and billions of comets. Asteroids and comets are of great scientific interest because they are likely little altered since their formation 4.6 billion years ago. Meteorites can be considered poor man's space probes: they are free samples from somewhere in the solar system, including the Moon and Mars, a few thousand from asteroids and possibly some from comets. We will cover the characteristics of these objects and the histories of their discoveries in order to understand the relationships between all three types of objects and what they can tell us about the earliest times in the solar system.

Objectives

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

- CO-1: Describe the contributions of significant individuals in the history of asteroid and comet studies
- CO-2: Discuss the methods of discovery of asteroids, comets, and meteorites
- CO-3: Differentiate between the types of small bodies in the solar system
- CO-4: Compare the compositions of asteroids and comets

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- CO-5: Correlate the composition of asteroids and comets with their location in the solar system
 - CO-6: Describe the origins of meteorites and the methods used to study them
 - CO-7: Cite examples of various types of impacts in the solar system
 - CO-8: Assess the risk to Earth from impact with an asteroid or comet

Outline

Week 1: Introduction to Meteorites

Course Objective(s)

1-8

Readings

Assigned readings located in Week 1 Lesson

Assignment(s)

Introduction Discussion (Post #1)

Week 2: Meteorites continued

Course Objective(s)

1-8

Readings

Assigned readings located in Week 2 Lesson

Assignment(s)

Discussion Post #2

(Meteors & Meteorites)

Homework #1

Week 3: Asteroids

Course Objective(s)

1-8

Readings

Assigned readings located in Week 3 Lesson

Assignment(s)

Discussion Post #3 (Asteroids)

Research Paper Topic/Thesis Statement

Week 4: Asteroids continued

Course Objective(s)

1-8

Readings

Assigned readings located in Week 4 Lesson

Assignment(s)

Discussion Post #4 (Choose from two topics) Homework

#2

Week 5: Comets

Course Objective(s)

1-8

Readings

Assigned readings located in Week 5 Lesson

Assignment(s)

Discussion Post #5 (Comets)

Research Paper Outline Midterm

Exam

Week 6: Comets continued

Course Objective(s)

1-8

Readings

Assigned readings located in Week 6 Lesson

Assignment(s)

Discussion Post #6 (Choose from 3 topics)

Homework #3

Week 7: Planetary Defense

Course Objective(s)

1-8

Readings

Assigned readings located in Week 7 Lesson

Assignment(s)

Discussion Post #7 ("What's the Big Deal") Research

Paper

Week 8: Course Wrap-up

Course Objective(s)

1-8

Readings

Review Previously Read Material

Assignment(s)

Discussion Post #8 (Course Wrap-up and Comments) Final

Exam

Evaluation

Midterm Examination

The midterm examination is worth 15% of your grade. It will have questions from the first part of the course. It will consist of 10 essay question. It will be open book and will be available during week 4 of class.

Final Examination

The final examination is worth 15% of your grade. It will have questions from the entire course in order to help you synthesize the information from the class. It will consist of several short and one long essay question. It will be open book and will be available during the final week of class.

Discussion Postings

Eight times throughout the course, discussion items will be posted within the Discussion area of the classroom. Your responses must be in YOUR OWN WORDS (no quotes), well written and grammatically correct. Your responses will clearly show whether you have read assigned classroom readings (listed in this syllabus). Opinions are always welcome. However, postings providing only opinions will be graded accordingly! You must also provide two responses to other student postings.

Homework Assignments

Three homework assignments (essays) will be required during the term. These short paper topics involve information from your reading as well as Internet research. The information that is not included in the textbooks that is specifically addressed in the homework assignments

will be included on the exams. The assignments together equal 30% of your grade.

Important: all essay format homework assignments must comply with the writing expectations listed in the policies section and be between **3-4 pages in length**. Essays must include appropriate citations/references; those that do not will receive no higher than a “C” for the assignment. All assignments in this course are given to you prior to the due date. The “due date” for all assignments is the week in which the assignment is due. For the purposes of this course, a

“**week**” is defined as the time period between Monday–Sunday. The **first week** begins on the first day of the semester and ends at 11:59 PM EST the following **Sunday**.

Research Paper

You will write a 6-page research paper on a topic related to comets, meteorites, or asteroids. The topic selected by the student must be approved by the instructor. By the end of week 4, you will submit your topic and thesis statement (you may change your thesis statement after this as your research progresses, but you need to start off with one. By the end of week 5, you’ll submit an outline of your project. The paper part of the project will be due at the end of week 7.

WRITING EXPECTATIONS

Assignments will be graded against the elements listed in the Writing Assignment Rubric. All written submissions must:

- Be typewritten in double-spaced format submitted inside the electronic classroom (unless classroom access is not possible and other arrangements have been approved by the professor).
 - Be a **minimum of 6 pages of narrative in length** (filling space with illustrations, lists, charts, etc. will not count toward the minimum length)
 - Be Arial or Times New Roman (11 or 12-point) font.
 - Be formatted with page margins Top, Bottom, Left Side and Right Side = 1 inch, with reasonable accommodation being made for special situations and online submission variances.
 - Use endnotes
 - Contain page numbers, a title page, endnotes page, and bibliography
- Be proofread. I expect the paper to be free from spelling, punctuation, grammar and factual errors. Must include a minimum of five (5) sources (Do not use Wikipedia - it's not an appropriate source for college papers!)

CITATION AND REFERENCE STYLE

Assignments completed in a narrative essay or composition format must follow Turabian Citation Style guidelines. Assignments completed in a narrative essay or composition format must follow the citation style cited in The Chicago Manual of Style, 16th edition. An online version of the manual can be found at the APUS Online Library Resource Center.

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 must be prepared in Microsoft Word and uploaded to the appropriate online assignment.

Grading:

Name	Grade %
Discussions	20.00 %
Topic #1 - Introduction	2.50 %
Topic #2 - Meteors & Meteorites	2.50 %
Topic #3 - Asteroids	2.50 %
Topic #4 - Your Choice (two topics)	2.50 %
Topic #5 - Comets	2.50 %
Topic #6 - Your Choice (three topics)	2.50 %
Topic #7 - What's the Big Deal?	2.50 %
Topic #8 - Course Wrap-up	2.50 %
Homework	30.00 %
[WK2] Homework #1	10.00 %
[WK4] Homework #2	10.00 %
[WK6] Homework #3	10.00 %
Midterm Exam (week 5)	15.00 %
Research paper	20.00 %
[WK3] Research Paper Topic/Thesis	1.00 %
Statement	
[WK5] Research Paper Outline	4.00 %
[WK7] Research Paper	15.00 %
Final Exam	15.00 %

Materials

There are no printed texts for this course. Students will use websites referenced in the Lessons area, as well as papers and publications available in the APUS Library.

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

- 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 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](#)

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