Tour of the Solar System (Spring 2010)

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Course web page: http://www.rpi.edu/dept/phys/Dept2/Astro/TSS/

CLASS FORMAT

One-credit course (ASTR 1530–1): This class meets on Mondays only and is graded satisfactory/unsatisfactory. There are two possible ways to obtain your grade. (see 'Grading Choices' p.3)

Two-credit course (ASTR 1530–2): This class meets both Mondays and Thursdays. A letter grade is given, based on the option you choose. (see 'Grading Choices' p.3)

Class schedules: Separate Monday/Thursday schedules are attached. If you are taking the 1-credit course, you can ignore the Thursday schedule.

AIMS OF THE CLASS

The Solar System is our backyard in astronomical terms, our home turf in the Universe. The distance to the remotest planet in our Solar System (measured in terms of light travel time) is about 4 hours, compared with about 4 years to the next nearest star system. The general aim of the course is to provide ***an overview of what the Solar System is like today***, as revealed both by astronomical observations made from Earth and by NASA's intensive planetary exploration program over the past half century.

The 2-credit course has additional aims:

- To describe our planetary neighbors in greater detail and to discuss similarities and differences compared with the Earth.
- To understand how the Solar System has evolved – how it got to be the way it is, and to consider how it might develop in the future.
- To discuss the origin of life on Earth and review the possibility that life might exist (or may once have existed) elsewhere in our Solar System and beyond.

OPERATIONAL PROCEDURES

Attendance policy

Because it is the Spring semester I understand that there are other things that students need to do, whether it is graduate school visits or job interviews. Therefore I have set up two possible ways for you to obtain your grade. One way requires attendance, the other does not. If you choose the required attendance option, you will be asked to fill out, sign, and turn in an attendance/participation form during each class (except on exam days, where turning in the exam itself will record your attendance). The form will include a short quiz based on the material presented. If you have to miss a class and you have chosen the attendance option, you will be **REQUIRED** to provide an official excuse for any absence (preferably in advance for reasons other than illness). The following policies apply to both courses (if you choose the attendance only option):

- ***More than two unexcused absences during the semester will result in an automatic failing grade.***
- ***Attempting to falsify an attendance is effectively cheating and will result in an automatic failing grade.***

Class format and downloads

Class presentations will include videos, PowerPoint lectures, and computer demonstrations. The Monday class will most typically be a video and the Thursday class a lecture. Lecture slides will be available for download from the course website (LMS). The 1-credit non-attendance quizzes will be on LMS. You will be required to login and then have a set time (10 minutes) to finish the 10 question quiz. The answers to the quizzes can be found in the power points from class. An example online quiz can be found in this syllabus.

Use of laptops or cell phones in class

Laptops are **NOT NECESSARY** for this course and should be PUT AWAY during class. If you have them out, I will assume you are not paying attention and you will be asked to leave, which will be counted as an absence. This goes for cell phones and texting as well. It is disrespectful to the teacher and fellow students. Attendance is not required, so you may choose whichever option suits your academic schedule.

"If your actions affect the learning of others you will be asked to leave."

Assessment of progress

All tests will be handed back and other grades will be available at anytime upon request by e-mail and on LMS.

Exams (2-credit course only)

The exams are 50 minutes long and are held on Thursdays during normal class

time. **These tests are IN-CLASS no matter your grading option.** They are non-mathematical and will include a mix of descriptive and multiple-choice problems. Use of books, notes, or electronic devices (such as laptops, cell phones and iPods) is not allowed during exams. Each exam after the first will test your knowledge of the material presented since the previous exam (i.e. exams are not cumulative). A brief review of material for each exam will be given in class one week before; graded tests will generally be returned to you in class one week after the exam.

Grading Choices

Two-Credit Class

80% - 4 Tests evenly weighted
20% - Attendance

100% - 4 Tests evenly weighted

All Tests will be **IN-CLASS**

One-Credit Class

100% - Attendance

100% - 10 Online Quizzes (One per Week)

All attendance will be determined by in-class participation, such as group discussions and Q&A.

You must choose your option by the next class meeting. I will begin recording attendance with the second class meeting. To choose please fill out and hand in the form provided.

If there are ANY questions please ask.

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Monday Class Schedule (Spring 2010)

Week	Date	Topics
1	1/25	Introduction: The Sun's Empire
2	2/1	Airless Worlds: The Moon and Mercury
3	2/8	The Enigma of Venus
4	2/15	Holiday — no class
5	2/22	Amazing Earth
6	3/1	Exploration of Mars
--	3/8	Spring Recess — no class
7	3/15	The Sun and other Stars
8	3/22	Traveling to the outer Planets
9	3/29	The Giant Planets
10	4/5	The Cassini Mission to Saturn and Titan
11	4/12	Interplanetary Debris
12	4/19	Fire from the Sky
13	4/26	The Search for new Planets
14	5/3	Searching for Life beyond Earth

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Thursday Class Schedule (Spring 2010)

Week	Date	Topics
1	1/28	Observing the Solar System
2	2/4	Different Worlds
3	2/11	Impact Craters in the Solar System
4	2/18	Venus and Earth compared
5	2/25	Exam #1
6	3/4	Mars
--	3/11	Spring Recess — no class
7	3/18	The Sun: Powerhouse of the Solar System
8	3/25	Exam #2
9	4/1	Giant Moons
10	4/8	Planetary Ring Systems
11	4/15	Exam #3
12	4/22	The Origin of the Solar System
13	4/29	Life in the Solar System
14	5/6	Exam #4

Sample On-Line Quiz

1. What 19th Century Italian astronomer first drew maps of Mars?
   a. Annibale de Gasparis
   b. Percival Lowell
   c. Edwin Hubble
   d. Giovanni Schiaparelli

2. The seasons on Mars are caused by the same thing that causes seasons on Earth.
   a. True
   b. False

3. Which one of these was a mission to mars?
   a. Voyager 2
   b. MESSENGER
   c. Pathfinder
   d. Surveyor 1

4. What are the moons of Mars?
   a. Charon
   b. Phobos
   c. Phoebe
   d. Deimos

5. Name at LEAST two surface features of Mars?

6. What is the largest mountain/volcano on Mars?
   a. Ascraeus Mons
   b. Elysium Mons
   c. Arsia Mons
   d. Olympus Mons

7. Does Mars have plate tectonics?
   a. yes
   b. no

8. Which of these elements is present (> 1%) in the Martian atmosphere?
   a. N_2
   b. O_2
   c. CO
   d. H_2O
   e. CO_2

9. The surface pressure on Mars compared to Earth is?
   a. 22%
   b. 1%
   c. 5%
   d. 14%

10. Why did Mars lose its atmosphere? (Give at least 3 reasons)

GRADING OPTION FORM

ASTR 1530 - Tour of the Solar System
Spring 2010

Name:_____**Date**:_____

Signature:_____

RIN #:_____

Your course section (please check one): [ ] **1 credit** [ ] **2 credits**

Please circle your choice of grading option within your section:

Two-Credit Class

OPTION 1	OPTION 2
80% - 4 Tests evenly weighted	100% - 4 Tests evenly weighted
20% - Attendance	

One-Credit Class

OPTION 1	OPTION 2
100% - Attendance	100% - 10 Online Quizzes (One per Week)

This is the **ONLY** time you will be able to make a choice. There will be **NO** switching later in the semester.