

Centre for Theoretical Physics

Introduction to Cosmology

Credits – 2

Syllabus

Overview; General Relativity, Hubble Expansion, Introduction to Robertson-Walker Models
(4 Lectures)

Cosmography 1: H_0 , Angular Diameter Test

Cosmography 2: SNe Ia

(2 Lectures)

Introduction To Inflation:

Inflation 1, Inflation 2, Quantum Fluctuations from Inflation

(4 Lectures)

Radiation Era:

Radiation Era, Nucleosynthesis, Baryogenesis, CMB Basics

(2 Lectures)

CMB Physics (Basics)

CMB Anisotropy 1, CMB Anisotropy 2, CMB Anisotropy 3

(4 Lectures)

Structure Formation:

Newtonian Structure Formation Theory, Nonlinear Models, Relativistic Perturbation Theory

Structure Formation Models 1, Structure Formation Models 2

(6 Lectures)

Frontiers of Cosmology:

Current Status for Cosmology

(2 Lectures)

(Total 24 Lectures)

Books:

Cosmological Physics by J. A. Peacock

Cosmology by Daniel Baumann