



# Stars & Galaxies – PHYS 1303

## Course Syllabus: Spring 2019

“Northeast Texas Community College exists to provide responsible, exemplary learning opportunities.”

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Office Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Online
	Appointment	Appointment	Appointment	Appointment	Appointment	Everyday

*The information contained in this syllabus is subject to change without notice. Students are expected to be aware of any additional course policies presented by the instructor during the course.*

### Catalog Course Description (include prerequisites):

3 credit hours

Lecture/Lab/Clinical: Three hours of lecture each week.

Prerequisite: None

This course focuses on the history, development, and modern use of astronomy. It covers solar, galactic, and universal aspects of astronomy including stellar evolution, black holes, and current cosmological concepts.

**Required Textbook(s):** Kay, Palen, and Blumenthal. *21st Century Astronomy*, 5th Ed. W.W. Norton & Company, New York, 2016.

**Publisher:** W. W. Norton & Company

**ISBN Number:** 978-0-393-93899-9

### Suggested Reading(s):

*A Briefer History of Time*, by Stephen Hawking

*The Black Hole War: My Battle with Stephen Hawking to Make the World Safe for Quantum Mechanics*,  
by Leonard Susskind

*How it Began: A Time-Traveler’s Guide to the Universe*, by Chris Impey

\*\* These texts will not be covered in class, but can give a deeper understanding of topics cover.\*\*

**Student Learning Outcomes:** Upon successful completion of this course, students will be able to demonstrate understanding of qualitative concepts relating to the following learning outcomes:

1303.1) Recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry used in modern astrophysics..

1303.2) Communicate observations and interpretations clearly through written communication

1303.3) Use basic laws of astronomy to solve assigned tasks.

1303.4) The ability to translate, interpret, and extrapolate scientific theory governing the formation and evolution of stars.

1303.5) The ability to translate, interpret, and extrapolate scientific theory governing the formation and evolution of galaxies and the universe.

### **Core Curriculum Purpose and Objectives:**

Through the core curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world; develop principles of personal and social responsibility for living in a diverse world; and advance intellectual and practical skills that are essential for all learning.

Courses in the foundation area of mathematics focus on quantitative literacy in logic, patterns, and relationships. In addition, these courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.

### **College Student Learning Outcomes:**

#### Critical Thinking Skills

**CT.1** Students will demonstrate the ability to 1) analyze complex issues, 2) synthesize information, and 3) evaluate the logic, validity, and relevance of data.

#### Communication Skills

**CS.1** Students will effectively develop, interpret and express ideas through written communication.

#### Empirical and Quantitative Skills

**EQS.1** Students will manipulate numerical data or observable facts by organizing and converting relevant information into mathematical or empirical form

**EQS.2** Students will analyze numerical data or observable facts by processing information with correct calculations, explicit notations, and appropriate technology.

**EQS.3** Students will draw informed conclusions from numerical data or observable facts that are accurate, complete, and relevant to the investigation.

#### Teamwork

**TW.2** Students will work with others to support and accomplish a shared goal.

### **SCANS Skills:**

N/A

**Evaluation/Grading Policy:**

Homework Assignments: 30%

Chapter Quizzes: 20%

Test Average: 50%

The letter grading system is:

**A** (90% - 100%)

**B** (80% - 89%)

**C** (70% - 79%)

**D** (60% - 69%)

**F** (< 60% )

**Tests / Exams:**

There will be a Mid-Term Exam and a Final Exam. The Mid-Term Exam will cover Chapters 15-19 and the Final Exam will cover Chapters 20-24.

**Assessment Policies**

Each chapter will have a reading review homework assignments as well as a process of science and exploration assignment. A web exploration assignment will be submitted each week from which you will have a choice of at least three different topics. A chapter quiz will also be taken each week.

**Student Responsibilities/Expectations:**

This course requires a concerted effort by the student to manage their time wisely. The student should set up a weekly schedule of 2-3 hours of study to be successful in this course. Two to three hours per week is minimal time necessary for reading and doing homework assignments.

**Academic Honesty Statement:**

"Students are expected to complete course work in an honest manner, using their intellects and resources designated as allowable by the course instructor. Students are responsible for addressing questions about allowable resources with the course instructor. NTCC upholds the highest standards of academic integrity. This course will follow the NTCC Academic Honesty policy stated in the Student Handbook."

**Academic Ethics**

The college expects all students to engage in academic pursuits in a manner that is beyond reproach. Students are expected to maintain complete honesty and integrity in their academic pursuit. Academic dishonesty such as cheating, plagiarism, and collusion is unacceptable and may result in disciplinary action. Refer to the student handbook for more information on this subject.

**ADA Statement:**

It is the policy of NTCC to provide reasonable accommodations for qualified individuals who are students with disabilities. This College will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to request accommodations. An appointment can be made with Shannin Garrett, Academic Advisor/Coordinator of Special Populations located in the College Connection.

She can be reached at 903-434-8218. For more information and to obtain a copy of the Request for Accommodations, please refer to the NTCC website – Special Populations.

### **Family Educational Rights and Privacy Act (FERPA):**

The Family Educational Rights and Privacy Act (FERPA) is a federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education. FERPA gives parents certain rights with respect to their children's educational records. These rights transfer to the student when he or she attends a school beyond the high school level. Students to whom the rights have transferred are considered "eligible students." In essence, a parent has no legal right to obtain information concerning the child's college records without the written consent of the student. In compliance with FERPA, information classified as "directory information" may be released to the general public without the written consent of the student unless the student makes a request in writing. Directory information is defined as: the student's name, permanent address and/or local address, telephone listing, dates of attendance, most recent previous education institution attended, other information including major, field of study, degrees, awards received, and participation in officially recognized activities/sports.

**6 Drop Rule:** "Students who enrolled in Texas public institutions of higher education as first-time college students during the Fall 2007 term or later are subject to section 51.907 of the Texas Education Code, which states that an institution of higher education may not permit a student to drop (withdraw with a grade of "W") from more than six courses. This six-course limit includes courses that a transfer student has previously dropped at other Texas public institutions of higher education if they fall under the law. Students should be sure they fully understand this drop limit before they drop a course. Please visit the admissions office or counseling/advising center for additional information and assistance."

### **Other Course Policies:**

There will be no cell phone usage in the classroom. One warning for cell phone use will be issued, any further use will result in removal from class.

### **Campus Safety:**

Northeast Texas Community College (NTCC) is committed to maintaining the safety of the students, faculty, staff, and guests while visiting any of our campuses. See NTCC's website for details and to receive emergency notifications automatically by phone. In the event of an emergency contact NTCC Police at 903-434-8127. **Student Learning Outcomes**

Upon successful completion of this course, students will be able to demonstrate understanding of qualitative concepts relating to the following learning outcomes:

**Course Schedule:** (Content and dates subject to change throughout the semester.)

Start Here

Chapter 15: Star Formation and the Interstellar Medium

Chapter 16: Evolution of Low-Mass Stars

Chapter 17: Evolution of High-Mass Stars

Chapter 18: Relativity and Black Holes

Chapter 19: The Expanding Universe

Chapter 20: Galaxies

Chapter 21: The Milky Way – A Normal Spiral Galaxy

Chapter 22: Modern Cosmology

Chapter 23: Large-Scale Structure in the Universe

Chapter 24: Life