

Houston Community College

ASTR 1403: Introduction to Stellar Astronomy

A.1) Credit: 4 semester hours:3 Credits for Lecture ,1 Credit for Laboratory

Usually students enrolled in a Lecture and Lab course attend 3 lecture hours per week AND 3 laboratory hours per week.

A.2) General Information: An introduction to the present cosmological theories about the structure and evolution of the universe along with comparison with previous models since antiquity. A study of the celestial sphere, the constellations and the motions in the sky. A study of gravity, light, radiation, optics, telescopes and spacecraft. A survey of the stars, clusters, galaxies, super clusters, their properties, structure and evolution. Laboratory includes an introduction to observational techniques using telescopes, in-class projects/exercises on spectroscopy, stellar positions, solar heating, planetary motions, solar and astrophotography, star clusters, galaxies and cosmology. Core curriculum course. The prerequisite for this course is the successful completion of pre-algebra; MATH 0312. Contact the instructor should you have any questions. The astronomy courses are not requisites of one another and may be taken in any order.

A.3) Student Academic Outcomes: The successful completion of this course will enable the student to:

A.3.1) Understand the modern theories about the origins, structure and evolution of our Sun, other stars, galaxies and the universe as a whole.

A.3.2) Examine the scientific method as it applies to the study of the universe, and in varying degrees, to the student's own particular field of work or study.

A.3.3) Have the ability to obtain, understand and draw conclusions from simple scientific evidence.

A.4) CRN:

Term:

A.5) Location:

Meeting Times:

In this course students will attend 4 hours per week in the classroom which will include lectures and some lab activities, HOWEVER; students will be responsible to attend out of the classroom activities such as night time observations, as scheduled, museums, field trips, astronomy societies/club meetings, and other pertinent activities which may total up to two hours per week.

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A.6) Instructor: _____

Tel: _____

Email: astro.info@sophia.hccs.edu

A.7) Textbook: Extended version: Foundations of Astronomy

Edition: Ninth

Author: Michael A. Seeds

Publisher: Thomson/Brooks/Cole

ISBN: 0-495-01590-3

Stars and Galaxies

Edition: Ninth

Author: Michael A. Seeds

Publisher: Thomson/Brooks/Cole

ISBN: 0-495-01579-2

Publisher: Thomson/Brooks/Cole

ISBN: 0-495-01575-X

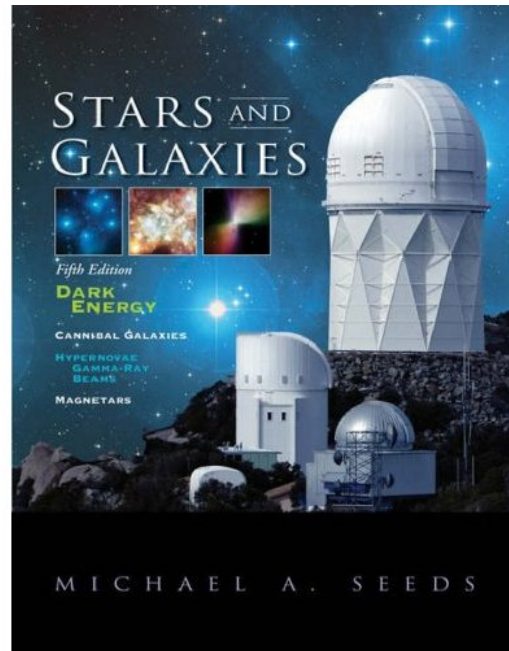
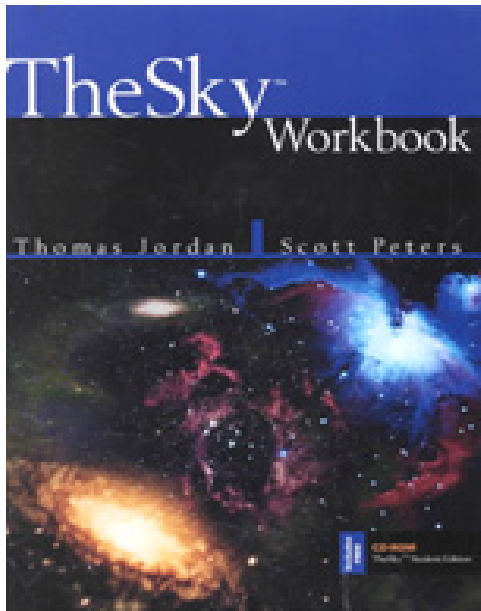
Laboratory: TheSky Workbook

Edition: 1st

Author: Thomas Jordan, Scott Peters

Publisher: Thomson/Brooks/Cole

ISBN: 0-534-39072-2



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B) Requirements

B.1) TASP:

All students are expected to have taken the TASP exam before registration. Contact any counselor for information. Based upon HCCS policy, students can be administratively withdrawn if they have not taken the TASP exam.

B.2) ADA Disabilities:

If you have special needs and/or disabilities, please contact your instructor and/or the ADA counselor. If you have a disability, you must contact the instructor or any ADA counselor during the first week of class to obtain necessary documentation and testing arrangements.

B.3) Etiquette:

When in class cellular phones should be switched off or turned to silent mode. If a student must answer a call during class they should do so outside of the class room and once a student has stepped out then they can not re-enter. If the professor has not arrived by fifteen minutes past the beginning of class the class is dismissed. Students will not be let into the classroom who arrive later than fifteen minutes or more from the start of class time. During the class period students should be speaking of astronomy and only astronomy.

Students may find themselves in need of a recommendation for transferring to another college, or applying for a job or scholarship and instructors look for characteristics like the following in making a recommendation of a successful student.

- **Academic Integrity** – honestly pursuing your own academic goals
- **Study Skills** – Note taking and completing the assignments given
- **Being Attentive** – Paying attention during class time, listening to lectures and being prepared
- **Initiative** – Attending class, finishing the assignments on time, making an effort to be involved in the class and with class activities....

However; there are behaviors that are unacceptable and disruptive to the class, the following are examples of what not to do:

- **Electronic Devices** – **No cell phones**, calls on cell phones, text and/or picture messaging on cell phones and no using a computer for anything other than what is assigned class work.
- **Missing classes, extending breaks, tardiness, and leaving early** on a frequent basis shows a lack of respect for your instructor, your fellow class mates and yourself.
- **No talking in class** (unless on topic and/or permitted by your instructor), passing notes, sleeping or otherwise causing the disruption of the class
- **No Cheating** – cheating of any kind including but not limited to, plagiarism, copying or aiding another student dishonestly. **These behaviors will not be tolerated.**

Sexual Harassment

It is a violation of HCCS policy for an employee, agent, or student of the college to engage in sexual harassment as defined in the EEOC guidelines (EEO/AA Compliance Handbook 47).

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B.4) Academic Responsibility:

It is the student's responsibility to be aware of HCCS attendance, conduct, and the 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 students using unauthorized material on a test or lab report, is subject to administrative withdrawal from the course and/or will receive a grade of zero for the respective test or report. Other disciplinary action may be taken as appropriate. Should the student have any grievance or problem dealing with any aspect of the course, please talk with your instructor, **outside of class**.

POLICY ON INTELLECTUAL DISHONESTY: Student Copy

Except for the group or team assignments, papers, case analyses, projects, etc., are individual assignments that are part of the learning experience and must be completed personally by the student. Copying another student's assignment, including computer programs and files, or citing material without credit to the author is plagiarism and cheating on exams—including getting help on take-home exams—is grounds for failing the course and/or expulsion from the university.

Student Name and Signature

Date

Professor Name and Signature

Date

Student Information:

Grade Code:

E-mail:

Phones

Mailing Address:

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POLICY ON INTELLECTUAL DISHONESTY: Instructor Copy

Except for the group or team assignments, papers, case analyses, projects, etc., are individual assignments that are part of the learning experience and must be completed personally by the student. Copying another student's assignment, including computer programs and files, or citing material without credit to the author is plagiarism and cheating on exams—including getting help on take-home exams—is grounds for failing the course and/or expulsion from the university.

Student Name and Signature

Date

Professor Name and Signature

Date

Student Information:

Grade Code:

E-mail:

Phones

Mailing Address:

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C) Content and Schedule:

C.1) Tentative Schedule

Week	Class period	Date	Chapter	Topic
Week	Class period	Date	Chapter	Topic
1	1		1	The Scale of The Cosmos
	2			
2	3		4	The Origin of Modern Astronomy
	4			
3	5		5	Newton, Einstein and Gravity
	6			
4	7		6	Light and Telescopes
	8			
5	9		7	Starlight and Atoms
	10			
6	11		8	The Sun
	12			
7	13		9	The Family of Stars
	14			
8	15		10	The Interstellar Medium
	16			
9	17		11	The Formation of Stars
	18			
10	19		12	Stellar Evolution
	20			
11	21		13	The Death of Stars
	22			
12	23		14	Neutron Stars and Black Holes
	24			
13	25		15	The Milky Way Galaxy
	26			
14	27		16	Galaxies
	28			
15	29		17	Galaxies With Active Nuclei
	30			
16	31		18	Cosmology In the 21 st Century
	32			

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D)Course Format:

Grading:	Lecture:	
	Exams	40%
	(Drop the lowest of four, average three)	
	Homework:	15%
	Lecture Quizzes:	15%
	Video Reviews	10%
	Lab:	
	Explorations:	10%
	Observations:	10%
	TOTAL	100%
No make-up exams	No late assignments	

The last 4 digits of you SS# will be your secret code to published grades unless you let the instructor know of another code. If you do not want to have your grade published, please talk to the instructor after class.

Notice: If you feel you are going to be unable to continue with the course or you must stop attending class periods and you wish to drop the course you must do so by the posted **drop date**, use the following link to access the student calendar;
http://www.hccs.edu/system/insdev/spin/student/calendars/calendar_links.htm
Failure to do so by this date will result in an **F** in the course.

Special Requirements for “A” and “B” grades (what the student must know or do over and above the minimal content mastery to demonstrate excellent or high achievement): An “A” grade requires an average score of 90 or above for all means of assessment. A “B” grade requires an average score of 80-89 for all means of assessment.

D.2) Detailed Descriptions of Required Course Activities:

D.2.1: (40%) In class Exams: All students will prepare by studying the chapters in the text, by doing the homework assignments and by researching in the library, on the Internet, or any other credible source of information. There will be four in class exams and one final exam. All exams will be closed book. You will be required to buy about 20 scantron sheets from your local bookstore (Form No. 882-E) for all exams and homework assignments during the course. **Make up exams are not administered.** The lowest of the four in-class exams will be dropped. If you do not appear for one exam, for any reason, your grade for that exam will be a zero and that is the exam grade that will be dropped. The final Exam is mandatory and not optional. Exams are due immediately following the examination period.

D.2.2: (20%) Lecture Quizzes: All students will be required to attend and listen to the lectures during the class periods and to answer the accompanying quizzes. These quizzes will be administered directly following the lectures. The Lecture Quizzes are due immediately following the completion of the corresponding lecture. With a credit deadline at the beginning of the next lecture.

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D.2.3: (20%) Web Based Homework:

D.2.4: (10%) Video Reviews: The student will be expected to watch the videos shown during the semester and complete an accompanying video review sheet that will be due immediately following the completion of the said video. The video reviews are due immediately following the presentation of the video.

D.2.5: (10%) Explorations: The students will learn to navigate the night sky by doing exercises with the help of selected computer software and a desktop planetarium program. The Internet will also be used to retrieve related astronomical news and information. Assignments that accompany the explorations are to be submitted by the end of the class period or by the date specified by the instructor.

D.2.6: (20%) Observations: There will be opportunities for night and day time observations with a Celestron GPS 11 inch reflecting telescope. Visiting the Houston Museum of Natural Sciences, the store “Land, Sea and Sky”, Space Center Houston, astronomical societies/club meetings, lectures, and other activities will be described in detail later. Summaries and other materials required to be submitted will be due the first class period following the field trip. Observation assignments should be turned in by the date indicated by your instructor.

D.2.6.1) Telescope Observations:

- Solar Observations
- Night time observations

D.2.6.2) Field Trips:

The George Observatory: At Brazos Bend State Park

The observatory is open to the public every Saturday night. You can go out there on any Saturday night. Turn in your park pass receipt taped to a sheet of paper and a **one-page summary** of what you did and learned to your instructor for credit.

1. This observatory has magnitude 5 skies except to the north and northwest due to light pollution from Houston and other cities.
2. The Trip is about an hour from downtown to the park.
3. From Downtown head south on US 59. Drive south through Houston. After passing Sugarland you will drive over the Brazos River. The first exit past the river is The Grand Parkway exit (your exit). You will also see a brown sign announcing the same exit for Brazos Bend State Park. Take the exit and turn left crossing over the freeway and head south on 2759. There's a Burger King/convenience store at this location. About a mile down the road you will intersect with 762. Continue through the intersection, still heading south, do not turn. The road name changes to 762. Follow this road for about 15 miles through

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many ninety degree turns (take a left turn at the light) until you get to the gate of the park which will be on your left.

4. An alternative route is to take US 288 south of Houston and follow the brown signs to the state park (use a map).
5. The charge to get inside the park is \$4 per person or you can use a season pass if you have one. Ask the park ranger how to get to the observatory.
6. There will be many amateur telescopes on the deck of the observatory. The main 36-inch telescope costs \$3 per person - buy your ticket early, they usually sell out.
8. There is an astronomy gift shop and there are soda vending machines.
7. Bring: insect repellent
8. What to do?
There will be astronomy presentations, big scopes and little scopes, and many experienced amateur astronomers with their sophisticated equipment to talk to.
9. The George Observatory is operated by the Fort Bend Astronomy Club & The Houston Museum of Natural Science.

Land, Sea & Sky at 1925A Richmond Ave, Houston, TX, 77098
713-529-3551

Houston Museum of Natural Science, Herman Park
713-639-4629

Space Center Houston (2 points), Clearlake, TX
281-244-2100

Burke Baker Planetarium & Imax Theater (several shows, one point per show), at the museum 713-639-4629

D.2.6.3: Club Meetings

Meetings of the North Houston Astronomy Club:

Meetings are held on the 4th Friday of every month. They are held in the Teaching Theatre located in the Science Building of Kingwood College @ 7:30 p.m. (Novice session @ 6:45 is a 3rd point): <http://www.astronomyclub.org/>

Meetings of the Houston Astronomical Society:

Meetings are held on the 1st Friday of every month. They are held in room #117 of the Science and Research Building I of the University of Houston, central campus @ 8:00 p.m. (Novice sessions across the hall @ 7:00 p.m. and is a 3rd point); <http://spacibm.rice.edu/~has/>

Meetings of the Fort Bend Astronomy Club:

The Fort Bend Astronomy Club meetings are held at the HCC southwest campus in Stafford, TX. Meetings begin at 7:00 p.m. in the #7 lecture hall and in rooms 102/104

and usually feature both novice and advanced programs. <http://www.fbac.org/>

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Johnson Space Center Astronomical Society:

JSCAS meets on the **second** Friday of every month at 7:30 PM.
the meetings are held in the auditorium at the Center for Advanced Space Studies
(formerly LPI) located at 3600 Bay Area Blvd. (at Middlebrook Drive).
<http://www.ghg.net/cbr/jscas/>