



HOUSTON COMMUNITY COLLEGE

COURSE OUTLINE FOR ASTR 1303, Stars and Galaxies, CRN# 10148 Fall 2018

Discipline/Program	Physics/Astronomy
Course Level	First Year (Freshman)
Course Title	Stars and Galaxies
Course Rubric and Number	ASTR 1303
Semester with Course Reference Number (CRN)	Fall 2018 CRN# 10148
Course Location/Times	Online Course
Course Semester Credit Hours (SCH) (lecture, lab)	3 (3 lecture,0 lab)
Total Course Contact Hours	96
Course Length (number of weeks)	16
Type of Instruction	Online
Instructor contact information (phone number and email address)	Dr. Christina del Cerro Office Phone: 713-718-7773 In case of an emergency only, use: christina.delcerro@hccs.edu, otherwise use the Canvas e-mail system
Office Location and Hours	TBA
Course Description: ACGM or WECM	Study of stars, galaxies, and the universe outside our solar system. May or may not include a laboratory. (Cross-listed as PHYS 1403, 1303, & 1103)
Course Description: HCC Catalog Description	An introduction to the present cosmological theories about the structure and evolution of the universe. A comparison with previous models since antiquity. A study of the celestial sphere and the constellations, the motions in the sky. A study of gravity, light, radiation, optics, telescopes and spacecraft. A survey of the stars, clusters, galaxies, superclusters, 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.
Course Prerequisite(s)	Must be placed into GUST 0341 (or higher) in reading and placed into Math 0312 (or take Math 0308 as a co-requisite). Credit: 4 (3 lecture, 3 lab)

<p>Academic Discipline Program Learning Outcomes</p>	<p>1. Program SLO #1:</p> <p>Demonstrate understanding of the fundamental concepts of Astronomy; Demonstrate understanding of the fundamental principles underlying astronomy including concepts and methods of inquiry at an appropriate level. Topics include, but are not limited to, the Scientific Method, The workings of the Solar System, Properties (evolution) of Stars and Galaxies.</p> <p>2. Program SLO #2:</p> <p>Solve conceptual and numerical problems in Astronomy; Solve conceptual and numerical problems through the recognition of the type of problem at hand, analysis of relevant information, proper application of concepts and techniques applying mathematical tools at an appropriate level. Students should demonstrate improvement in problem solving skills as they progress through courses in the program.</p> <p>3. Program SLO #3 Demonstrate appropriate laboratory skills; Demonstrate appropriate laboratory skills including proper use of basic measuring devices, interpretation of laboratory directions and analysis of data obtained using appropriate tools, such as graphical/tabular methods using computers.</p> <p>4. Program SLO #4</p> <p>Develop interpersonal communication skills; Demonstrate an ability to work independently and/or as part of a team through participation in laboratory activities as well as assigned projects.</p>
<p>Course Student Learning Outcomes (SLO)</p>	<p>Upon successful completion of this course the student should be able to:</p> <ol style="list-style-type: none"> 1. Develop an appreciation for the nature of science and the scientific method. 2. Demonstrate an understanding of the modern theories about the origins, structure and evolution of the solar system. 3. Understand properties of planets, and their moons. 4. Apply the scientific method to the study of the universe, and in varying degrees, to the student's own interest and particular field of work or study.

<p>Learning Objectives (Numbering system linked to SLO's)</p>	<p>1.1 Compare and contrast the size of the planet Earth to the size of the solar system and the Milky Way Galaxy.</p> <p>1.2 Distinguish among astronomical unit, light year and parsec.</p> <p>1.3 Name a few of the constellations, and relate brightness of stars to their size and distance.</p> <p>1.4 Describe the cycles of the moon and state the conditions for solar and lunar eclipses.</p> <p>2.1 Explain the difference between heliocentric and geocentric models of the universe.</p> <p>3.1 Demonstrate knowledge of the basic laws of physics that pertain to the study of stars and galaxies.</p> <p>3.2 Classify stars according to the luminosity temperature (Hertzprung-Russell) diagram.</p> <p>3.3 Write a summary of the different stages in star development, including its birth, life, and death.</p> <p>3.4 Understand properties of galaxies and how these properties are determined</p> <p>4.1 Demonstrate knowledge of the nature of expansion of the universe and what can be learnt from its expansion about the past, the present and the future of the universe.</p>
<p>SCANS and/or Core Curriculum Competencies</p>	<p>Reading, Speaking/Listening, Critical Thinking, Computer/Information Literacy</p>

Course Calendar Schedule may be subject to change as the course progresses See that Lab Schedules . Important Dates	WEEK	CHAPTER	QUIZ/TEST	
	1	1 – Charting the Heavens	2– The Copernican Revolution	Part I – Astronomy and the Universe
				Quiz 1 on Chapters 1 and 2 (Posted 8/27 – Due 9/2)
	2	3 – Radiation		Quiz 2 on Chapter 3 (Posted 9/3 – Due 9/9)
	3	4 – Spectroscopy		Quiz 3 on Chapter 4 (Posted 9/10– Due 9/16)
	4	5 – Telescopes		Part III – Charting the Heavens – The Foundations of Astronomy Quiz 4 on Chapter 5 (Posted 9/17– Due 9/23)
	5	16 – The Sun		Quiz 5 on Chapter 16 (Posted 9/24– Due 9/30) TEST I on Chapters 1 to 5. 9/29 – 10/1, Online
	6	17 – The Stars		Quiz 6 on Chapter 17 (Posted 10/1 – Due 10/7)
	7	18 – The Interstellar Medium		Quiz 7 on Chapter 18 (Posted 10/8 – Due 10/14)
	8	19 – Star Formation		Quiz 8 on Chapter 19 (Posted 10/15 – Due 10/21)
	9	20 – Stellar Evolution		Quiz 9 on Chapter 20 (Posted 10/22 – Due 10/28)
10	21 –Stellar Explosions		Quiz 10 on Chapter 21 (Posted 10/29 – Due 11/4) TEST II on Chapters 16 to 20 11/3 – 11/5, Online	
11	22 –Neutron Stars and Black Holes		Quiz 11 on Chapter 22 (Posted 11/5 – Due 11/11)	

	12	23 – The Milky Way Galaxy Holes	Quiz 12 on Chapter 23 (Posted 11/12 – Due 11/18)
	13	24 – Galaxies	Part IV – Galaxies and Cosmology No other assignment due to Thanksgiving Holiday
	14	25– Galaxies and Dark Matter	Quiz 13 on Chapters 24 and 25 (Posted 11/19– Due 12/2) TEST III on Chapters 21 to 24 12/1 – 12/3, Online.
	15	26- Cosmology	Quiz 14 on Chapter 26 (Posted 12/3– Due 12/9)
	16		Final Examination (Comprehensive) 12/10-12/11 Online

Important Dates

AUGUST 2018

Date	Event
Aug 24	Fall 2018 Reg 16 WK: Last Day for 100% refund
Aug 25	Fall 2018 Reg 16 WK: Saturday Registration
Aug 27	Fall 2018 Reg 16 WK: Classes Begin

SEPTEMBER 2018

Date	Event
Sep 10	Fall 2018 Reg 16 WK: Official Day of Record
Sep 12	Fall 2018 Reg 16 WK: Last Day for 70% refund
Sep 18	Fall 2018 Reg 16 WK: Last Day for 25% refund

NOVEMBER 2018

Date	Event
Nov 2	Fall 2018 Reg 16 WK: Last day to withdraw

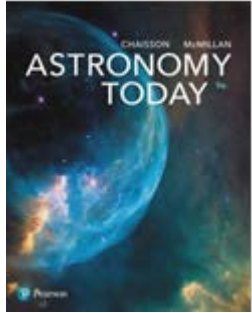
DECEMBER 2018

Date	Event
Dec 16	Fall 2018 Reg 16 WK: Semester Ends

Instructional Methods	Use of Canvas LMS
Student Assignments	Homework sets will be posted on Eagle Online and will be available online for, a week's time. Once the due date for these assignments has expired, they will not be reopened.
Student Assessment(s)	<p>The overall score is based on the following:</p> <ul style="list-style-type: none"> • Three regular exams 60% • Chapter Homework 20% • Final Exam 20% <p>Overall Score = 0.60 (Average of three regular exams) + 0.20(Homework Grade) + 0.20(Final Exam)</p>

Instructor's Requirements	<p><u>Exams and Make-up Policy</u></p> <p>Examinations will consist of three non-cumulative regular exams (50%) plus a comprehensive final (20%). Make-up exams will not be given, so make every effort to take the exams on their scheduled dates. In the event that you must miss a regular exam, I will count the grade made on the final exam as the grade for the missed exam (for one missed exam only), and calculate the final course grade accordingly. If you do not miss any of the regular exams, I will replace your lowest exam score with your final exam score if the final exam grade is higher. This is intended to provide you a "second chance" if you do not do well on a particular exam. Remember that the final exam will be comprehensive (meaning that it will cover all of the material from the whole semester, not just the last part). Please note that all students are required to take the final (no student can be exempted).</p> <p><u>Internet Usage</u></p> <p>You will be required to download the Respondus Lockdown Browser to take all of your tests and the Final Examination. When accessing those assignments for the first time, Canvas will prompt to download the software. Just follow the instructions.</p> <p>Answers to any assignment copied/pasted from the textbook, other assignments or Internet sources will lead to a zero grade for the whole assignment. A repeated breach of this regulation will result in an F grade for the whole course.</p>
Program/Discipline Requirements	<p>At the program level, the Physics and Astronomy Discipline strives to accomplish the Program Learning Outcomes, Student Learning Outcomes, and Learning Objectives as described above. Our aim is to ensure that students receive a challenging and rewarding experience in our Astronomy classes which will prepare them well for future Astronomy and related science courses that they may take in the future.</p>

HCC Grading Scale	<p>A = 100 – 90:.....4 points per semester hour B = 89 – 80:3 points per semester hour C = 79 – 70:2 points per semester hour D = 69 – 60:1 point per semester hour 59 and below = F..... 0 points per semester hour FX = Fail to withdraw from the course... 0 points per semester hour IP (In Progress) 0 points per semester hour W(Withdrawn).....0 points per semester hour I(Incomplete).....0 points per semester hour AUD(Audit).....0points per semester hour</p> <p>IP (In Progress) is given only in certain developmental courses. The student must re-enroll to receive credit. COM (Completed) is given in non-credit and continuing education courses. To compute grade point average (GPA), divide the total grade points by the total number of semester hours attempted. The grades “IP,” “COM” and “I” do not affect GPA.</p>
Instructor Grading Criteria	See the above descriptions of the lab, exams, homework, and final examination. The course grade is based on these four criteria according to the Assessment section above.

Instructional Materials	<p><u>Textbook</u></p> <p>“Astronomy Today” , 9th edition, Chaisson, Eric. McMillan, S. Published by Pearson Copyright © 2018 Published Date: Feb 8, 2017 Contents: vol. 1. The Solar System, vol. 2 Stars and galaxies. ISBN 13: 9780134450278 ISBN 10: 0134450272</p>	
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<p> HCC Policy Statement: ADA Academic Honesty Electronic Devices Policy Student Attendance Students Repeats Withdrawal deadline Students' Discipline HCC Sexual Harassment Policy and Title IX HCC Policy Statement Basic Needs HCC Campus Carry Statement </p>	<p>Access Student Services Policies on their Web site: http://hccs.edu/student-rights</p> <p><u>Attendance Policy</u></p> <p>The HCCS attendance policy is stated as follows: “Students are expected to attend classes regularly. Students are responsible for materials covered during their absences, and it is the student's responsibility to consult with instructors for make-up assignments. Class attendance is checked daily by instructors. <i>Although it is the responsibility of the student to drop a course for on-attendance, the instructor has full authority to drop a student for excessive absences. A student may be dropped from a course for excessive absences after the student has accumulated absences in excess of 12.5% of the hours of instruction (including lecture and laboratory time).</i>”</p> <p>Note that 12.5% is approximately <u>2</u> classes or labs for a 4 semester hour course, such as this one, which meets once per week in a normal 16 week semester. Therefore, please be aware of the attendance policy.</p> <p>Online students are required to log-in at least twice a week to remain enrolled in the class.</p> <p><u>Policy Regarding Multiple Repeats of a Course</u></p> <p>“NOTICE: Students who repeat a course three or more times may soon face significant tuition/fee increases at HCC and other Texas public colleges and universities. If a student is considering course withdrawal because he/she is not earning passing grades, conferring with the instructor/counselor as early as possible about study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available is advised.”</p> <p><u>Last Day for Administrative and Student Withdrawals</u></p> <p>For 16-weeks Fall 2018 classes, this date is Nov 2. Students who are contemplating withdrawing from the class are urged to see the instructor first! Students may be doing better than they think.</p>
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Policy Regarding Withdrawals

Students desiring to withdraw from a class must do so by the above withdrawal date by filling out a **withdrawal form** at the registrar's office. *After this date, instructors can no longer enter a grade of "W" for the course for any reason.*

ADA Policy

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/district/students/disability-services/>

Academic Dishonesty

Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty. "Scholastic dishonesty" includes, but is not limited to, cheating on a test, plagiarism, and collusion.

"Cheating" on a test includes:

- Copying from another student's test paper;
- Using materials during a test that are not authorized by the person giving the test;
- Collaborating with another student during a test without authority;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of an administered test;
- Bribing another person to obtain a test that is to be administered.

"Plagiarism" means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit.

"Collusion" means the unauthorized collaboration with another person in preparing written work offered for credit.

Students Discipline

Any student failing to abide by appropriate standards of conduct during scheduled College activities may be asked to leave that day's class or activity by the instructor or another College official. (The student has the right to return to the next class/activity.) If a student refuses a request to voluntarily leave the classroom, security may be summoned to remove the student so that the scheduled activity may resume without further disruption. In cases of serious problems, the faculty member will document and report the incident to his/her supervisor. Further disciplinary action may be pursued.

	<p><u>HCC Sexual Harassment Policy and Title IX</u></p> <p>Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual’s fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex- including pregnancy and parental status-in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:</p> <p>David Cross Director EEO/Compliance Office of Institutional Equity & Diversity 3100 Main (713) 718-8271</p> <p>Houston, TX 77266-7517 or Houston, TX 77266-7517 or Institutional.Equity@hccs.edu</p> <p><u>HCC Statement Policy: Basic Needs</u></p> <p>Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. Furthermore, please notify the professor if you are uncomfortable in doing so. This will enable us to provide any resources that HCC may possess.</p> <p><u>HCC Campus Carry Statement</u></p> <p>At HCC the safety of our students, staff, and faculty is our first priority. As of August 1, 2017, Houston Community College is subject to the Campus Carry Law (SB11 2015). For more information, visit the HCC Campus Carry web page at http://www.hccs.edu/district/departments/police/campus-carry/</p>
<p>Distance Education and/or Continuing Education Policies</p>	<p>Access DE Policies on their Web site: http://de.hccs.edu/Distance_Ed/DE_Home/faculty_resources/PDFs/DE_Syllabus.pdf</p> <p>Access CE Policies on their Web site: http://hccs.edu/CE-student-guidelines</p>
<p>Test Bank</p>	<p>N/A</p>
<p>Scoring Rubrics</p>	<p>Tests and the final will consist of multiple-choice and essay type questions. For regular tests, grading weighing will be as follows: Multiple Choice questions 75 - 85% and Essay section..... 15 -25% of the final test grade.</p>
<p>Sample Assignments</p>	<p>N/A</p>
<p>Sample Instructional Methods/Activities</p>	<p>PowerPoint presentations, laboratory handouts and other instructional material will be posted on Eagle online.</p>

EGLS₃-- Evaluation for Greater Learning Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term.