



Course Syllabus

PHYS 1403 – Stars & Galaxies

Catalog Description: Study of stars, galaxies, and the universe outside our solar system. May or may not include a laboratory.

Lecture hours = 3, Lab hours =3

Prerequisites: none

Semester Credit Hours: 4

Lecture Hours per Week: 3 **Lab**

Hours per Week: 3

Contact Hours per Semester: 96

State Approval Code: 40.0201.51 03

Class section meeting time:

Alternate Operations During Campus Closure: In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include, but are not limited to: online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website (www.panola.edu) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

Core Components and Related College Student Learning Outcomes

This course counts as part of the academic requirements of the Panola College Core Curriculum and an Associate of Arts or Associate of Science degree. ☒ Yes ☐ No: If no, skip to Instructional Goals.

The items below marked with an X reflect the state-mandated outcomes for this course **IF this is a CORE course:**

- ☒ Critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information
 - ☐ CT1: Generate and communicate ideas by combining, changing, or reapplying existing information
 - ☒ CT2: Gather and assess information relevant to a question
 - ☒ CT3: Analyze, evaluate, and synthesize information
- ☒ Communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
 - ☒ CS1: Develop, interpret, and express ideas through written communication
 - ☐ CS2: Develop, interpret, and express ideas through oral communication
 - ☐ CS3: Develop, interpret, and express ideas through visual communication
- ☒ Empirical and Quantitative Skills – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
 - ☐ EQS1: Manipulate and analyze numerical data and arrive at an informed conclusion
 - ☒ EQS2: Manipulate and analyze observable facts and arrive at an informed conclusion
- ☒ Teamwork – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
 - ☒ TW1: Integrate different viewpoints as a member of a team
 - ☒ TW2: Work with others to support and accomplish a shared goal
- ☐ Personal Responsibility – to include the ability to connect choices, actions, and consequences to ethical decision-making
 - ☐ PR1: Evaluate choices and actions and relate consequences to decision-making
- ☐ Social Responsibility – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
 - ☐ SR1: Demonstrate intercultural competence
 - ☐ SR2: Identify civic responsibility
 - ☐ SR3: Engage in regional, national, and global communities

Instructional Goals and Purposes:

This course serves as an introduction to modern astronomy focusing on principles of stellar processes, evolution of galactic structures, cosmology, and methods of modern astronomical observation. This is a 4 semester-hour survey of the universe which includes a lab component.

Learning Outcomes:

After studying all materials and resources presented in the course, the student will be able to:

1. Students will gather and assess astronomical information.
2. Students will analyze, evaluate, and synthesize information about the universe in which we live.
3. Students will develop, interpret, and express ideas about astronomy through written communications.
4. Students will manipulate and analyze observable astronomical information and arrive at an informed conclusion.

5. Student will integrate different viewpoints as a member of a team.
6. Students will work with others to support and accomplish a shared goal.

Course Content:

A general description of lecture/discussion topics included in this course are listed in the Learning Objectives section of this syllabus.

Students in all sections of this course will learn the following content:

1. The Sun as a star.
2. Light, stars, and spectroscopy
3. Properties of stars expressed on HR diagram
4. Stellar evolution for various mass single stars
5. The Milky Way galaxy
6. Other galaxies in the universe
7. Galactic formation and evolution
8. Formation models of the universe
9. Dark matter, dark energy, and baryonic matter
10. Life, the universe, and everything
11. Science literacy and its importance

Methods of Instruction/Course Format/Delivery:

This course is offered online and includes both lecture and lab components. Weekly assignments worth 50% of the total grade are made and include discussions, quizzes, readings, and homework problems. Two proctored exams worth 25% of the total grade are required (i.e., Midterm exam and Final exam). Lab assignments will be worth the remaining 25% of the grade. The final exam is comprehensive.

Major Assignments / Assessments:

The following items will be assigned and assessed during the semester and used to calculate the student's final grade.

Assignments

1. Discussion forum assignments (weekly)
2. Mastering Astronomy homework (weekly)
3. Lab activities (weekly)

Assessment(s):

1. Proctored mid-term exam
2. Proctored final exam
3. Weekly quizzes
4. Team project

Course Grade:

The grading scale for this course is as follows:

- Weekly Assignments – 50%
- Midterm Exam – 12.5%
- Final Exam – 12.5%

- Labs – 25%

Texts, Materials, and Supplies:

- *Astronomy*, an Online OER Textbook
- Stellarium, An online virtual astronomy software

Required Readings:

- NA

Recommended Readings:

- NA

Other:

- For current texts and materials, use the following link to access bookstore listings:
<http://www.panolacollegestore.com>
- For testing services, use the following link: <http://www.panola.edu/elearning/testing.html>
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Administration Building or go to
<http://www.panola.edu/studentsuccess/disabilitysupportservices/> for more information.
- Withdrawing from a course is the student's responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
- Student Handbook, *The Pathfinder*:
<http://www.panola.edu/studentsuccess/documents/pathfinder.pdf>