

Cosmology I

University of Trieste, master degree program in Physics

2024/2025

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Schedule

Introduction, Einstein equations: 4 March 2024.
Schwartzschild metric: 7 March.
The event horizon: 11 March.
Photon capture radius: 14 March.
Introduction to FLRW models: 18 March.
First intermediate test, start: 18 March.
Friedmann-Lemaitre-Robertson-Walker metric: 21 March.
First intermediate test, end: 25 March, 11 am.
The Hubble law: 25 March.
Friedmann equations from Einstein equations: 1 April.
Friedmann equations, Einstein-de Sitter model: 4 April.
Horizons: 8 April.
Flat and non-flat models: 11 April.
Models with Λ : 15 April.
Second intermediate test, start: 15 April.
Second intermediate test, end: 29 April, 11 am.
Second intermediate test, discussion: 29 April.
Introduction to the early Universe: 6 May.
Thermodynamics of the early Universe: 9 May.
Planck time and phase transitions: 13 May.
Problems of the hot big bang: 16 May.
Inflation: 20 May.
Quantum fields in an expanding Universe: 23 May.
Thermal history of the early Universe: 30 May.
Big bang nucleosynthesis: 3 June.
Recombination: 6 June.
Third intermediate test, start: 6 June.
Precision cosmology: 10 June.
Third intermediate test, end: 13 June, 11 am.
Third intermediate test, discussion: 13 June.

Web site: <http://adlibitum.oats.inaf.it/monaco/cosmology1.html>