ASTR 1304 INTRODUCTION TO THE SOLAR SYSTEM

Spring 2016 Credit: 3 (3 lecture)

Instructor Information

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Course Description:
An introduction to astronomy emphasizing the physical laws governing the Solar System, the study of the planets and the Sun. This is a Core Curriculum Course.

If you have already completed astronomy course ASTR 1404, then taking ASTR 1304 will NOT count in your degree plan. If you are enrolled in ASTR 1304 and ASTR 1404 concurrently, then only one of these courses can be counted in your degree plan.

Prerequisites:
MATH 1314 or equivalent. Contact the instructor should you have any questions. Astronomy courses ASTR 1303 and ASTR 1304 are not requisites of one another and may be taken in any order.

Course Goals

• To learn about scientific methods and to achieve an understanding of basic concepts of astronomy based on reading assignments, lectures, computer based activities, and web resources.
• Know basic facts in astronomy, and have sufficiently developed an ability to apply the logic of scientific inquiry, to be able to critically read an article on astronomy in the newspapers or magazines.
• Use astronomical concepts and critical thinking skills to describe our modern understanding of the Solar System.

Course Learning Outcomes:

On successful completion of this course, students should be able to

• Describe the daily, monthly, and annual apparent motions of the Sun, the Moon, planets, and stars.
• Describe the astronomical conditions necessary for the cycle of seasons on a planet and for the occurrence of a solar eclipse and a lunar eclipse.
• Analyze how Newton’s laws of motion and the Universal Law of Gravity account for Kepler’s laws.
• Evaluate the conditions under which continuous, emission, and absorption spectra are produced.
• Discuss the advantages a space telescope in the Earth’s orbit has over a ground-based telescope.
• Compare terrestrial planets in terms of their physical properties, interior structure, magnetic field, and the surface environments (such as surface features, temperature, and atmosphere), with a special focus on how we know this information.
• Compare Jovian planets in terms of their physical properties, interior structure, magnetic field, and atmosphere, with a special focus on how we know this information.
• Compare the general physical and chemical properties of comets, asteroids, meteoroids, and meteorites.
Textbook:
Additional instructions for the textbook are provided on the first day of class.

Additional Learning Resources:
List of Astronomy learning resources used in this course and available online for free will be posted on the Eagle Online site for this course.

Textbook Chapters Covered:
Part I: EXPLORING THE SKY.
1. The Scale of the Cosmos.
2. The Sky.
3. The Cycles of the Moon.
4. The Origin of Modern Astronomy.
5. Newton, Einstein, and Gravity. Part II: THE STARS.
1. Atoms and Starlight.
2. The Sun--Our Star. Part IV: THE SOLAR SYSTEM.
1. The Origin of the Solar System.
2. Planet Earth.
4. Venus and Mars.
5. Jupiter and Saturn.
8. Life on Other Worlds.

Internet-based online activities
The online assignments will include visiting NASA web site, Hubble Space Telescope and other astronomy-related web sites and working with real astronomical photos and images. Completing the online activities in this class will give you general idea of how astronomers study the Universe in the 21st century. This is not a mathematics-based course, although some simple arithmetic will be used. Whenever required, the mathematics used will be explained thoroughly.

Testing
There will be four exams and a comprehensive final exam. All exams will be taken online. The final exam will also be taken online during the regular distance education final exam period. The exams are timed. Tests in this course DO NOT include any questions that would require mathematical calculations. Exams will consist of multiple-choice questions only. The lowest grade for one of the four exams (excluding the final exam) will be dropped. Final Exam is comprehensive, multiple-choice format and mandatory.

Grade Calculation

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<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Four Exams</td>
<td>40%</td>
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<tr>
<td>Internet-based online</td>
<td>40%</td>
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<tr>
<td>activities</td>
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<tr>
<td>Final Exam</td>
<td>20%</td>
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**Grading Scale:** 90-100 A; 80-89 B; 70-79 C; 60-69 D; <60 F.

**Internet Course**

To participate in a Distance Education computer-based course, you should possess a basic level of computer skills. Please visit Distance Education web site at [http://distance.hccs.edu](http://distance.hccs.edu) to find out more about taking online classes.

This Internet course will cover the same materials as the traditional in-class course. However, you do not have to attend lectures and we will communicate online. You will have to rely on yourself to complete the readings, study the materials, and work with online activities. This course assumes that you have basic computer skills, or a basic level of computer literacy.

You will be expected to check the web site at least two times a week. Be sure to keep up and check in often so that you do not miss any important information.

**Disabilities:**

Any student with documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the appropriate Disability Support Service Counselor at the beginning of each semester. Faculty is authorized to provide only the accommodations requested by the Disability Support Services Office.

Students who are requesting special testing accommodations must first contact the appropriate (most convenient) DSS office for assistance. Disability Support Services Offices: System: 713.718.5165 Central: 713.718.6164 – also for Deaf and Hard of Hearing Services and Students Outside of the HCC District service areas. Northwest: 713.718.5422 Northeast: 713.718.8420 Southeast: 713.718.7218 Southwest: 713.718.7909

Students who require testing accommodations need to schedule an appointment for testing to ensure that staff will be available for proctoring and to arrange for any adaptive equipment that may be required. Students should contact their distance education instructor's "Instructional Support Specialist" the week prior to each of their exams throughout the semester to confirm that the requested testing accommodations will be met. If you need assistance in determining your instructor's Instructional Support Specialist, please contact your instructor or the Distance Education Counselor.

**Academic Responsibility**

It is the student's responsibility to be aware of HCCS conduct and academic conduct requirements. It is the student's responsibility to withdraw from the course by the appropriate date as listed in the schedule. Please read the Student Handbook. Any student using unauthorized material on a test is subject to administrative withdrawal from the course and/or a grade of zero for the respective test or report.

If any student is caught cheating on a test or plagiarizing papers, the student will receive a grade of zero on that test or assignment. A second infraction will result in a grade of "F" for the semester. Academic dishonesty includes, but is not limited to, unauthorized collusion on tests or papers, copying directly from another person’s work but passing it off as your own, or using unauthorized "cheat sheets, notes, or other forms of information during a test. Review your obligations in the HCC Student Handbook, page 28.

**HCC Course Withdrawal Policy**
The State of Texas imposes penalties on students who drop courses excessively. Students are limited to no more than SIX total course withdrawals throughout their educational career at a Texas public college or university. To help you avoid having to drop/withdraw from any class, contact your DE professor regarding your academic performance. You may also want to contact your DE counselor to learn about helpful HCC resources (e.g. online tutoring, child care, financial aid, job placement, etc.). HCC has instituted an Early Alert process by which your professor will “alert” you and Distance Education (DE) counselors that you might fail a class because of excessive absences and/or poor academic performance. **In order to withdraw from your DE class, you MUST first contact your DE professor, PRIOR to the withdrawal deadline to receive a “W” on your transcript.** After the withdrawal deadline has passed, you will receive the grade that you would have earned. Zeros averaged in for required coursework not submitted will lower your semester average significantly, most likely resulting in a failing grade of an “F”. It is the responsibility of the student to withdraw from the class; however, your professor reserves the right to withdraw you without your request due to excessive absences. If you do not feel comfortable contacting your professor to withdraw, you may contact a DE counselor. However, please do **not** contact both a DE counselor and your DE professor to request a withdrawal; either one is sufficient. Classes of other duration (mini-term, flex-entry, 8-weeks, etc.) may have different final withdrawal deadlines. Please contact the HCC Registrar’s Office at 713.718.8500 to determine mini-term class withdrawal deadlines.

**International Students**

International Students are restricted to ONLY ONE online/distance education class per semester. Please contact the International Student Office at 713-718-8520 if you have additional questions about your visa status.