

Cosmology I

University of Trieste, master degree programme in Physics

2021/2022

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Schedule

Observational facts in cosmology: 1 March 2021.
Special relativity: 3 March.
Tensors in SR: 8 March.
Fluids in SR, tensor calculus in SR: 10 March.
Tensor calculus in SR for polar coordinates: 15 March.
Curved manifolds: 17 March.
The curvature tensor: 22 March.
The Einstein's equations: 24 March.
Physics in a curved space-time: 29 March.
Black holes: 31 March.
An introduction to FRW models: 5 April.
Robertson-Walker metric: 7 April.
First intermediate test, start: 7 April.
The Hubble law: 12 April.
First intermediate test, delivery: 14 April.
Discussion with students on first test: 21 April.
Friedmann equations from Einstein equations: 3 May.
Flat models, horizons: 5 May.
Flat and non-flat models: 10 May.
Models with Λ : 12 May.
Introduction to the early Universe: 17 May.
Thermodynamics of the early Universe: 19 May.
Second intermediate test, start: 19 May.
Quantum fields in a FRW universe: 24 May
Second intermediate test, delivery: 26 May.
Inflation: 26 May.
Discussion with students on second test: TBD.
Big bang nucleosynthesis: 31 May.
Recombination: 7 June.
Third intermediate test, start: 7 June.
Precision cosmology: 9 June
Third intermediate test, delivery: 12 June.

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