

ASTRONOMY 310 – The Solar System

This course explores the nature and evolution of the solar system. Topics include the nighttime sky, the history of astronomy, the tools of astronomy, and the origins and characteristics of planets, their satellites, and other components of the solar system. Emphasis is placed on how astronomers gain and refine their knowledge of the universe and interpret the latest results of planetary exploration.

Instructor:	Dr. William Simpson	Office Hours:
	Office: 305A	M, W: 8:00 – 8:50 AM (Rm. 307)
	Telephone: 484-8115	Tu: 12:30 – 1:20 PM (Rm. 305A)
	E-mail: William.Simpson@arc.losrios.edu	Th: 11:00 – 11:50 AM (MESA)
		F: 11:00 – 11:50 AM (Rm. 305A)
Required Text:	The Cosmic Perspective: The Solar System (5 th ed.) by Bennett.	
Pre-requisite:	none	
Website:	http://d2l.losrios.edu	

Course Outline:

The following is a tentative list of the topics covered and estimated dates of exams.

week 1	our location in the universe, the size of things in the universe
week 2	the size of the solar system, the cosmic calendar, Earth's motion
week 3	Labor Day , motion of the Sun, phases of the Moon, eclipses
week 4	celestial time keeping & coordinates, history of astronomy, modern science
week 5	astrology, exam 1 , describing motion
week 6	forces, Newton's laws, conservation laws, gravity, tides, light
week 7	atoms, temperature & heat, spectroscopy
week 8	telescopes, exam 2 , structure of the solar system
week 9	patterns in the solar system, formation of the solar system
week 10	planetary structure & geology, surface processes on terrestrial planets
week 11	atmospheres & weather, greenhouse effect, atmospheres of terrestrial planets
week 12	exam 3 , structures of jovian planets, rings and moons around jovian planets
week 13	minor planets, comets, asteroids, extrasolar planets
week 14	the Sun, Thanksgiving Holiday
week 15	exam 4 , origins of life on Earth, searching for life in the solar system
week 16	life around other stars, interstellar travel & communication
week 17	final exam

Final Exam: Monday, Dec. 14, 12:45pm to 2:45 pm

Course Evaluation:

Your grade in this course is a combination of attendance & participation, homework, midterm exams, and a comprehensive final exam. Homework, reading, handouts, and in-class activities are all intended to help you prepare for the exams.

Attendance & Participation	Class meets 30 times. Showing up on time and participating is worth 1 point per class session.	30 points
Homework	There are 16 homework assignments, worth 10 points each.	160 points
Midterm Exams	There are 4 midterm exams, worth 60 points each.	240 points
Final Exam	The final exam is worth 120 points.	120 points

In general, your letter grade will be assigned using the following scale:

495 – 550 points	A
440 – 494 points	B
385 – 439 points	C
330 – 384 points	D
less than 330 points	F

BUT if you fail to complete all the required work, (turn in homework only once in a while, come to class only once in a while, miss exams, etc...), then your letter grade will be determined by the instructor, based on an evaluation of your performance in class.

Student Learning Outcomes:

Upon successful completion of this course, you will be able to:

- describe and explain the apparent motion of stars and planets in the nighttime sky over the course of a day, a season, and a year.
- apply basic physical laws to explain motion and other physical processes in the solar system.
- evaluate early models of the solar system using the scientific method, and outline the historical events that led to our current model.
- describe the current scientific models of how objects in the solar system formed and how they evolved over time.
- describe the structure of the Sun and its source of energy.
- classify the planets as terrestrial or jovian and enumerate the characteristics of each category.
- identify the larger moons in the solar system and describe what makes them unique.
- identify other elements of the solar system, such as comets and asteroids, and describe their characteristics and what can be learned from them.

ASTR 310 General Information

Keys to Success:

- Attend every class. This course covers a lot of material very quickly. You cannot afford to miss a single day of class.
- Study everyday, not just on the weekends. The class moves very fast. Do not fall behind!
- Do all of the homework. Start working on homework as soon as it is assigned.
- Do not give up if you do not understand a concept or how to answer a particular question. Ask questions, in class or during office hours.
- Study with friends. Form study groups to help each other clarify and organize the material. Do not fall in the trap, however, of just copying somebody else's work.
- Concentrate on understanding concepts rather than memorizing facts.

The Importance of Communication:

In this class, you will be evaluated on your ability to:

1. understand the questions I ask you,
2. determine the appropriate answers to those questions, and
3. communicate your answers in a clear and concise manner.

The last point is very important, but often overlooked. You cannot demonstrate that you understand a question and can answer it correctly if you do not communicate your answer clearly. This applies to in-class discussion, homework, quizzes, labs and exams.

Guidelines for Handing in Homework:

1. **Clearly identify the problem** being answered, and write up the solutions in the order the problems were assigned.
2. Write in neat, legible print. **Messy homework will not be graded.**

General Information:

- This class uses Desire2Learn (<http://d2l.losrios.edu>) as a class bulletin board. Announcements, assignments, handouts, answer sheets and grades will be posted to the D2L website.
- Cell phones and other electronic devices, such as iPods, must be turned off and put away during class. Points will be deducted from your attendance and participation grade if your cell phone rings during class or if you are seen using your cell phone during class.
- Any students requiring accommodation for disabilities need to contact me during the first few weeks of class so there is sufficient time to make the necessary arrangements.
- There are a number of campus resources available to help you succeed in this class.

LRC: The Learning Resource Center is a well-equipped, professionally staffed facility that offers students a personal approach to academic success through independent study, individualized tutoring, and alternate modes of instruction.
(<http://web.arc.losrios.edu/learnres/lrc.html>)

MESA: MESA is a learning community for students pursuing four-year degrees in the fields of mathematics, science, or engineering. MESA helps students achieve in the classroom, progress academically, and develop professionally. Eligible students have experienced educational and financial disadvantage.
(<http://web.arc.losrios.edu/~mesa/>)

DSPS: Disabled Students Programs and Services provides specialized services and academic accommodations to meet the needs of students with disabilities.
(http://www.arc.losrios.edu/Support_Services/DSPS.htm)

Science Skills Center: Work at your own pace on modules designed to help you improve your skills in note taking, paraphrasing, graphics reading, concept mapping, test preparation and test taking for science classes.
(http://www.arc.losrios.edu/~biology/science_skills_center.htm)

- This class is language intensive. You will also be expected to read and understand questions written in technical English, and communicate in English with your fellow classmates and your instructor. If your English language skills are not up to speed then you will not succeed in this class, and you should consider taking the appropriate courses to prepare yourself for this challenging course.

ASTR 310 Attendance & Homework Policy

Daily Attendance:

Attendance and participation are required. Since everyone has an occasional issue arise that causes them to miss class, you are allowed up to three unexcused absences throughout the semester. More than three unexcused absences may result in the lowering of your grade at the end of the semester.

Athletes may miss a regular class to attend an athletic event if they bring a note from their coach and arrange to make up the work ahead of time. However, athletes may not miss an exam to attend an athletic event.

Exam Attendance:

You are responsible to be in class on time and ready to go on exam days. Showing up late or missing an exam will affect your grade significantly. Plan ahead on exam days. Expect bad traffic. Expect to find no parking on campus. Get to campus early and show up to class early to get settled before the exam starts.

If you miss an exam, contact me on the same day to arrange a make-up time. Do not wait until next class to tell me you missed the exam and want to make it up. Make up exams will only be given with prior approval and are not guaranteed, even if you have a valid excuse.

Tardiness:

Class starts on time. You are expected to show up sufficiently early to be in your seat and ready to go by the start of class. If you arrive to class late, please enter quietly to minimize the disruption. If you are chronically late to class, your grade may be lowered at the end of the semester.

Homework:

Homework will be collected at the start of class on the day it is due, and the answers will be discussed in class. Your homework score will be reduced by 1 point for every minute you are late to class, and **NO LATE HOMEWORK** will be accepted after the first 10 minutes of class, so come to class early and turn your homework in on time. Turn your homework in early if you know you will be missing class the day it is due.

Academic Misconduct Policy

Academic Misconduct:

Academic misconduct is an act of deception in which the student claims credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work. It occurs whenever students fraudulently attempt to show possession of a level of knowledge or skill that they do not possess.

Campus Policy:

Academic misconduct is a violation of the ARC "Student Standards of Conduct" and will not be tolerated. Ignorance of these academic and behavioral standards will not absolve any student from being held responsible for them or from any disciplinary action that may result. (Please see the ARC website or the current printed class schedule for the full details of campus policies.)

Academic sanctions and penalties may be applied in cases of academic misconduct depending on the seriousness of the infraction and those grading guidelines specified by the instructor of the class.

You may:

- receive a failing grade on a test, paper or exam.
- have your course grade lowered or possibly fail the course.

In addition to these academic sanctions, disciplinary action may be taken in any case of academic misconduct. Such action will be conducted by referral to the college Disciplinary Officer. You may:

- receive a warning that continued misconduct will result in further disciplinary action.
- be placed on disciplinary probation for a specific period of time.
- be removed from the class.
- be suspended from the college for a specific period of time.
- be expelled from the college permanently.

Instructor Policy:

Collaboration is encouraged in this class, but you must do your own work.

Any student who cheats on homework assignments – by copying solutions from another student, a solutions manual, the internet, or any other source of information – will receive no credit for that assignment and will receive a warning from the instructor. Repeated cheating will result in the lowering of the student's course grade at the end of the semester.

Any student who cheats on an exam – by copying from another student, by illicitly obtaining information regarding test questions prior to taking the exam, or through the use of unauthorized materials during the exam – will receive no credit for that exam and will receive a warning from the instructor. Information regarding the student's misconduct will be passed on to the college Disciplinary Officer for further action. Repeated cheating on exams may result in a failing grade or the removal of the student from the class.