

Syllabus and Course Outline (Fall, 2012)
Geo 303C: Introduction to the Solar System (UID 27283)

Meeting time: MWF 1:00-2:00 pm, Welsh 2.304
Instructor: Prof. John Lassiter
e-mail: lassiter1@mail.utexas.edu
phone: 1-4002
office: JGB 4.138
office hours: Wed. 2:00-4:00 pm or by appointment

Required Textbook:

An Introduction to the Solar System (ed. Neil McBride and Iain Gilmore)
ISBN 0 521 54620 6

Required additional supplemental reading material will be provided throughout the semester and will be available through Blackboard.

Course description: This course examines the origin and evolution of our solar system. How did the sun and the planets form? Why are Jupiter and the other outer planets so different from the Earth? Starting with the formation of the solar system, the course will examine how processes such as volcanism and impacts have shaped planet surfaces, as well as the workings of planetary interiors. We will also examine the unique properties of Earth that allowed life to arise and evolve, and explore the prospects for seeking life on other planets in our own solar system and beyond. Throughout the course, students will learn about the history of planetary exploration and the methods scientists use to explore fundamental questions regarding our place in the Universe. No prerequisites are required, but a basic comfort level with mathematics will be beneficial.

Course Goals: This course provides a brief tour through our solar system, and examines a number of important common processes that continue to shape the evolution of planetary bodies. Through this course, students will achieve a better understanding of our origins and our place in the Universe. Students will be introduced to processes such as impacts and volcanism that play an important role in the physical evolution of Earth's surface as well as the evolution of life. The course will present not only what we know about our solar system, but also how we have learned what we have. Students will thus develop a better understanding of the scientific method. This course includes one term paper, which will provide students the opportunity to practice and refine their writing skills.

Math Anxiety: This is a science course. All sciences use mathematics to describe the physical world, and we will use mathematics in this course to describe such things as the orbits of the planets, the energy released by giant impacts, or the thickness and strength of planetary surfaces. However, the level of mathematics we'll need to do this is not far beyond what you need to balance your checkbook. If solving an algebraic equation or figuring out a log plot causes you to break out in a cold sweat, come see me and I will try to help.

Grades: Students are expected to attend class and to come prepared (e.g., having read all assigned material). I do not take attendance and will not directly penalize failure to attend class. However, my experience from other introductory courses is that students who attend class regularly and stay engaged invariably perform better than their peers who choose not to.

Student performance will be evaluated through two midterm exams, 4 homework assignments, one writing project, and a final exam, with the following weighting:

Midterm exams	30% (15% each)
Problems sets	20%
1 ~6-8 page research paper	20%
Final exam	30%

This is not Lake Wobegone and not all students are above average. Letter grades will be assigned as follows:

A	93-100
A-	90-92
B+	88-89
B	83-87
B-	80-82
C+	78-79
C	73-77
C-	70-72
D+	68-69
D	63-67
D-	60-62
F	<60

If you want a good grade, you need to earn it. However, I do reserve the right to “adjust” grades for individual assignments if I misjudge and make an assignment considerably more difficult than I intended.

If at any point during the semester you are having trouble understanding something in the course, or you are having trouble with the homeworks or the exams or are concerned about your grade, **please** come and talk with me. If you do this early in the semester I can often find ways to help (evaluate study habits, go over questions individually, etc.). I really do want to help you learn and I want you to enjoy the course. However, if you wait until just before the final exam (an inexplicably popular tactic among many students) there is really very little I can do to help. So please, don't be shy. Talk with me if you have any questions or problems.

Accommodation for students with disabilities: Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259. If you need special accommodation for taking notes, completing assignments or taking exams, please let me know as soon as possible, and at least a week before scheduled due dates.

Missed exams and late assignments: Late assignments without a documented excuse will be penalized 20% per day. No late assignments more than 1 week overdue will be accepted. We all have busy schedules, and we all have to learn to plan accordingly.

No make-up exams will be provided for missed exams without a documented excuse (documented family emergency or medical excuse).

If you know you will be away when an exam is scheduled or a homework assignment is due because you are participating in a sporting event or other University-sponsored activity, you need to discuss this with me **at least** two weeks prior to make alternative arrangements (usually completing the assignment or taking the exam earlier than scheduled). Note: Going out of town to **watch** a football game does **not** count as participating in a University-sponsored event.

The University Honor Code: “The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.”

Students are expected to read and to strictly adhere to the University’s written policies on academic dishonesty. Cheating or plagiarism will result in a zero for the exam or assignment in question, and students caught violating University policy will be referred to the Dean of Student Affairs for disciplinary action.

Preliminary Lecture and Assignment Schedule:

Lecture date	Lecture Topic	Textbook Assignment	Class Assignment
29-Aug	Introduction/logistics		
31-Aug	Tour of the Solar System	Chapter 1	
3-Sep	Labor Day		
5-Sep	Tour of the Solar System	Chapter 1	
7-Sep	Solar System formation	Chapter 8	
10-Sep	Solar System formation	Chapter 8	
12-Sep	Orbital mechanics	Chapter 7	
14-Sep	Meteorites, asteroids, and comets	Chapters 7 & 9	Homework #1 handed out in class
17-Sep	Meteorites, asteroids, and comets	Chapters 7 & 9	
19-Sep	Surface processes-impacts and cratering	Chapter 4	
21-Sep	Surface processes-impacts and cratering	Chapter 4	Homework #1 due in class
24-Sep	Internal Structures and Dynamics	Chapter 2	
26-Sep	Internal Structures and Dynamics	Chapter 2	
28-Sep	Planetary volcanism	Chapter 3	
1-Oct	Planetary volcanism	Chapter 3	
3-Oct	Planetary volcanism	Chapter 3	
5-Oct	Review/Discussion		
8-Oct	First midterm exam		1st midterm exam
10-Oct	Planetary Atmospheres	Chapter 5	
12-Oct	Planetary Atmospheres	Chapter 5	Homework #2 handed out in class
15-Oct	Surface Processes-Wind and water	Chapter 4	
17-Oct	Surface Processes-Wind and water	Chapter 4	
19-Oct	Mercury	Supplemental reading TBA	Homework #2 due in class
22-Oct	The Moon	Supplemental reading TBA	
24-Oct	The Moon	Supplemental reading TBA	
26-Oct	Goldilocks Tales: Venus, Earth and Mars	Supplemental reading TBA	Paper abstract, outline due in class; Homework #3 handed out in class
29-Oct	Goldilocks Tales: Venus, Earth and Mars	Supplemental reading TBA	
31-Oct	Goldilocks Tales: Venus, Earth and Mars	Supplemental reading TBA	
2-Nov	Goldilocks Tales: Venus, Earth and Mars	Supplemental reading TBA	Homework #3 due in class
5-Nov	Giant Planets-Jupiter and Saturn	Chapter 6	
7-Nov	Giant Planets-Jupiter and Saturn	Chapter 6	
9-Nov	Review/Discussion		
12-Nov	Second midterm exam		2nd midterm exam
14-Nov	Galilean Satellites	Supplemental reading TBA	
16-Nov	Galilean Satellites	Supplemental reading TBA	Homework #4 handed out in class
19-Nov	Saturnian satellites and rings	Supplemental reading TBA	
21-Nov	Saturnian satellites and rings	Supplemental reading TBA	
23-Nov	Thanksgiving		
26-Nov	Giant Planets-Uranus and Neptune	Chapter 6; Supplemental reading TBA	Homework #4 due in class

28-Nov	Pluto and the Kuiper Belt		
30-Nov	Fate of the Earth and Solar System	Supplemental reading TBA	
3-Nov	Extra-solar planets	Supplemental reading TBA	
5-Dec	Search for life in our solar system	Supplemental reading TBA	
7-Dec	Search for life beyond our solar system	Supplemental reading TBA	Paper due in class

Note: Lecture schedule is preliminary and may change if circumstances require. Any changes will be announced in class and posted on Blackboard.