

Course Title & Number: AST 101: Principles of Astronomy

Competency Area: **SCIENTIFIC KNOWLEDGE / UNDERSTANDING** (Goal: Students will gain a broad base of scientific knowledge and methodologies in the natural sciences. This will enable them to develop scientific literacy, the knowledge and understanding of scientific concepts and processes essential for personal decision making and understanding scientific issues.)

Faculty submitting the Learning Outcomes: Pete Benzi

Date: 3/12/2013

[Instructions: Please match the Learning Outcomes in the left hand column to those of the course you are submitting for Gen Ed approval. List the corresponding course outcomes in the right hand column to indicate a match.]

BOR TAP's Learning Outcomes	Corresponding Outcomes for Course Named Above
1. Communicate using appropriate scientific terminology.	<ul style="list-style-type: none">• Describe how Astronomy evolved as a science through observation, measurement, and theory.• Explain how information is obtained about objects in the universe and how scientists can be confident of the information.• Describe the major regions of the electromagnetic spectrum (light) and their applications to Astronomy.• Discuss the scientific possibility of, and evidence for, habitable planets beyond our sun.• Discuss the current theories of the universe's formation and evolution.
2. Use representations and models to communicate scientific knowledge and solve scientific problems.	<ul style="list-style-type: none">• Describe how Astronomy evolved as a science through observation, measurement, and theory.• Describe the models of Copernicus, Galileo, Kepler, and Newton how they contributed to our understanding of the solar system and universe.• Compare & contrast the planets and describe the characteristics of each in light of the formation and evolution of the solar system.• Discuss the current theories of the universe's formation and evolution.
	<ul style="list-style-type: none">• Determine information necessary to calculate the mass of stars and

3. Plan and implement data collection strategies appropriate to a particular scientific question.	discuss how mass is related to luminosity.
4. Articulate the reasons that scientific explanations and theories are refined or replaced.	<ul style="list-style-type: none"> • Describe how Astronomy evolved as a science through observation, measurement, and theory. • Explain how information is obtained about objects in the universe and how scientists can be confident of the information. • Describe the contributions of Copernicus, Galileo, Kepler, and Newton to our understanding of the solar system and universe. • Describe how past, current, and future exploration efforts have resulted or could result in changes to current explanations and theories. • Discuss the current theories of the universe's formation and evolution.
5. Evaluate the quality of scientific information on the basis of its source and the methods used to generate it.	<ul style="list-style-type: none"> • Describe how Astronomy evolved as a science through observation, measurement, and theory. • Explain how information is obtained about objects in the universe and how scientists can be confident of the information. • Discuss the evidence for and limitations of current scientific theories of the universe's formation and evolution.
	<i>Additional Outcomes</i>