Phase IIB CCN TEMPLATE

Background

- This CCN Course Template was developed by Astronomy discipline faculty representatives from the California Community Colleges, California State University, University of California and independent colleges and universities during October-December 2024, starting with local course outline of record and syllabi information provided by intersegmental faculty during the pre-convening survey process.
- Development of the CCN Course Template was facilitated by ASCCC with advisory input from segment articulation officers and transfer experts.
- Approved and Submitted to the Chancellor's Office: June 2025

Subject: Astronomy	**Subject Code:** ASTR
Proposed Course Number (Identical): C1000	
Course Title (Identical): Introduction to Astronomy with Lab	
Catalog/Course Description **Part 1 (Identical and Required):** This course introduces fundamental concepts of astronomy, including the Solar System, stars, supernovae, galaxies, black holes, and the expanding universe. Students learn how to study the cosmos through experiments, observations, and/or simulations and discover what the latest science reveals about the origins and fate of the universe. **Part 2 (Optional Expanded Description, Local College Discretion):**	

Minimum Unit Threshold | 4.0 Semester Units (including a minimum of 1.0 semester unit of lab) Unit amounts must adhere to the established minimum.
Prerequisites (Identical): None
Co-Requisites (Identical): None
Other Limitations on Enrollment (determined locally)
Advisories/Recommended Preparation (determined locally)

Course Content

Part 1: Required Topics (Identical):

1. Scientific method
2. Observing the sky
3. History of astronomy across cultures
4. Gravity, motion, and physical laws
5. Light, matter, and spectra
6. Telescopes
7. Analysis of light
8. Earth, Moon, Sun system
9. The Solar System and exoplanets
10. The Sun
11. Stars and stellar evolution
12. The Milky Way
13. Galaxies
14. Cosmology
15. Life in the universe

Part 2: Optional Expanded or Additional Topics (optional):

Laboratory Content

Part 1: Required Topics (Identical):

Content will include:

1. Celestial sphere
2. Orbits and Kepler's Laws
3. Spectroscopy
4. Lunar properties
5. Telescopes and optics
6. Hertzsprung-Russell Diagram
7. Sun features
8. Deep sky objects
9. Cosmic distance ladder

Part 2: Optional Expanded or Additional Topics (optional):

Course Objectives/Outcomes

Part 1 (Identical and Required):

At the conclusion of this course, the student should be able to (Identical and Required):

1. Apply fundamental theoretical principles and evidence-based reasoning to explain how observations and data inform our current understanding of the universe and everyday phenomena.
2. Distinguish and compare the size, scale, and structure of astronomical objects.
3. Describe the diverse perspectives and contributions that have shaped humanity's understanding of the universe through the field of astronomy.
4. Collect, analyze, and interpret astronomical data to draw and communicate valid scientific conclusions.

Part 2 Optional objectives/outcomes (optional):

At the conclusion of this course, the student should be able to:

Methods of Evaluation

Part 1 (Identical and Required):
Examples of potential methods of evaluation used to observe or measure students' achievement of course outcomes and objectives could include but are not limited to quizzes, exams, activities, projects, research demonstrations, laboratory activities, laboratory reports, practicums, etc.

Methods of evaluation are at the discretion of local faculty.

Part 2 List Additional Methods of Evaluation (Optional):

Representative Texts, Manuals, OER, and Other Support Materials

Part 1 (Identical and Required):
Texts used by individual institutions and even individual sections will vary.

Lecture:

- Fraknoi, A., Morrison, D., Wolf, S., et al. (2020 & Update 2024). Astronomy 2e. OER: OpenStax.
- Frank, A. (2020). Astronomy: At Play in the Cosmos. 2nd ed.: W. W. Norton and Company.
- Bennett, J., Donahue, M., Schneider, N., & Voit, M. (2022). The Essential Cosmic Perspective. 9th ed.: Pearson.
- Seeds, M., & Backman, D. (2025). Foundations of Astronomy. 15th ed.: Cengage.
- Palen, S., & Blumenthal, G. (2022). 21st Century Astronomy. 7th ed.: W. W. Norton and Company.

Lab:

- Fraknoi, A. (2016 & Web 2021). A Compilation of Free Laboratory Activities for Astronomy 101 Courses. OER: OER Commons. Institute for the Study of Knowledge Management in Education. https://www.merlot.org/merlot/viewMaterial.htm?id=1374772
- Tuttle, S. (2016 & Web 2024). Distant Nature: Astronomy Exercises. OER: OER Commons. Institute for the Study of Knowledge Management in Education. https://oercommons.org/authoring/17181-distant-nature-astronomy-exercises

- Simulation Curriculum Corporation. (2024). Starry Night College Astronomy Lab Manual. 8th ed.: Simulation Curriculum Corp.
- Locally developed lab manual

Part 2 List Sample Textbooks, Manuals, or Other Support Materials (optional):

Date Approved:

June 16, 2025, following ASCCC facilitation of template development process, including engagement of faculty discipline representatives from California Community Colleges, California State University, University of California, and independent colleges and universities and advisory input from segment articulation officers and transfer experts.