Natural Sciences
Institutional (ILO), Program (PLO), and Course (SLO) Alignment

Program: **Astronomy**	**Number of Courses:** 4	**Date Updated:** 09.10.2014	**Submitted by:** T. Jim Noyes, ext. 3356

ILOs	**1. Critical Thinking** *Students apply critical, creative and analytical skills to identify and solve problems, analyze information, synthesize and evaluate ideas, and transform existing ideas into new forms.*	**2. Communication** *Students effectively communicate with and respond to varied audiences in written, spoken or signed, and artistic forms.*	**3. Community and Personal Development** *Students are productive and engaged members of society, demonstrating personal responsibility, and community and social awareness through their engagement in campus programs and services.*	**4. Information Literacy** *Students determine an information need and use various media and formats to develop a research strategy and locate, evaluate, document, and use information to accomplish a specific purpose. Students demonstrate an understanding of the legal, social, and ethical aspects related to information use.*

SLO-PLO-ILO ALIGNMENT NOTES:

Mark boxes with an 'X' if: SLO/PLO is a major focus or an important part of the course/program; direct instruction or some direct instruction is provided; students are evaluated multiple times (and possibly in various ways) throughout the course or are evaluated on the concepts once or twice within the course.

DO NOT mark with an 'X' if: SLO/PLO is a minor focus of the course/program and some instruction is given in the area but students are not formally evaluated on the concepts; or if the SLO/PLO is minimally or not at all part of the course/program.

PLOs	**PLO to ILO Alignment** *(Mark with an X)*			
	1	**2**	**3**	**4**
PLO #1 Scientific Method Students can explain how the Scientific Method is used to develop scientific theories.	X			
PLO #2 Applications Students will be able to identify and appreciate ways in which astronomy affects their daily lives.	X			
PLO #3 Origins Students will be able to describe the structure and contents of the Universe and major events in the history of the Universe that led to the formation of the Earth.	X			
PLO #4 Physical Laws Students will explain how the application of the laws of physics reveals the properties of stars, planets, and galaxies.	X			

SLOs	SLO to PLO Alignment *(Mark with an X)*				COURSE to ILO Alignment *(Mark with an X)*			
	P1	P2	P3	P4	1	2	3	4
ASTR 12 Astronomy Laboratory: SLO #1 Scientific Method Students will be able to apply the Scientific Method to the solution of astronomical problems.	X							
ASTR 12 Astronomy Laboratory: SLO #2 Locating Celestial Objects Using a Cassegrain reflecting telescope, students will be able to align the telescope and point it at several objects, including the Moon, planets visible to the naked eye, planets invisible to the naked eye, bright stars, faint stars, and diffuse objects (clusters, nebulae, and galaxies).		X			X			
ASTR 13 Astronomical Optics: SLO #1 Optical Surfaces Using a Cassegrain reflecting telescope, students will be able to align the telescope and point it at several objects, including the Moon, planets visible to the naked eye, planets invisible to the naked eye, bright stars, faint stars, and diffuse objects (clusters, nebulae, and galaxies).				X	X			
ASTR 20 The Solar System: SLO #1 Scientific Method Students will be able to recognize the elements of the Scientific Method in the discussion of a scientific problem.	X							
ASTR 20 The Solar System: SLO #2 Seasons Students will be able to explain the causes of seasonal variations in the length of the day, direction of sunrise and sunset, and the amount of solar heating on the Earth.		X			X			
ASTR 20 The Solar System: SLO #3 Planet Origins Students will be able to describe the modern theory of the origin of the planets and discuss the evidence that supports the theory.			X					
ASTR 25 Stars and Galaxies: SLO #1 Scientific Method Students will be able to recognize the elements of the Scientific Method in the discussion of a scientific problem.	X							
ASTR 25 Stars and Galaxies: SLO #2 Radiation Students will explain how electromagnetic radiation and astronomical instruments are used to reveal the properties of stars and planets.				X	X			
ASTR 25 Stars and Galaxies: SLO #3 Universe Origin Students will be able to describe the modern theory of the origin of the universe (the Big Bang Theory) and discuss the evidence that supports the theory.			X					