2/21/2025 DATE
☐ REQUIRED COURSE
☑ ELECTIVE COURSE

MSD DIVISION
☐ NEW COURSE
☑ REVISION

Lake Land College

Course Information Form

COURSE NUMBER:	PHY-115		TITLE: *(30 Characters Max)*		Astronomy						
SEM CR HRS:	3	Lecture:	3	Lab:	0				ECH:	3	
Course Level:	☑ Gen Ed / IAI ☐ Baccalaureate /Non-IAI	☐ Career/Technical ☐ Dev Ed/ Not in Degree Audit		Clinical Practicum:	0	Work-based Learning:	0	WBL ECH:	0		
Course PCS & CIP:	11 - 40.0201		IAI Code	P1 906				Contact Hours (Minutes/Week)			
Repeatable (Y/N):	N	Pass/Fail (Y/N):	N	Variable Credit (Y/N):	N	Min:		Max:		16 Wks	150	8 Wks	300
Prerequisites:	None										
Coerequisites:	None										
Catalog Description: (40 Word Limit)	This course discusses the history and future prospects of astronomy and the influence astronomy has had on culture. Topics include the night sky, comparative planetology, the solar system and the birth and death of stars, galaxies and cosmology.										

List the Major Course Segments (Units)	Contact Lecture Hours	Contact Lab Hours	Clinical Practicum	Work-based Learning
Powers of ten/observing the sky	5			
Orbits and gravity	3			
History	3			
Earth, moon and sky	5			
Radiation and spectra	3			
Earth compared to Venus and Mars	6			
The sun	3			
Celestial distances	4			
Stellar properties	4			
Stellar evolution	5			
Cosmology	4			
TOTAL	45	0	0	0

EVALUATION							
QUIZZES	☑	EXAMS	☑	ORAL PRES	☐	PAPERS	☐
LAB WORK	☐	PROJECTS	☑	COMP FINAL	☑	OTHER	☑ homework

COURSE MATERIALS		
TITLE:	Cosmic Perspective	
AUTHOR:	Bennett, Donahue, Scheider, & Voit	
PUBLISHER:	Thompson Publishing	
VOLUME/EDITION/URL:	8th	
COPYRIGHT DATE:	2017	

MAJOR COURSE SEGMENT	HOURS	LEARNING OUTCOMES
		The student will be able to:
Powers of ten/observing the sky	5	1. Identify the basic size of objects in the universe.
Orbits and gravity	3	1. Explain the physics of mass, weight, forces and angular momentum as they pertain to astrophysical objects.
History	3	1. Illustrate the progression of astronomical ideas using select historical figures.
Earth, moon and sky	5	1. Demonstrate how the geometry of the solar system results in such phenomena as seasons and eclipses.
Radiation and spectra	3	1. Illustrate how the electromagnetic spectrum is used in astronomical observations.
Earth compared to Venus and Mars	6	1. Critique the special circumstances of the Earth as it relates to life.
The Sun	3	1. Identify different solar properties and how the Sun produces energy.
Celestial distances	4	1. Outline the techniques used to determine distances to planets, stars and galaxies.

Stellar properties	4	1. Explain the various stellar properties and how to determine them using an HR diagram.
Stellar evolution	5	1. Compare and contrast the evolution and ultimate fate of stars with different masses.
Cosmology	4	1. Summarize the scientific theory of the origin and evolution of the universe.
	45	

Outcomes*	At the successful completion of this course, students will be able to:
Course Outcome 1	Demonstrate the basics of the night sky, including such concepts as the axial tilt of Earth and the plane of the ecliptic.
Course Outcome 2	Explain how comparative planetary science is used to study the similarities and differences between Earth and other planets in the solar system.
Course Outcome 3	Identify the basic ideas behind determining stellar distances.
Course Outcome 4	Summarize the basic ideas concerning stellar evolution and star death.
Course Outcome 5	Outline the basics of modern cosmology, particularly the importance of the Cosmic Microwave Background (CMB).
Primary Laker Learning Competency	Scientific Literacy: Students apply the scientific process to real-life situations.
Secondary Laker Learning Competency	Quantitative Literacy: Students analyze data and mathematical patterns in real-life situations.

**Course and program outcomes will be used in the software for outcomes assessment and should include at least 1 primary and 1 secondary Laker Learning Competency. Limit to 3-5.*