

## PHYSICS 162: The Big Bang, Cosmology and the Early Universe

In this course we will discuss the expansion of the Universe, how the Universe started and what its fate will be. These questions are very old for philosophers, but have recently opened to scientific investigation, sometimes with surprising results.

Starting with Einstein's theory of General Relativity, we will discuss the predictions the big bang theory makes and measurements used to test these predictions, including dark energy, nucleosynthesis, the microwave background, large scale structure, galaxy formation, and distant supernova. We will also discuss current speculation on cosmic inflation, particle dark matter, and other exotic possibilities.

This course is part of the 160-161-162-163 sequence, but does NOT require 160 or 161 as prerequisites.

This course is appropriate for anyone with a strong curiosity who has completed one of the lower division physics sequences 2 or 4. (That includes physics 2D or Physics 4D and 4E!)

We will use calculus when appropriate, and will be learning and using the jargon used by practicing astronomers and particle physicists.

There will be graded homework and a term paper.

Almost all branches of physics are used in astrophysics, so besides being fun, this course will exercise your physics, mathematical, and engineering skills by applying them to real-world situations.

DEPARTMENT OF PHYSICS  
SPRING QUARTER 2016  
PHYSICS 162: COSMOLOGY

For further information contact Prof. Kim Griest, at 534-8914; k g r i e s t @ u c s d . e d u