



PHYS 1304 – Astronomy – The Solar System

Course Syllabus: Fall 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): Four credit hours. This course covers the fundamental concepts concerning the formation of the Solar System. This includes the historical developmental aspects of astronomical methods and precepts. Included in the study is: Foundations of Astronomy, The Birth of Modern Science, Radiation Theory, Spectroscopic Theory, Telescopes, Introduction to the Solar System, The Earth, The Moon and Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, Comets, Asteroids, Meteors, Meteoroids, Meteorites, and Formation of Planetary Systems.

Required Textbook(s): Kay, Palen, and Blumenthal. 21st Century Astronomy: The Solar System, 6th Ed. W.W. Norton & Company, New York, 2019.

Publisher: W. W. Norton & Company

ISBN Number: 978-0-393-67552-8

Other Required Materials:

- A scientific calculator is necessary for this course. The TI-30XIIS or equivalent is recommended.

Recommended Reading(s): None

Student Learning Outcomes:

Upon successful completion of this course, students should understand simple qualitative concepts of astronomy relating to (1-6 below):

1404.1) Gravity and Orbits

1404.2) Telescopes and Light

1404.3) The Earth

1404.4) The Moon

1404.5) The Planets

1404.6) Upon successful completion of this course, students should understand simple astronomy laboratory techniques to collect, manipulate, analyze, and draw conclusions from data representing physical phenomenon while working individually and in teams.

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. Teamwork

TW.1 Students will consider different viewpoints as a member of a team and work with others to support and accomplish a shared goal.

Exemplary Educational Objectives:

The objective of the study of a natural sciences component of a core curriculum is to enable the student to understand, construct, and evaluate relationships in the natural sciences, and to enable the student to understand the bases for building and testing theories.

The exemplary educational core objectives for the natural sciences are:

3.1 to understand and apply appropriate technology to the study of natural sciences;

3.2 to recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.

3.3 to identify and recognize the differences among competing scientific theories;

3.4 to demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.

3.5 to demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

SCANS Skills:

N/A

Lectures & Discussions:

As this course is an online format, face-to-face lectures are not required. Your laboratory exercises will be completed using the Starry Nights software and the workbook listed above with the class textbook.

Evaluation/Grading Policy:

The student's semester grade will use the following percentages:

Homework Assignments 20%
Chapter Quizzes 10%
Laboratory Assignments 20%
Test Average 50%

Tests/Exams:

There will be a Mid-Term Exam and a Final Exam. The Mid-Term Exam will cover Chapters 1-7 and the Final Exam will cover Chapters 8-14. These will be **exams** that will require using Respondus Browser.

Assignments:

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.

Other Course Requirements: (None)

Student Responsibilities/Expectations:

This course requires a concerted effort by the student to manage their time wisely. The student should setup 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, doing homework assignments and laboratory assignments.

NTCC 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.

Other Course Policies:

Lack of participation, two or more weeks without completing any assignments, can be considered a lack of attendance and may be subject to being withdrawn from the course.

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

Start Here

Chapter 1: Thinking like an Astronomer

Chapter 2: Patterns in the Sky – Motions of Earth and the Moon

Chapter 3: Motion of Astronomical Bodies

Chapter 4: Gravity and Orbits

Chapter 5: Light

Chapter 6: The Tools of the Astronomer

Chapter 7: The Birth and Evolution of Planetary Systems

Chapter 8: The Terrestrial Planets and Earth's Moon

Chapter 9: Atmospheres of the Terrestrial Planets

Chapter 10: Worlds of Gas and Liquid – The Giant Planets

Chapter 11: Planetary Moons and Rings

Chapter 12: Dwarf Planets and Small Solar System Bodies