

**AST 376 - Cosmology Course Abstract:**

The course applies the laws of physics to answer fundamental questions about the origin and evolution of the Universe at large: How old is it? How did it begin? What is it made of? Why is it expanding? How did our Milky Way Galaxy and all the structure we observe in today's Universe emerge from a nearly featureless beginning? Interweaving astronomical evidence with theoretical ideas, the course traces this great story of discovery leading us to the frontier of knowledge. It exposes the physics behind the expansion of the universe and the creation of atoms and radiation in the Big Bang and examines the discovery and nature of dark matter and dark energy. The course explains how tiny fluctuations in the distribution of matter and energy were amplified by gravity over time to form the galaxies and cosmic large-scale structure.