

Syllabus for
Astronomy 151
A Journey through the Solar System

Fall 2015 Semester

Course title	Astronomy 151: A Journey through the Solar System
Lecture Time	TR 12:40 – 1:55 PM
Lecture Location	Physics Nielsen 415
Professor	Soren P. Sorensen
Office	Science and Engineering Research Facility (SERF), room 607
Office Hours	TR 2:00 – 3:00 PM or by appointment
Email	sorensen@utk.edu
Required Textbook	“Astronomy Today”, by Eric Chaisson and Steve McMillan, 8 th edition (including Mastering Astronomy Access)
Required Clicker	The official UT clicker from Turning Technologies
Required Homework Access	www.MasteringAstronomy.com from Pearson Course Id: SORENSEN76899A151

Text Assignments

Chapter	Title
1	Charting the Heavens: The Foundations of Astronomy
2	The Copernican Revolution: The Birth of Modern Science
3	Radiation: Information from the Cosmos
4	Spectroscopy: The Inner Workings of Atoms
5	Telescopes: The Tools of Astronomy
6	The Solar System: Comparative Planetology and Formation Models
7	Earth: Our Home in Space
8	The Moon and Mercury: Scorched and Battered Worlds
9	Venus: Earth's Sister Planet
10	Mars: A Near Miss for Life?
11	Jupiter: Giant of the Solar System
12	Saturn: Spectacular Rings and Mysterious Moons
13	Uranus and Neptune: The Outer Worlds of the Solar System
14	Solar System Debris: Keys to Our Origin
15	Exoplanets: Planetary Systems Beyond Our Own
16	The Sun: Our Parent Star

Course Description:

Study of Earth's nearest astronomical neighbors, including the sun, planets, asteroids, and comets. Seasons, solar and lunar eclipses, motion of the planets in the night sky, recent planetary space probe discoveries, development of our modern understanding of the origin and evolution of our solar system and its place in the universe, discovery of extrasolar planets in distant solar systems. A minimum of mathematical analysis is required.

Learning objectives:

Students who successfully complete this course will be able to:

1. Understand the fundamental ideas of the scientific method as applied to astronomy.
2. Understand the how information about objects outside the Earth can be obtained.
3. Understand the overall structure of the Solar system as well as our current knowledge about the various constituents: the Sun, the planets, moons, comets, meteors, etc.

Lectures:

The purpose of the lectures will be to elucidate to most important aspects of the material covered in the textbook. This will be done through conventional lecturing as well as extensive usage of clicker interactions. *However, the most important way for you to learn the material contained in this course will be to carefully study the textbook and to try to solve as many homework problems as possible.* PowerPoint slides will in general be posted after each lecture.

Clickers:

Each student is required to have one of the officially approved "clickers" from Turning Technologies (QT Device). They can be bought in the UT Bookstore. You are required to use the Turning Technologies Registration Tool in the Tools folder on Blackboard to register you clicker if this is the first course you are using it in. If you have previously registered your clicker in another course you should not need to register. Students with no registered clicker will receive emails requesting them to register

their clicker. Any technical questions concerning clickers should be address to the OIT helpdesk.

The clickers will be used extensively in each lecture. Typically each correct answer will count 2 points, each incorrect answer will count 1 point, and no answer will of course receive no points. Participation in the clicker activities is therefore important. The final score for clickers will be calculated as a percentage of total points accumulated over the whole semester by the student out of the total number of point that can maximally be obtained. The clicker score will count 20% towards the final score. Students are required to have the clicker available at all lectures starting from the first lecture, but the answers will only count towards the final grade starting at the second lecture.

Homework:

The homework problems for each chapter will be due exactly one week after the chapter has been finished in the lectures. A schedule of due dates is available in Blackboard under Assignments. *Homework submitted after the deadline will receive no credit.* All homework will be done online via the Mastering Astronomy website: www.MasteringAstronomy.com. Each student is required to purchase an student access code card to this web site, sign in at the site and register for the course (Course ID: SORENSEN76899A151) Typically this access code will come with the textbook, but in can also be bought independently. Instructions for how to access the web site and how to register can be found on Blackboard. Failure to register will result in the student receiving no credit for homework.

Homework will be graded according to the grading scheme setup by Mastering Astronomy. The final score for homework will be calculated as a percentage of total points accumulated over the whole semester by the student out of the total number of point that can maximally be obtained. The homework score will count 20% towards the final score.

Exams:

There will be given 3 tests, two during the semester and one final, comprehensive test at the end of the semester. Each test is counting 20% of the final.

In addition there will be a make-up test on the last day of classes for students missing one of the first two tests with a valid reason. In order to be allowed to participate in

the make-up exam students should have communicated with me via email by the end of the day of the test (or earlier) the reasons for missing the test. If the reasons are accepted they will be allowed to participate in the make-up test.

There will be no make-up test for students missing the final test.

All tests are closed-book tests. During tests students are required to bring a pencil or a ball pen. No other material whatsoever will be allowed. During the test students are not allowed to communicate with anybody else, nor are they allowed to try to see the solutions of other students (the exams will be scrambled, so your neighbor will not solve the problems in the same sequence as you). Any violation of these exam rules will result in the student receiving a 0 (zero) score on the particular test and the final grade will be reduced by a letter grade (A- will be B- etc.). A second offense will lead to a grade of F for the course and a report to the Dean of Students.

Exam Schedule		
Test no.	Date & Time	Main content
<i>1</i>	<i>Thursday, October 1, 12:40 - 1:55 PM</i>	<i>Chapters 1-7</i>
<i>2</i>	<i>Thursday, November 19, 12:40 - 1:55 PM</i>	<i>Chapters 8-15</i>
<i>Make-up</i>	<i>Tuesday, December 1, 12:40 - 1:55 PM</i>	<i>Chapters 1-15</i>
<i>Final</i>	<i>Friday, December 4, 12:30 - 2:30 PM</i>	<i>Chapter 16 and Comprehensive (all chapters)</i>

Extra Credit:

The following options for extra credit are available:

1. Night observations (3 points per session, max 6 points)
2. Day observations (3 points per session, max 6 points)
3. Planetarium session (3 points per session, max 3 points)

4. Excursion with Mr. Paul Lewis (3 points, max 3 points)

In total you can only obtain 12 points of extra credit.

Day and Night telescope observation sessions are available from the roof of the Physics building (conducted by Mr. Paul Lewis). For day sessions Mr. Lewis will talk to you and show you features of the solar atmosphere such as sunspots, prominences, plages, etc. You can prepare for these sessions by browsing the chapter in your book on the Sun. For evening sessions Mr. Lewis will discuss the various objects that are in the night sky. You meet on the roof of the Physics building, which is accessed through the door at the very top of the East stairwell (near the elevator doors).

The schedule for the planetarium sessions will be announced by Mr. Lewis and on Blackboard. They will take place in the Planetarium on the first floor of the Nielsen Physics building (Nielsen 101).

If excursions for observations of meteorite showers, lunar eclipses etc. are organized, they will be announced by Mr. Lewis and on Blackboard

Mr. Lewis' office is on the first floor of the Nielsen Physics next to the elevator doors and his phone number/answering machine is at 974-9601. If it is raining, snowing, or overcast then there will be no viewings. If the night observation is canceled, usually a movie is shown. If you are in doubt that your session will be canceled due to weather call or email Mr. Lewis, gplewis@utk.edu, to check. Not showing up without a valid reason can get you barred from future sessions since you will have wasted a time slot that another student could have used. It is also very important that you try to do your observing as early as possible since bad weather usually causes many cancellations of the extra credit sessions. This causes many students to miss their chances for extra credit. Don't let it be you!

A stamped form from Mr. Lewis PLUS a one page (or 2-pages double-spaced) typed essay description of your observing trip should be handed in to me for you to get full credit.

Grading:

You final score will be calculated using the following weights:

Summary of weights for scores in the different components of the course	
<i>First test</i>	<i>20%</i>
<i>Second test</i>	<i>20%</i>
<i>Final exam</i>	<i>20%</i>
<i>Clicker questions</i>	<i>20%</i>
<i>Homework</i>	<i>20%</i>

Example: Lisa has received the following scores: Test 1 (45%), test 2 (65%), Final (83%), Homework (92%), clickers (79%). In addition she has received 6 points of extra credit. Her final score will therefore be: $0.2 \cdot 45\% + 0.2 \cdot 65\% + 0.2 \cdot 83\% + 0.2 \cdot 92\% + 0.2 \cdot 79\% + 6\% = 78.8\%$

The following grading scale will be used:

Grade when final score is	higher or equal to	and lower than
A	90%	
A-	87%	90%
B+	84%	87%
B	81%	84%
B-	78%	81%
C+	75%	78%
C	72%	75%
C-	69%	72%
D+	66%	69%
D	63%	66%

D-	60%	63%
F	0%	60%

In the example above Lisa will receive a grade of “B-“. Depending on the degree of difficulty of the tests I reserve the right to “curve” the above grading scale downward so the threshold for receiving a given grade will require a lower score.

You are welcome to discuss and/or complain about the grading of a given assignment up to a week after it has been returned to you. *After a week the score will not be changed.*

Honor Code, Collaboration and Plagiarism:

As a student in this class you are highly encouraged to interact with other students concerning understanding the material. However, this interaction has to be at a level where it increases your general knowledge of astronomy. It can never cross the level to actual plagiarism. If I judge you have copied other sources (online or other students) or you have aided others in plagiarizing your work, you will receive a 0 (zero) score on the particular assignment or test and your final grade will be reduced by a letter grade (A- will be B- etc.). A second offense will lead to a grade of F for the course and a report to the Dean of Students.

Email:

You are required to have an official UT email address (name@utk.edu or name@tennessee.edu) and read your email on a daily basis, since some of the needed information for this class that cannot be transmitted to you during the lectures or on this web site will be given to you via email. In particular, issues like cancellation of classes or last minute changes in assignments. Please remember, that if you are using an existing non-UT email account (AOL, Yahoo, etc.) it is your own responsibility to re-route your UT email to your preferred account.

Disabled Students:

Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately to discuss your specific needs. Please contact the Office of Disability Services at 865-974-6087 in 2227 Dunford Hall to coordinate reasonable accommodations for students with documented disabilities.

