NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE
COURSE SYLLABUS

Course Title: Introduction to Astronomy **Course #:** AST* 111

Course Description: 4 semester hours (3 class hours/2 laboratory hours).
Lecture: An introduction to the basic concepts of classical and modern astronomy and its application utilizing hands-on experiences. Topics include the principles of celestial coordinate systems; telescope design and use; fundamental physical laws and their applications; the evolution of stars, galaxies, and the universe; modern cosmology; and astrobiology. Use of computers is an integral part of this course.
Lab: Lab section to accompany AST* 111 lecture. Students develop a working knowledge of the night sky through hands-on experiences with direct observations, computer simulations and applied use of a telescope.
Pre-requisites/Co-requisites:

- MAT* 095 or satisfactory scores on the placement exam; and,
- ENG* 063 and ENG* 073, or ENG* 093, or satisfactory scores on placement exams.

Goals:
To provide the student with a basic overview of astronomy including: coordinate systems (declination and right ascension); the ecliptic; seasons, calendar, and time; basic constellations of various cultures throughout history; the Earth, its moon, and their motions; properties of light; optics and the telescope; the solar system, its planetary bodies, and the Sun; general principles of stars including classification, interpretation, and life cycle; the Milky Way and other galaxies; dark energy; cosmology; astrobiology

Outcomes (Lecture): After completion of this course, students should be able to:

- Explain the coordinate systems of declination and right ascension
- Describe the ecliptic
- Summarize some of the mythology behind the constellations/groupings
- Demonstrate how a telescope works
- Describe the basic principles of optics
- Compare and contrast between reflecting and refracting telescopes
- Identify the spectrum for each element of the stars
- Describe parallax and apply it
- Explain what is meant by a Hertzsprung-Russell Diagram
- Describe the principle of astronomical units (A.U.)
- Diagram different features of the sun
- Differentiate between the different types of stars and classify the sun
- Summarize the historical evolution of the varying models of the solar system
- Recognize the difference between planets and stars
- Differentiate between each of the planets of our solar system and their major moons
- Summarize how gravitational pull affects planets
- Recognize the various types of galaxies
- Explain the Doppler Effect

- Identify black holes and describe their properties
- Explain the principle of dark energy in relationship to cosmology
- Describe some of the principles and theories of astrobiology

Outcomes (Lab): After completion of this course, students should be able to:

- Identify the parts and safely/properly use a telescope to observe the night sky
- Predict stars' temperature from their observation
- Identify constellations
- Use a star chart
- Explain the phases of the moon
- Scale the solar system
- Compare the size of the sun and the moon
- Identify and classify galaxies looking through telescopes and on the internet
- Scale galaxies using relative measures
- Interpret an H-R diagram
- Interpret which direction stars are moving (relative to Earth) in addition to their composition and surface temperature
- Safely view the sun using a variety of techniques
- Measure sunspots and their motions
- Analyze solar flares
- Access and utilize a solar observation website

College Policies

Plagiarism: Plagiarism and Academic Dishonesty are not tolerated at Northwestern Connecticut Community College. Violators of this policy will be subject to sanctions ranging from failure of the assignment (receiving a zero), failing the course, being removed/expelled from the program and/or the College. Please refer to your "Student Handbook" under "Policy on Student Rights," the Section entitled "Student Discipline," or the College catalog for additional information.

Americans with Disabilities Act (ADA): The College will make reasonable accommodations for persons with documented learning, physical, or psychiatric disabilities. Students should notify Dr. Christine Woodcock, the Counselor for Students with Disabilities. She is located at Green Woods Hall, in the Center for Student Development. Her phone number is 860-738-6318 and her email is cwoodcock@nwcc.edu.

School Cancellations: If snowy or icy driving conditions cause the postponement or cancellation of classes, announcements will be made on local radio and television stations and posted on the College's website at www.nwcc.edu. Students may also call the College directly at **(860) 738-6464** to hear a recorded message concerning any inclement weather closings. Students are urged to exercise their own judgment if road conditions in their localities are hazardous.

Use of Electronic Devices: Some course content as presented in Blackboard Learn is not fully supported on mobile devices at this time. While mobile devices provide convenient access to

check in and read information about your courses, they should not be used to perform work such as taking tests, quizzes, completing assignments, or submitting substantive discussion posts.

Sexual Assault and Intimate Partner Violence Resource Team: NCCC is committed to creating a community that is safe and supportive of people of all gender and sexual identities. This pertains to the entire campus community, whether on ground or virtual, students, faculty, or staff. Sexual assault and intimate partner violence is an affront to our national conscience, and one we cannot ignore. It is our hope that no one within our campus community will become a victim of these crimes. However, if it occurs, NCCC has created the SART Team - Sexual Assault and Intimate Partner Violence Resource Team - to meet the victim's needs.
SART is a campus and community based team that is fully trained to provide trauma-informed compassionate service and referrals for comprehensive care. The team works in partnership with The Susan B. Anthony Project to extend services 24 hours a day, 7 days a week throughout the year.

The NCCC team members are:

Ruth Gonzalez, Ph.D.	860-738-6315	Green Woods Hall Room 207
Susan Berg	860-738-6342	Green Woods Hall Room 223
Kathleen Chapman	860-738-6344	Green Woods Hall Room 110
Michael Emanuel	860-738-6389	Founders Hall Annex Room 308
Seth Kershner	860-738-6481	Library
Jane O'Grady	860-738-6393	Founders Hall Annex Room 212
Robin Orlomoski	860-738-6416	Business Office Room 201
Patricia Bouffard, Ex-Officio	860-738-6319	Founders Hall Room 103
Savannah Schmitt		Student Representative
Jacob Wujcik		Student Representative

At NCCC we care about our students, staff and faculty and their well-being. It is our intention to facilitate the resources needed to help achieve both physical and emotional health.

* **If NWR7 is closed but NWCC is not, class will be held at NWCC at a location that is TBD.**