

PHYS 3395: Solar System Physics
Course Syllabus for Spring 2007, MWF 11:00-11:55 am

Instructor: Dr. Wayne Keith: 793-3874, keith.wayne@mcm.edu
Office Hours: S 110-C: MWF 9-11, T 9-10:30, and R 2:30-5:30
Web: <http://www.mcm.edu/~keith.wayne>
Text: *Moons and Planets (5th)*, by William K. Hartmann
Required: scientific calculator, paper, pencil
Prerequisites: PHYS 3300, MATH 2421

Course Description: This is an advanced elective for physics majors. This course is intended to introduce the student to various topics in space physics, including the formation of the Solar System, Kepler's Laws of motion, and the structure and properties of the planets, moons, and small bodies that make up our Solar System.

Grading: 40% Homework: Assignments will be made in class and posted online. Homework will be due at the beginning of class on the date indicated. Also includes any graded activities conducted during class (quizzes, presentations, discussions, etc.)

40% exams (20% each): In-class exams.

20% Final exam: Not comprehensive, covers the final third of the course.

Attendance/Make up policy: Make-up exams will be given for excused absences only at the discretion of the instructor. Contacting the instructor via email or phone prior to missing class for any reason is strongly encouraged, even if it is for a school sponsored event.

Classroom Rules: Students are expected to be present and on-time for all class meetings. Excessive absences (more than 3 unexcused) may result in the student being dropped from the course. Late homework loses 10% per week (up to a maximum of 40%).

Final notes: Class discussion is strongly encouraged; please feel free to ask questions, during class or outside of class, about anything that is not clear. Properly preparing for class by reading the textbook and keeping up with the homework is the most important factor in doing well in this course.

PHYS 3395 Spring 2007 Course Schedule

All dates and topics are tentative and subject to change except **bold** dates.

Date	Lecture #	Topic
1/15		No Class
1/17	1	Ch 1: Introduction
1/19	2	Ch 2: Solar System Overview
1/22	3	Ch 3: Kepler's Laws
1/24	4	Ch 3: Orbital dynamics
1/26	5	Ch 3: Tidal effects & Roche Limit
1/29	6	Ch 3: Radiation pressure and Poynting-Robertson
1/31	7	Ch 4: Star Formation
2/2	8	Ch 4: The H-R Diagram
2/5	9	Ch 4: The Sun
2/7	10	Plasmas - Solar wind
2/9	11	Ch 5: Solar System formation
2/12	12	Ch 5: Protoplanets
2/14	13	Ch 5: Satellites
2/16		Test 1 review
2/19		Test 1
2/21	14	Ch 6: Meteoroids
2/23	15	Ch 6: Meteorites
2/26	16	Ch 7: Asteroids
2/28	17	Ch 7: Comets
3/2	18	Ch 8: Planetary Interiors
3/5	19	Ch 8: Planetary magnetic fields
3/7	20	Ch 8: Solar wind interactions
3/9	21	Ch 8: Example interiors
3/12		Spring Break
3/14		Spring Break
3/16		Spring Break
3/19	22	Ch 9: Early Lithospheres
3/21	23	Ch 9: Cratering
3/23	24	Ch 9: Airless Surfaces
3/26	25	Ch 10: Volcanism
3/28	26	Ch 10: Atmospheric Effects
3/30	27	Ch 10: Example surfaces
4/2		Test 2 review
4/4		Test 2
4/6		Easter Holiday
4/9		Easter Holiday
4/11	28	Ch 11: Origin of Atmospheres
4/13	29	Ch 11: Atmospheric Structure
4/16	30	Ch 11: Dynamics and Escape
4/18	31	Ch 11: Example Atmospheres
4/20	32	Ch 12: Origin of Life
4/23	33	Ch 12: Life on Mars?
4/25	34	Ch 12: Life elsewhere- Drake Equation
4/27	35	Ch 13: Mars Today
4/30	36	Ch 13: Water on Mars
5/2	37	Ch 13: History of Mars
5/4		Test 3 review
5/7		Final Exam – Test 3 (Monday 10:30am – 12:30pm)