

Astronomy 1400: The Solar System
Fall 2009

Instructor: Dr. Susan Holtz

Office Hours: TT 9:30 am to 10:30 am and 2:00 to 2:30. Other office hours by appointment: please see me immediately before or after any class or e-mail me, and we will arrange a time to meet that fits your schedule. My office is Sc Room 120.

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Please use "Astronomy 1400" as part of the subject of the e-mail!!

Textbooks: **The Solar System, The Cosmic Perspective**, Fifth Edition, by Bennett, Donahue, Schneider, and Voit. Published by Addison Wesley. It should come with Starry Night software. Also for the lab: **Solar System Astronomy Lab Manual** by the Department of Physics, Texas Tech University

Course Details: TT 8:00 am to 9:20 am in Sc 007 CRN:10002

Laboratory:

There is a **required** laboratory that is part of this course. You will receive one grade for the lecture and laboratory combined—they are not separate courses. In **addition** to the weekly lab meetings in the Science Building (room Sc121), there will be labs at the Texas Tech Observatory (to make some nighttime observations) and the Texas Tech Planetarium. All necessary information regarding these activities will be posted on the web site <http://www.phys.ttu.edu/~gwen/index.htm> or given out in the labs. The laboratory meets in SC 121 beginning the week of September 14. If no lab is listed on your schedule, see Dr. Holtz immediately. (The "discussion" on your schedule is the labs at the observatory.)

Course Purpose:

This course will satisfy a four hour laboratory science requirement. It has no pre-requisites. It serves well the student that is interested in astronomy and the student who is not science oriented but needs to satisfy the science requirement. This course is very important to both groups of students. For those interested (or who inadvertently become interested), it will give you the tools to continue astronomy as a lifelong interest. For those not really interested, astronomy will give you a basic understanding of science which is need for all educated members of society because the population at large determines the role of science in society—not just the scientists.

Course Description:

We begin by acquainting ourselves with the current perspective of our place in the universe. After expounding this view and covering some astronomy basics, we back up and historically account for how this view came about. Next the basic principles of physics that allow astronomers to learn things about the universe are covered. At this time we also examine how telescopes work, and how astronomers use satellites and space probes. Once we are done with these preliminaries, we move on to the solar system covering topics such as how and when does a solar system form. Then we take a close look at our own solar system through comparative planetology. Here we consider the geologies and atmospheres of the terrestrial worlds and the physics of the Jovians. We also account for asteroids and comets. Lastly we look at solar systems about other stars than our Sun to put our own solar system into perspective. In addition to the topics above, we will also be keeping abreast of current space missions and any exciting celestial events that might come our way.

Expected Learning Outcomes:

Upon completion of this course, students will:

1. Gain a cosmic perspective.
2. Understand astronomy basics (For example: What is the ecliptic? Celestial equator? Equinox? Solstice? When do eclipses occur? ...)
3. Know the history of astronomy.
4. Understand the physics of astronomy at an elementary level and know how astronomers use it to learn about the universe.
5. Understand how telescopes work.
6. Understand the physical principles involved in the formation and maintaining of planetary atmospheres.
7. Understand the physical principles involved in the geology of the terrestrial worlds.
8. Understand why the Jovians formed as they did
9. Understand how a solar system forms
10. Study the nature and detection of extrasolar planets
11. Have the tools needed to continuing enjoying astronomy on their own as a hobby if desired. By enjoying I mean that the motivated student will be able to use a simple telescope to make observations of and identify celestial objects.

Determining your course grade:

- Your final grade is a combination of your laboratory grade and lecture grade.
- Determining the **laboratory** grade: this will be discussed at your first laboratory meeting. You may gain a possible total of 38 points in lab. You must **attend** the labs in order to get credit (points) for them and all lab work must be turned in to your TA **by you** at the conclusion of each lab. **Work done on your own outside of lab will**

not be accepted (except for the Lunar Take Home Lab). YOU MUST ACCUMULATE AT LEAST 20 POINTS IN LAB IN ORDER TO PASS THIS COURSE REGARDLESS OF YOUR GRADE IN THE LECTURE. LESS THAN 20 IS AN AUTOMATIC FAIL IN Astronomy 1400. Earning beyond 30 points is extra-credit toward your course grade.

- Determining the **lecture grade**: there will be three tests. Of these three test grades, the two highest grades will be kept and the lowest dropped. Each test will be worth a possible total of 20 points. **There will be no make-up for missed tests after one day from the time the test is given.** If possible please let me know early if you are going to miss a test since there is a possibility that you may take the test in advance. The final exam is worth a possible 30 points. The final exam is required and cannot be dropped.

Your course grade will be weighted as follows:

Course Grade= lab points (up to 38 points) + highest test grade points (up to 20 points)
+ next highest test grade points (up to 20 points)
+ final exam (up to 30 points)

Note the total number of points possible is 108 points. Your goal is to earn 100 points, which means you have a perfect score in astronomy 1400.

Tentative Test Dates for the lecture: September 22nd, October 22nd, and November 19th

Final exam date: Wednesday, December 16th 7:30 am (place to be announced in class).

Grading Scale: 90-100= A; 80-89.9=B; 70-79.9=C, 60-69.9=D, Below 60=F

Attendance to the lecture portion of Astronomy 1400:

Attendance will be taken but will not affect your grade in the lecture portion of the class. A spirit of honesty will be maintained in the attendance policy: if the number of people in the class does not equal the number of people checked off on the attendance sheet, no curve will be issued if the class as a whole performs poorly on a test. Note you are responsible for everything that we do in class, so it is to your advantage to attend.

A Class Policy for Astronomy 1400: Earth Creatures Beware...

- Reading newspapers or unrelated material, texting or talking on your cell, visiting with your neighbor, and irrelevant activities are not allowed in this class because it distracts your teacher and the other students. Do these things and you will be asked to leave the class.
- **NO LAPTOPS** or any other electronic devices are allowed in class unless need for such device for reason of a disability is documented by AccessTECH..

Standard Texas Tech Policies that apply to all of your classes:

- Any student who, because of a disabling condition, may require some special arrangements to meet the course requirements should contact the instructor as soon as possible so that necessary accommodations can be made. Proper documentation must be presented from Student Disability Services (AcessTECH). For the complete description of this policy see Texas Tech Operating Policy 34.22 online.
- Any student absent for a religious holiday should make that intention known prior to the absence and shall make up missed exams in accordance with Texas Tech Operating Policy 34.19.
- Students will foster a spirit of academic integrity, and they will not present work as their own that was not honestly performed by them. For a complete description of this policy see Texas Tech Operating Policy 34.12.

Tentative Course Outline for the Lecture: Important Note: This will be your reading assignments unless otherwise changed in class!! This schedule may change!

Date: week of	Topics to be covered*	Important Dates
Aug 24	Course Syllabus, Chapter 1	
Aug 31	Chapter 1	
Sept 7	Chapter 2	
Sept 14	Chapter 3	Labs begin
Sept 21	Chapter S1	September 22 Test 1
Sept 28	Chapter 4	
Oct 5	Chapter 5	
Oct 12	Chapter 6	
Oct 19	Chapter 7	October 22 Test 2
Oct 26	Chapter 8	
Nov 2	Chapter 9	
Nov 9	Chapter 10	
Nov 16	Chapter 11	November 19 Test 3
Nov 23	Chapter 12	Thanksgiving
Nov 30	Chapter 13	
Dec 7	Chapter 13	
Dec 14		December 16 Final

- This is only a partial list relating to the reading assignments in the text book. Added to the topics in the text will be current mission news from NASA, current events in the night sky such as possible meteor showers, eclipses, and interesting oppositions, and current locations of the Moon, planets and other objects of interest. Other topics may be included as the need arises. **Test material will cover the Text assignments listed above as well as the additional material covered in class or assigned as work outside the class room.**

