Syllabus

Course Code: PHYS-107 **Title:** Astronomy with laboratory

Institute: STEM **Department:** Physics

Course Description: This introductory astronomy course is for college students who are curious about the universe. Topics covered include the historical foundations of astronomy, the tools and techniques used by modern astronomers, the sun, planets, moons, and minor bodies of our solar system, and the processes by which it formed. The laboratory component of the course will employ the scientific method of inquiry as a tool to analyze computer simulations and night-sky observations.

Prerequisites: MATH-015 and READ-095 or passing scores in computation and reading on Basic Skills Test.

Credits: 4 **Lecture Hours:** 3 **Lab Hours:** 2

Required Textbook/Materials: Textbook and Lab Manual:
WWW.BROOKDALECC.BKSTR.COM.

Additional Support/Labs:
See https://www.brookdalecc.edu/academic-tutoring/

Course Learning Outcomes:
Upon successful completion of this introductory astronomy course, students will be able to:

- Communicate information and ideas about the basic concepts of experimental and theoretical physics in astronomy clearly and effectively in written and spoken form (**COMMUNICATION & INFORMATION LITERACY**).
- Apply the scientific method, fundamental principles of astronomy, physics and mathematical techniques to solve problems. (**MATHEMATICAL/SCIENTIFIC REASONING & CRITICAL THINKING**).
- Use instruments computers to analyze data (**TECHNOLOGICAL LITERACY**).

Course Content:

The course is comprised of the following five units:
Unit 1: Developing Perspective
a. Our Place in the Universe
b. Discovering the Universe for Yourself
c. Timekeeping and Navigation

Unit 2: Key Concepts for Astronomy
a. The Science of Astronomy
b. Matter and Energy
c. Universal Motion
d. Light

Unit 3: The Solar System
a. Formation of the Solar System
b. Planetary Geology: Earth and Other Terrestrial Worlds
c. Planetary Atmospheres
d. Jovian Planetary Systems
e. Asteroids, Comets and Pluto
f. Lessons from Earth

Unit 4: Space, Time, and Gravity
a. Space and Time
b. Gravity and Time Distortion
c. Quantum Physics

Unit 5: Stellar Alchemy
a. Our Star
b. Stars
c. Stellar Properties
d. Birth and Death of Stars Unit 6: Galaxies and Beyond
a. Our Galaxy
b. Galaxies
c. Galaxy Evolution
d. Dark Matter
e. Beginning of Time
f. Interstellar Travel

Grading Standard:

1. Testing (40%):

These tests may be given during class time or scheduled for the testing center. If you fail to take a test when scheduled, a grade of zero will be assigned. There is no make-up on tests.

2. Homework (40%):

Homework for every chapter is to be completed as submitted as assigned. Less than one-week overdue assignments will have their score reduced by 50%. Assignments late by more than a week will NOT be accepted.

3. Laboratory: (20%)

You will be provided with a list of the laboratory experiments which must be performed to get credit for the course. You will write a laboratory report for each experiment according to the format given in your lab manual.

Course Grade:

The final grade assigned will be:

92 - 100	A
89 - 91	A-
86 - 88	B+
82 - 85	B
79 - 81	B-
76 - 78	C+
70 - 75	C
65 - 69	D
0 - 64	F

College Policies:

As an academic institution, Brookdale facilitates the free exchange of ideas, upholds the virtues of civil discourse, and honors diverse perspectives informed by credible sources. Our college values all students and strives for inclusion and safety regardless of a student's disability, age, sex, gender identity, sexual orientation, race, ethnicity, country of origin, immigration status, religious affiliation, political orientation, socioeconomic standing, and veteran status. For additional information, support services, and engagement opportunities, please visit www.brookdalecc.edu/support.

For information regarding:

- Academic Integrity Code
- Student Conduct Code
- Student Grade Appeal Process

Please refer to the student handbook and catalog**.**

Notification for Students with Disabilities:

Brookdale Community College offers reasonable accommodation and/or services to persons with disabilities. Students with disabilities who wish to self-identify must contact the Accessibility Services Office at 732-224-2730 (voice) or 732-842-4211 (TTY) to provide appropriate documentation of the disability and request specific accommodation or

services. If a student qualifies, reasonable accommodations and/or services, which are appropriate for the college level and are recommended in the documentation, can be approved.

Mental Health:

24/7/365 Resources:

- Monmouth Medical Center Psychiatric Emergency Services at **(732) 923-6999**
- 2nd Floor Youth Helpline – Available to talk with you about any problem, distress, or hardship you are experiencing. Call or text at **888-222-2228** or visit the website at https://www.2ndfloor.org/

Faculty Counselors:

- Students who need to make an appointment with a faculty counselor can do so by calling 732-224-1822 (non-emergency line) during business hours. Faculty counselors are licensed mental health professionals who can assist students and refer them to other mental health resources.

Diversity Statement:

Brookdale Community College fosters an environment of inclusion and belonging. We promote a safe and open culture, encourage dialogue respecting diverse perspectives informed by credible sources, and uphold the virtues of civil discourse. We celebrate all identities with the understanding that ultimately, diversity, equity, and inclusion cultivate belonging and make us a stronger Brookdale community.

**The syllabus is intended to give student guidance in what may be covered during the semester and will be followed as closely as possible. However, the faculty member reserves the right to modify, supplement, and make changes as the need arise.*