

Course Syllabus
29:61 (ASTR:1771) General Astronomy
Department of Physics and Astronomy
Fall Semester 2013

Steven R. Spangler
705 Van Allen Hall
319-335-1948
steven-spangler@uiowa.edu
<http://phobos.physics.uiowa.edu/~srs/>

General Astronomy is an introductory course in astronomy, intended for science majors. This first semester, 29:61, deals with astronomical fundamentals such as time, the sky, and seasons, as well as the astronomy and astrophysics of the solar system. The second semester, 29:62, deals with stellar, galactic, and extragalactic astronomy. General Astronomy is primarily directed towards students majoring in the physical sciences, such as astronomy, and the mathematical sciences, such as computer science. However, there is no reason why students majoring in other disciplines cannot take this course, assuming that they have had adequate high school mathematics and science instruction.

General Course Information

1. Lectures are from 9:30 to 10:20 AM, Mondays, Wednesdays, and Fridays, in Room 70 of Van Allen Hall.
2. There is a laboratory associated with this course, which all students must attend. Students will be registered for Section 11, which meets 8 - 10 PM, Monday, in room 665 of Van Allen Hall, *or* Section 21 which meets on Tuesday, 8 - 10 PM, in room 665. Activities in the lab consist of naked eye and telescopic observations of the sky, observations with a remote, computer-controlled telescope of the University of Iowa, work with astronomical data sets on the internet, and physics experiments of astrophysical importance. Descriptions of the laboratory projects will be made available on the course website (see # 10 below). Please note that students must receive a passing grade in the laboratory to receive a passing grade for the course. *The lab does not meet the first week of classes, but starts the week of September 2.* Special arrangements to deal with Labor Day holiday will be announced during the first week of classes.
3. The required textbook for the course is *Foundations of Astrophysics* by Barbara Ryden and Bradley M. Peterson.

4. The level of mathematics employed in this class assumes that students are concurrently enrolled in a course in differential calculus (22M:25 (MATH: 1850) or equivalent). However, students who have taken the equivalent of four years of high school mathematics, including pre-calculus, will be able to follow the discussions.
5. Office hours for Professor Spangler are 2:30 to 3:30 PM Monday and Wednesday, and 1:30 to 2:30 PM, Thursday, or by appointment if attendance during these times is not possible. Office hours will be in room 705 VAN.
6. One hour exams will be held in the regular class period on Monday, October 7 and Wednesday, November 13.
7. The final exam will be held during finals week at a date and time to be announced in September. Students should not make plans to leave campus during finals week until they know the times of all their final exams.
8. Homework will be assigned, collected and graded. The purpose of these exercises is to get you to actively think about what is presented in class. I will assign a homework assignment every week. The total score of all homework assignments will count the same as about 1.5 exams (see # 12 below). Students are encouraged to work in groups of 2 to 3 on these. I also expect and want students to come and talk to me about these.
9. Astronomers and others who have studied astronomy at the college level should be familiar with the magnificent spectacle of the night sky and the motion of the heavenly bodies. The University of Iowa is fortunate to be close to the Eastern Iowa Observatory and Learning Center (EIOLC), operated by the Cedar Amateur Astronomers (<http://www.cedar-astronomers.org>). We will have two field trips to the EIOLC, one early in the semester and one late. The two trips will allow students to see the changes that occur in the night sky over a 2 month period. The two lab sections will be joined for these field trips (both sections fit on one bus). The first field trip will be Tuesday, September 24, with a backup date of Thursday, September 26 in case of cloudy weather. The second field trip will Tuesday, December 3, with a backup of Thursday, December 5. We will also continue a *General Astronomy* tradition by having a trip to the EIOLC on the night of the Geminid meteor shower, December 12. If it is clear, the Geminids never fail to delight. This year will be a special bonus because Comet Ison will be visible in the sky, and might be an impressive sight.

10. There is a World Wide Web homepage associated with the course, (URL given above). Go to the link for 29:61. There is also a link to the course web site from the ICON site for this class. The website contains lecture material and homework assignments. It also serves as a gateway to other astronomical links such as the homepages for spacecraft that we will discuss this semester.
11. I would like to hear from anyone who has a disability which may require some modification of seating, testing, or other class requirements so that appropriate arrangements may be made. Please see me after class or during office hours.
12. The grading policy for this course will be as follows. The grade will be based on the percentage of the maximum number of points. The three exams will each contribute equally for a total of 50 % of the total number of points. The sum of all homework assignments will comprise 25 %. The lab score will constitute the remaining 25 % of the total score. The preliminary grading scale will be as follows: $\geq 85\%$ = A; $\geq 75\%$ = B; $\geq 60\%$ = C; and $\geq 50\%$ = D. To pass the course, a student must obtain 50 % or more of the maximum number of points. I employ + and - grades for students near the boundaries between grades.
13. It is recommended and expected that students attend and participate in all classes, with allowance made for reasonable excuses. Lecture material will be partially available on the web, but the intent of this is to assist and aid students who come to hear and participate in the lectures, and save them some clerical work. The on-line lecture notes are not intended as a substitute for class participation.
14. Students are expected to conduct themselves in an honest and honorable manner. Plagiarism, cheating on exams, and attempts to represent the work of others as ones own work are forbidden by the University. Students should consult the following web site for a description of the student code of conduct: <http://clas.uiowa.edu/students/handbook/academic-fraud-honor-code> .
15. If students have complaints about the course or learning atmosphere, they may contact the Chair of the Department of Physics and Astronomy, Professor Mary Hall Reno, room 203 Van Allen Hall, 319-335-1689, mary-hall-reno@uiowa.edu.

Below is listed the set of topics to be discussed in the semester, together with textbook references.

Schedule for Semester

Week of	Topic	Textbook Chapter
August 26 & Sept. 2	coordinate systems, celestial motions, time	Chapter 1
September 9	orbits of objects in Solar System	Chapter 2
September 16	celestial mechanics	Chapter 3
September 23 & 30	the Earth- Moon system	Chapter 4
October 7	electromagnetic radiation and matter	Chapter 5
October 14	telescopes, measurement of light	Chapter 6
October 21	the Sun as a Solar System object	Chapter 7
October 28	overview of the Solar System	Chapter 8
Nov. 4 & Nov. 11	geology of the Earth and Moon	Chapter 9
November 18	the planets	Chapter 10
November 25	Thanksgiving Break, no class	...
December 2	minor objects in Solar System	Chapter 11
December 9	our Solar System and others, exoplanets	Chapter 12