



HOUSTON COMMUNITY COLLEGE – Southeast/Felix Fraga

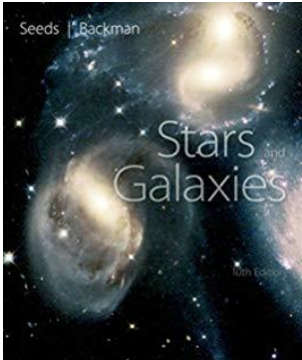
**COURSE OUTLINE FOR ASTR 1303 – Stars and Galaxies
Fall 2018**

Class Number 14716

Discipline/Program	Astronomy/Physics
Course Level	First Year (Freshman)
Course Title	Introduction to Stars and Galaxies
Course Rubric and Number	ASTR 1303
Semester with Course Reference Number (CRN)	Fall 2018 Class Number 14716
Course Location/Times	Southeast-Felix Fraga campus, Mondays & Wednesdays, Southeast-STEM Building, Room 203, 8:30-9:50 PM, 8/27/18 – 12/16/18
Course Semester Credit Hours (SCH) (lecture)	3 (Lecture)
Total Course Contact Hours	96
Course Length (number of weeks)	16
Type of Instruction	In Person
Instructor contact information (phone number and email address)	Professor Hannah Lange Office Phone: 713-718-7773 E-mail: hannah.lange@hccs.edu
Office Location and Hours	Southeast-Felix Fraga campus, Faculty Office 130C or Southeast-STEM Building, Room 203, 7:30 PM –8:30 PM Mondays and Wednesdays, or by appointment.
Course Description: ACGM or WECM	An introduction to astronomy, emphasizing the study of stars and galaxies. May or may not include a laboratory. (Cross-listed as PHYS 1403, 1303, & 1103) Approval Number 40.0201.52 03 CIP Area Physical Sciences maximum SCH per student 3 maximum SCH per course 3 maximum contact hours per course 96
Course Description: HCC Catalog Description	An introduction to astronomy, emphasizing the study of stars and galaxies. This is a Core Curriculum Course.
Course Prerequisite(s)	Math 1314 or equivalent. Contact the instructor should you have any questions. The astronomy courses ASTR 1303 and ASTR 1304 are not requisites of one another and may be taken in any order.
Academic Discipline Program Learning Outcomes	1. Program SLO #1: Demonstrate understanding of the fundamental concepts of physics and astronomy. Demonstrate understanding of the fundamental principles underlying physics and astronomy including concepts and methods of inquiry at an appropriate level. Topics include, but are not limited to, the Scientific Method, Newtonian Mechanics, Electricity and Magnetism, Thermodynamics, Mechanical and Electromagnetic Waves, Solar Astronomy and Stars and Galaxies. 2. Program SLO #2: Solve conceptual and numerical problems in Physics and Astronomy.

	<p>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.</p> <p>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: Develop interpersonal communication skills.</p> <p>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 (PSLO)</p>	<p>Upon successful completion of this course the student will 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 stars, galaxies and the universe. 3. Understand properties of stars and galaxies. 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)</p>	<p>Upon completion of this course the student should be able to:</p> <ol style="list-style-type: none"> 1.1 Describe the daily, monthly, and annual apparent motions of the Sun, the Moon, planets, and stars. 1.2 Evaluate the conditions under which continuous, emission, and absorption spectra are produced. 1.3 Discuss the advantages of a space telescope in the Earth's orbit has over a ground-based telescope. 1.4 Explain the Sun's structure and the source of the Sun's energy. 2.1 Describe the relationship of a main-sequence star's luminosity, surface temperature, radius, and mass, with a special focus on how these properties determine a star's position in the HR diagram. 3.1 Compare the stellar evolution paths for low- and high-mass stars in the HR diagram. 3.2 Compare the structure and physical properties of spiral, lenticular, elliptical, and irregular galaxies, with a special focus on how we know this information. 4.1 Describe the currently accepted cosmological models of the universe, with a special focus on how the

	discovery of dark matter and dark energy affect our understanding of the evolution of the universe. 4.2 Use the tools of astronomy, such as Skygazer and telescopes to measure the properties of celestial objects, and use that data to produce charts and graphs and solve problems.
SCANS and/or Core Curriculum Competencies	Reading, Speaking/Listening, Critical Thinking, Computer/Information Literacy
Course Calendar Schedule may be subject to change as the course progresses	<p><u>Week 1</u> Introduction/Expectations - Planet Walk* 8/27-8/29 Chapter 1 – Here and Now Assignment 1: Basic Definitions & Universe Address</p> <p><u>Week 2</u> ** NO CLASS Monday 9/3/18 – Labor Day Holiday ** 9/3-9/5 Chapter 2 – A User’s Guide to the Sky Assignment 2: Constellations (homework)</p> <p><u>Week 3</u> Chapter 3 – Moon Phases and Eclipses 9/10-9/12 Assignment 3: Lunar Phases (in class)</p> <p><u>Week 4</u> Chapter 4 – Origins of Modern Astronomy 9/17-9/19 <u>Exam 1 Review</u> – Chapters 1-4 Class Activity: Kepler’s Laws of Planetary Motion (Group work)</p> <p><u>Week 5</u> Exam I 9/24-9/26 Chapter 5 – Gravity (<i>No homework</i>)</p> <p><u>Week 6</u> Chapter 6 – Light and Telescopes 10/1-10/3 Assignment 4a: Observations / HCC Star Party*, 8:00-10:00 p.m. (If bad weather, 4b: Speed of Light & Two Main Types of Telescopes)</p> <p><u>Week 7</u> Chapter 7 – Atoms and Spectra 10/8-10/10 Assignment 5: Spectral Analysis (in class)</p> <p><u>Week 8</u> Chapter 8 – The Sun 10/15-10/17 <u>Exam 2 Review</u> – Chapters 5-8 Class Activity: The Sun’s Layers (Group work)</p> <p><u>Week 9</u> Exam II 10/22-10/24 Chapter 11 – Formation and Structure of Stars (<i>No homework</i>)</p> <p><u>Week 10</u> Chapter 9 – The Family of Stars 10/29-10/31 Assignment 6: The H-R Diagram – come in an Astronomer or Scientist costume for a bonus point!</p> <p><u>Week 11</u> Chapter 12 – Stellar Evolution 11/5-11/7 <u>Exam 3 Review</u> – Chapters 9, 11 & 12 Assignment 7: Lifecycle of Stars (Webquest – in computer lab)</p> <p><u>Week 12</u> Exam III 11/12-11/14 Chapters 13 & 14 – Deaths of Stars (<i>No homework</i>)</p> <p><u>Week 13</u> Assignment 8: Lifecycle of Stars (Group Work) 11/19-11/21 Astronomy Movie (Extra Credit Assignment - optional)</p> <p><u>Week 14</u> ** NO CLASS 11/22-11/26 – Thanksgiving Break ** 11/26-11/28 Chapters 15 & 16 – The Milky Way Galaxy & Galaxies</p> <p><u>Week 15</u> Chapter 19 – Astrobiology: Life on Other Worlds 12/3-12/5 <u>Final Exam Review</u> – Chapters 13-16 & 19 Class Activity: Sorting Galaxies (Group Work)</p> <p>Week 16 FINAL EXAMINATION: *** Monday, December 10, 2018, 8:00-10:00 p.m. *** 12/10 <u>Exam Schedule: http://www.hccs.edu/district/events-calendar/academic-calendar/final-exam-schedule/</u></p> <p>*NOTE: This syllabus is subject to change to incorporate HCC star parties due to bad weather or other unforeseeable circumstances. Check for updates weekly with instructor and via Canvas (Eagle online).</p>
Student Assignments	Textbook questions, definitions, webquest, observations, and/or others as assigned.

Student Assessment(s)	Classwork and Homework Assignments (including Observations), and Exams.
Instructor's Requirements	Be on time and take notes (PowerPoints will be posted online), and read or scan the corresponding chapter in the textbook each week. Join discussions and class activities. All assignments are due the following class after date assigned (-1 point for every class late). HCC Star Party attendance (at least one) required* =OR= observations at the George Observatory in Brazos Bend State Park, any Saturday 3:00 p.m.-10:00 p.m. NOTE: state park fee applies – see website for details: https://www.hmns.org/george-observatory/admission/ ; have employee sign observation sheet for proof of attendance. Students may also make observations from campus or their home.
Program/Discipline Requirements	At the program level, the 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 subsequent Astronomy and related science courses that they may take in the future.
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 Fail to withdraw from the course = FX... 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)0 points 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 classroom assignments, homework, exams, and final exam. The course grade is based on these four criteria according to the Assessment section above, Grading Scale, and Scoring Rubrics.
Instructional Materials	<p>Textbook – Stars and Galaxies, 10th edition</p>  <p>Print: ISBN-13: 978-1337399944, ISBN-10: 1337399949 Author(s): Seeds/Backman Publisher: Cengage Learning Copyright year: © 2018</p> <p>- This textbook can be purchased at the HCC bookstore or online, rented and downloaded electronically at Amazon.com or FREE via Google Books online.</p>

	<p>Assignments: Assignments will be handed out in class and posted online via Canvas (Eagle), e.g. definitions or questions from the chapter in the textbook. Check with instructor and assignments posted online regularly.</p>
<p>HCC Policy Statement: Attendance Policy Policy Regarding Multiple Repeats of a Course Last Day for Administrative and Student Withdrawals Policy Regarding Withdrawals ADA Policy Academic Honesty Students Discipline Sexual Harassment Campus Carry Law</p>	<p>Access Student Services Policies on their Web site: http://hccs.edu/student-rights.</p> <p>Attendance Policy 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 non-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 <u>approximately 4 classes or labs for a 4 semester hour course, such as this one, which meets two times per week in a normal 16 week semester.</u> If circumstances significantly prevent a student from attending classes, please inform the instructor. Sometimes, outside circumstances can interfere with school, and the instructor will try to be as accommodating as possible, but please be aware of the attendance policy.</p> <p>Policy Regarding Multiple Repeats of a Course "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>Last Day for Administrative and Student Withdrawals For 16-weeks Fall 2018 classes, this date is Friday, November 2, 4:30 p.m. Students who are contemplating withdrawing from the class are urged to see the instructor first. Students may be doing better than they think! http://www.hccs.edu/district/events-calendar/academic-calendar/#/?i=1</p> <p>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. <i>After this date, instructors can no longer enter a grade of "W" for the course for any reason.</i></p> <p>ADA Policy HCCS is committed to compliance with the American with Disabilities Act and the Rehabilitation Act of 1973 (section 504): <i>"Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each semester. Faculty are authorized to provide only the accommodations requested by the Disability Support Services Office."</i></p>

If a student has any special needs or disabilities which may affect his/her ability to succeed in college classes or participate in college programs/activities, please contact the office of disability support services at the college. Upon consultation and documentation, a student will be provided with reasonable accommodations and/or modifications. Due to the high demand for services and the nature of certain disabilities, it is recommended that students meet with an ADA Counselor at least 60 days prior to the beginning of each term.

- For questions, contact the **Disability Counselor** at HCC-Southeast: Dr. E. J. Sit at (713) 718-7053.
- For additional numbers, see the **Disability Support Services** page: <http://www.hccs.edu/support-services/disability-services/>.
- Visit the **ADA website** at: <http://www.houstontx.gov/adainfo/>.
- **Faculty Handbook/Ability Services Contacts** are also available at: <http://www.hccs.edu/support-services/disability-services/faculty-and-staff-resources/>.

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. ****NOTE: Use of cell phones during exams/tests is not allowed.****

"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.

Student 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.

HCCS Sexual Harassment Policy

HCC shall provide an educational, employment, and business environment free of sexual harassment. Sexual harassment is a form of sex discrimination that is not tolerated at HCC. Any student who feels that he or she is the victim of sexual harassment has the right to seek redress of the grievance. HCC provides procedures for reviewing and resolving such complaints through its Grievance Policy.

Substantiated accusations may result in disciplinary action against the offender, up to and including termination of the employee or suspension of the student. In addition, complainants who make accusations of sexual harassment in bad faith may be subject to equivalent disciplinary action.

	<p>Campus Carry Law</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>
Distance Education and/or Continuing Education Policies	<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>
Test Bank	N/A
Scoring Rubrics	<p>3 regular exams and the final exam will consist of multiple-choice and short-answer essay questions (25 points each for a total of 100 points). For all exams, grading weighing will be as follows:</p> <p>Multiple Choice questions 80 – 85% and Essay Questions section..... 15 – 20 % of the final test grade.</p> <p>The class and homework assignments are graded on the basis of completeness, legibility (if written), and the correctness of any calculations and answers. Assignments 100% of final assignment grade (-1 per class late)</p>
Sample Assignments	N/A
Sample Instructional Methods/Activities	PowerPoint presentations, assignments, and other instructional material will be posted via Canvas (Eagle) online.
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 . <u>During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction.</u> 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.