1. **COURSE TITLE\*:** Astronomy
2. **CATALOG – PREFIX/COURSE NUMBER/COURSE SECTION\*:** PHYS 1130
3. **PREREQUISITE(S)\*: None**
4. **COURSE TIME/LOCATION: (*Course Syllabus – Individual Instructor Specific*)**
5. **CREDIT HOURS\*: 3 LECTURE HOURS\*: 2**

**LABORATORY HOURS\*: 1 (2 contact) OBSERVATION HOURS\*: 0**

1. **FACULTY CONTACT INFORMATION: *(Course Syllabus – Individual Instructor Specific)***
2. **COURSE DESCRIPTION\*:**

This course will explore the captivating world of astronomy, delving into both foundational principles and cutting-edge discoveries in cosmology. From the evolution of stars to the vastness of the universe, we will unravel the mysteries of celestial phenomena and recent advancements in our understanding of the cosmos.

Embark on a journey through the cosmos, where ancient mysteries meet modern science. Join us as we explore the wonders of the universe and uncover its secrets in this immersive Introduction to Astronomy course.

1. **LEARNING OUTCOMES\*:**

Upon completion of this course a student will:

1. Demonstrate a knowledge of the relationship between astronomical observations and theoretical concepts

a. stellar evolution

b. the Big Bang

c. the expanding Universe

d. planetary system formation

e. black holes.

2. Describe the structure of,

1. Solar System
2. the Milky Way galaxy
3. other galactic system types.

3. Define and differentiate between,

1. Nebula
2. nova
3. supernova
4. variable star
5. Hubble constant
6. Doppler shift
7. spectral lines
8. Hertzsprung‑Russel Diagram

4. Explain and apply astronomical measuring concepts,

1. Parallax
2. proper motion
3. interferometry

5. Demonstrate the proper operation and use of

* 1. refracting telescope
  2. reflecting telescope

1. **ADOPTED TEXT(S)\*:**

**OER**

*Astronomy*

2nd edition, 2022*.*

OpenStax

hardcover book ISBN 978-1-711470-57-3

paperback book ISBN 978-1-711470-56-6

digital version ISBN 978-1-951693-50-3.

This is an Open Educational Resource. It is a free download from OpenStax. Hardcover or paperback are alternatives to the free digital version

1. **OTHER REQUIRED MATERIALS:** None
2. **GRADING SCALE\*\*\*:**

Grading will follow the policy in the catalog. The scale is as follows:

A: 90 – 100

B: 80 – 89

C: 70 – 79

D: 60 – 69

F: 0 – 59

1. **GRADING PROCEDURES OR ASSESSMENTS: (*Course Syllabus – Individual Instructor Specific)***

Assignments will be evaluated according to instructor directives. Several field trips for evening observations may be scheduled depending on weather conditions and unusual observing opportunities. Attendance at these sessions will be a grade determinant.

Example:

Homework 15%

Tests (4-5) 50%

Telescope Observations 25%

Labs 10%

1. **COURSE METHODOLOGY: *(Course Syllabus – Individual Instructor Specific)***

The course design provides instruction and materials to support the course objectives.  Classes may consist of a variety of means to accomplish this including but not limiting to: lectures, class discussions, small group projects, supplemental materials, and outside assignments.  Practice is an important part of the learning process.  For every one hour of class time, two additional hours of study time should be expected**.**

**14. COURSE OUTLINE: *(Course Syllabus – Individual Instructor Specific)***

Example: by chapter and L.O.’s

Week 1: 1. Introduction

2. Observing the sky (L.O. 4)

Week 2: 3. Orbits and gravity (L.O. 4, 5)

4. Earth moon and sky (L.O. 5)

Week 3: 5. Radiation and spectra (L.O. 3e,f,g,h, 5)

6. Astronomical Instruments

Week 4: 7. Other Worlds (L.O. 3e,f,g,h)

8. Earth as a planet

Week 5: 9. Cratered worlds (L.O. 1a,d 2a, 3a,b,c)

10. Earthlike planets

Week 6: 11. The giant planets (L.O. 1a,d 2a, 3a,b,c)

12. Rings, moons, and Pluto

Week 7: 13. Comets and asteroids (L.O. 1a,d 2a, 3a,b,c)

14. Cosmic samples and the origin of the solar system

Week 8: 15. The Sun: a garden variety star (L.O. 1a,d 2a, 3a,b,c)

16. The Sun: A nuclear powerhouse

Week 9: 17. Analyzing starlight (L.O. 1a,d, 2a, 3h)

18. The Stars

Week 10: 19. Celestial distances (L.O. 1a,d, 2a, 3h)

20. Between the stars (L.O. 1a,d, 2a, 3h)

Week 11: 21. The birth of stars (L.O. 1a,d,e, 2a, 3h)

22. Stars from adolescence to old age (L.O. 1c,e, 3d)

Week 12: 23. The death of stars (L.O. 2)

24. Black holes and curved spacetime

Week 13: 25. The milky way galaxy (L.O. 2)

26. Galaxies

Week 14: 27. Active Galaxies and Supermassive Black Holes (L.O. 2)

Week 15: 28. The evolution and distribution of galaxies (L.O. 1b,c, 3e,d)

29. The Big Bang

30. Life in the universe

Week 16: Finals

**15. SPECIFIC MANAGEMENT REQUIREMENTS\*\*\*:**

**16. FERPA: \***

Students need to understand that your work may be seen by others. Others may see your work when being distributed, during group project work, or if it is chosen for demonstration purposes. Students also need to know that there is a strong possibility that your work may be submitted to other entities for the purpose of plagiarism checks.

**17. ACCOMMODATIONS: \***

Students requesting accommodations may contact Ryan Hall, Accessibility Coordinator at rhall21@sscc.edu or 937-393-3431, X 2604.

Students seeking a religious accommodation for absences permitted under Ohio’s Testing Your Faith Act must provide the instructor and the Academic Affairs office with written notice of the specific dates for which the student requires an accommodation and must do so no later than fourteen (14) days after the first day of instruction or fourteen (14) days before the dates of absence, whichever comes first. For more information about Religious Accommodations, contact Ryan Hall, Accessibility Coordinator at [rhall21@sscc.edu](mailto:rhall21@sscc.edu) or 937-393-3431 X 2604.

**18. OTHER INFORMATION\*\*\*:**

**SYLLABUS TEMPLATE KEY**

\* Item cannot be altered from that which is included in the master syllabus approved by the Curriculum Committee.

\*\* Any alteration or addition must be approved by the Curriculum Committee

\*\*\* Item should begin with language as approved in the master syllabus but may be added to at the discretion of the instructor