Cosmology I

University of Trieste, master degree program in Physics

2025/2026

Prof. Pierluigi Monaco
http://adlibitum.oats.inaf.it/monaco

Schedule

Introduction, Einstein equations: 25 February 2026.
Schwartzschild metric: 27 February.
The event horizon: 4 March.
Photon capture radius: 6 March.
First intermediate test, start: 6 March.
First intermediate test, end: 11 March, 9 am.
Introduction to FLRW models: 11 March.
Friedmann-Lemaitre-Robertson-Walker metric: 13 March.
The Hubble law: 18 March.
Friedmann equations from Einstein equations: 20 March.
Friedmann equations, Einstein-de Sitter model: 25 March.
Horizons: 27 March.
Flat and non-flat models: 1 April.
Models with Λ: 8 April.
Second intermediate test, start: 8 April.
Introduction to the early Universe: 10 April.
Second intermediate test, end: 15 April, 9 am.
Thermodynamics of the early Universe: 15 April.
Second intermediate test, discussion: 17 April.
Planck time and phase transitions: 22 April.
Problems of the hot big bang: 24 April.
Inflation: 29 April.
Quantum fields in an expanding Universe: 6 May.
Thermal history of the early Universe: 8 May.
Big bang nucleosynthesis: 13 May.
Recombination: 15 May.
Third intermediate test, start: 15 May.
Precision cosmology: 20 May.
Third intermediate test, end: 22 May, 9 am.
Third intermediate test, discussion: 22 May.

Web site: http://adlibitum.oats.inaf.it/monaco/cosmology1.htlm