
PTYS 416/516
Fall 2016
Syllabus



UA SCIENCE

**LUNAR & PLANETARY
LABORATORY**

Course: PTYS 416/516: Asteroids, Comets, Kuiper Belt Objects
Tues, Thur 12:30-1:45 p.m. in Kuiper Space Sciences Building, 312

Instructor: Renu Malhotra, Professor of Planetary Sciences
Office: Kuiper Space Sciences 515
(520)626-5899, renu@lpl.arizona.edu, <http://www.lpl.arizona.edu/~renu/>
Office hours: stop by anytime or email me for a guaranteed time

Course content and expected learning outcomes: This course is an introduction to the "minor planets" --- the asteroids, comets, Kuiper Belt objects, and dwarf planets. These small bodies constitute the debris left over from the processes of planet formation and, as such, hold clues to almost the entire history of the solar system. We will review in considerable depth the current state of knowledge about their spatial distribution, their physical characteristics, their origin and evolution, as well as techniques of study. Students will acquire a broad overview of the natural processes that govern our solar system and of the techniques that planetary scientists use to extend our knowledge of the solar system.

Absences and class participation: Please inform the instructor at least one week in advance of any anticipated absences, and as soon as possible of any unforeseen absences. The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at <http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop>. The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable: <http://policy.arizona.edu/human-resources/religious-accommodation-policy>. Absences preapproved by the UA Dean of Students (or dean's designee) will be honored; see <http://policy.arizona.edu/employmenthuman-resources/attendance>.

Class meetings will generally be built around reading assignments. Students are expected to be prepared with the material assigned prior to each class. We will use a combination of traditional lectures, open discussions and student-led presentations, according to topic and material. Although no formal attendance record will be made, class participation will be part of the grade, and homework assignments are likely to make more sense if you've been to class.

Assignments are due in class on the due date. I would rather have late work than no work, although you should expect any late work to be for reduced credit. If you anticipate an absence on the due date of an assignment, please either turn in your work early or discuss alternative arrangements with me. My intent is to have graded assignments returned within two weeks of the due date.

Textbook: There is no required textbook; the following textbooks are recommended:

Asteroids, Comets and Dwarf Planets, au: Andrew S. Rivkin, pub: Greenwood, yr: 2009
Asteroids III, pub: University of Arizona Press, yr: 2002
Asteroids IV, pub: University of Arizona Press, yr: 2015
Comets II, pub: University of Arizona Press, yr: 2004
The Solar System Beyond Neptune, pub: University of Arizona Press, yr: 2008

Copies of these books are on reserve at the LPL library (Space Sciences 409) and are also available for in-library use in the UA Library's Special Collections.

Class Web Page: You will need a UA Net ID to access the class web page at <http://d2l.arizona.edu>. I will use this website to post class notes and assignments, and other communications. This webpage will be updated frequently.

Required Extracurricular Activities: Students will spend an evening at the telescope of one of the largest asteroid search programs in the world, the Catalina Sky Survey, which is conducted at the UofA's facilities at Mount Lemon. Students will also make a field trip to our extensive meteorite collection which is housed in the Drake Building. Graduate-level requirement will include some original work on one of the primary topics, with class presentation and discussion of it.

Final examination/Project: Final Exam is scheduled for Friday, Dec. 9, from 1:00 to 3:00p.m. in Kuiper 312. Please review the final exam schedule here: <http://www.registrar.arizona.edu/schedules/finals.htm>.

Note final exam regulations: <http://www.registrar.arizona.edu/courses/final-examination-regulations-and-information>.

Grades: Regular grades are awarded for this course: A B C D E. Grading scale: A > 90% ; B = 80.1 - 90%; C = 70.1 - 80%; D = 60.1 - 70%; E < 60%. The instructor reserves the right to adjust these grade boundaries to her expectation of class performance.

400 level expectations: Students will be expected to actively participate in class and will be required to complete a number of homework assignments, a mid-term exam, and a term paper (in lieu of a final exam). In addition, 3% of the grade will be for coming to meet with me at some point on or before October 24.

500 level expectations: All of the above for 400-level, plus students will be expected to (i) include some original work in the term paper, and (ii) to research the literature on one of the primary topics and to lead the class discussion on it.

400 level Grading: Meeting with instructor + Class participation: 10%; Homework assignments: 30%; Mid-term exam: 30%; Term paper: 30%.

500 level Grading: Meeting with instructor + Class participation + Leading a topic: 15%; Homework assignments: 25%; Mid-term exam: 25%; Term paper: 35%.

Classroom Behavior: We try to keep the classroom clean, and ask for your help. Please do not bring any food or drink (other than bottled water) into the classroom. If there are problems with a seat or with its writing table, please let me know, so that the problems can be addressed as soon as possible. Also, the common sense rules of good conduct apply, such as cell phones turned off and no web-surfing or irrelevant extra-curricular activity during class. Please review the UA policy on disruptive behavior: <http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting>.

Threatening Behavior: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. Please review the policy: <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Academic integrity Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See <http://deanofstudents.arizona.edu/codeofacademicintegrity>.

Two primary points you need to know are these: (1) When you turn in (or present) work that uses published material (journal articles, web sites, etc.), you are expected to give the appropriate credit and cite the source(s). (2) Collaboration is encouraged on most assignments, as I strongly believe that we learn more by asking questions and explaining our answers to others' satisfaction. However, when you do collaborate with someone, the work you turn in for grading must be written by *you in your own words*.

Nondiscrimination and anti-harassment: The University of Arizona is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>.

Accommodations for Students with Disabilities: Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit <http://drc.arizona.edu>. If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Notice: The information contained in this course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.