Course Syllabus for AST 364: Solar System Astronomy

Instructor
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Course
Meeting times: Monday, Wednesday, Friday 11:00—11:50 AM
Location: RLM 15.216B
Unique number: 48565
Website: All course material will be posted on UT Blackboard

Teaching Assistant
Wenbin Lu (10 hrs)
Office: RLM 16.312
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Office hours

Instructor:	TA:
Monday 12:00-1:30 PM	To be announced

Prerequisites

PHY 316	Electricity & Magnetism
PHY 116L	Electricity & Magnetism Lab

Course description

AST 364 introduces the physics and chemistry of planetary systems to students with at least one year of undergraduate-level math and physics preparation. Topics include orbital dynamics, planet formation, planetary interior structure, atmospheric physics and chemistry, and surface geological processes. We will also discuss the origins, structures and orbits of comets, asteroids and planetary satellites. We will cover the growing sample of extrasolar planets and its implications for planetary science. We will end with a discussion of the habitability of planets. Much of what we will cover has been discovered within the last five years.

Textbook:

This course uses a brand new textbook on planetary science: *Fundamental Planetary Science: Physics, Chemistry and Habitability* by Jack Lissauer and Imke de pater (2013, Cambridge University Press). Unfortunately it is so brand new that the publisher did not manage to have it ready for the start of the semester. I have arranged for the UT COOP to

have the first 4 chapters ready for you as print-outs. Go and pick them up. This will serve as course material until the book arrives.

Other materials: I use PowerPoint for the lectures, but these presentations contain mostly the plots, and pictures and little text. The notes that you take in class will be important study resources! I will post all lectures on UT Blackboard.

Calculator and computer access: The are computers in the RLM 15th or 16th floor computer labs that you can use for this course. Standard pocket calculators (no smart phones) are needed for the tests.

Grading

Homework assignments count for **30%** of the course grade. There will be seven assignments due during the semester. I will drop the lowest assignment score from your grade.

Journal article reviews count for 2**0%** of the course grade. You will review three journal articles during the semester and hand in a written report.

Tests count for 5**0%** of the course grade. There will be four tests during the semester. The **optional final exam** is on Saturday, December 14 from 2 to 5 PM. If you choose to take the final exam, it will replace your lowest test score. If you are happy with your grade at the end of the semester, there is no need to take the final exam.

Grading scale used for final grades:
A: >90%, **B**: 80-89%, **C**:70-79%, **D**:60-69%, **F**<60%

Please note that all work, including tests, must be **neatly written and easily readable** in order to receive a grade.

Late work and make-up tests

I do not accept late homework unless you have a **documented excuse** for the time the homework was due (i.e. doctor's note, letter from Athletic Dept.). Make-up tests will **not** be given except for students with religious holidays (see below) or **documented** illnesses. To receive a make-up test because of illness, you must (a) notify the instructor you cannot attend **before** the test, and (b) provide a doctor's note with date, time and verification of illness.

Accommodations for students with disabilities

At the beginning of the semester, students with disabilities who need special accommodations should notify the instructor by presenting a letter prepared by the Service for Students with Disabilities (SSD) Office. The University of Texas provides upon request appropriate academic accommodations for qualified students with

disabilities. To ensure that the most appropriate accommodations can be provided, students should contact the SSD Office at 471-6259 or 471-4641 TTY.

Course Schedule (subject to change):

Unit 1: Aug 28 - Sep 9
Solar System Inventory
Dynamics
Astrophysics Review
Solar heating & Energy transport

Unit 2: Sep 11 - Sep 25
Planetary Atmospheres
Surfaces & Interiors
Solar Wind & Magnetic Fields

Unit 3: Sep 27 - Oct 11
Giant planets (Jupiter, Saturn, Uranus & Neptune)

Unit 4: Oct 16 - Oct 30
Terrestrial Planets (Earth, Venus, Mars, Mercury)

Unit 5: Nov 1 - 4
The Moon
Other planetary satellites

Unit 6: Nov 6 - Nov 13
Meteorites
Minor Planets
Comets
Planetary Rings

Unit 7: Nov 15 - Nov 22
Extrasolar Planets

Unit 8: Nov 25 - Nov 29
Planet Formation

Unit 9: Dec 2 - Dec 4
Habitability

Important due dates:

- Tests: Sep 20, Oct 14, Nov 8, Dec 6
- Optional Final Exam: Dec 14 (2-5PM)
- Homework due: Sep, 13; Sep, 27, Oct. 11, Oct 25, Nov 8, Nov 22, Dec 6

- Journal Article Review due: Sep 30, Oct 30, Nov 29

Attendance and religious holidays

I will not take attendance in lectures. However, as your lecture notes will be an important study resource, I strongly encourage you to attend.

It is the policy of The University of Texas at Austin that the student must notify each instructor at least fourteen days prior to the classes scheduled on dates he or she will be absent to observe a religious holy day. For religious holidays that fall within the first two weeks of the semester, the notice should be given on the first day of the semester. The student may not be penalized for these excused absences but the instructor may appropriately respond if the student fails to complete satisfactorily the missed assignment or examination within a reasonable time after the excused absence.

Scholastic honesty

Students who violate University rules on scholastic dishonesty will receive zero credit for the assignment or quiz on which dishonesty occurred. In addition, the Astronomy Department or University may impose further disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University. Standards for Academic Integrity are posted at http://deanofstudents.utexas.edu/sjs/acint_student.php .