

Liverpool John Moores University

Title: COSMOLOGY
Status: Definitive
Code: **4001ASTRON** (101059)
Version Start Date: 01-08-2011

Owning School/Faculty: Astrophysics Research Institute
Teaching School/Faculty: Astrophysics Research Institute

Team	Leader
Andrew Newsam	Y
David Hyder	

Academic Level: FHEQ4 **Credit Value:** 12.00 **Total Delivered Hours:** 120.00
Total Learning Hours: 120 **Private Study:** 0

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Online	28.000
Practical	80.000
Seminar	6.000
Tutorial	6.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Balloon, computer practicals and popular article	70.0	
Test	AS2	Multiple Choice Test	30.0	

Aims

This module is a standalone distance learning course suitable for students from any background. As such it requires no specialist mathematical or scientific skills, but students would benefit from having first taken ASTAS1037, Exploring the Universe. This is a multimedia course using interactive CD-ROM and video material, and looks

at our current understanding of the contents, structure, formation and evolution of the universe, from the Big Bang up to the present day. Emphasis is placed on the types of observational techniques used in determining the properties in modern astronomy.

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe in broad terms the structure, contents, formation and ultimate fate of the Universe.
- 2 Have an appreciation of the types of techniques used by modern astronomers to investigate distant objects, and understand how the Copernican Principle applies to the Universe as a whole.
- 3 Describe underlying physical processes in the early Universe
- 4 Describe the importance of galaxies in defining our knowledge of the scale, age and evolution of the Universe.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

article	1	2	3	
MC Test	1	2	3	4

Outline Syllabus

1. *The Isotropic and Homogenous Universe - The Copernican Principle, Olber's Paradox, the expanding universe, horizon problem.*
2. *Distances to the Furthest Galaxies - The distance scale, Cepheid variables, Hubble Law, redshift.*
3. *The age and size of the Universe - The scale of the Universe, History of the Universe.*
4. *The Cosmic Microwave Background - The remnants of the Big Bang, Cosmological Dark Ages, Temperature Fluctuations, Microwave Background Radiations.*
5. *The Early Universe - Inflation, the early universe.*
6. *The formation and evolution of galaxies - what young galaxies look like, and how they are different from the galaxies of today.*

Learning Activities

CD-ROM notes, multiple choice questions and exercises, web resources and email interaction with tutors

References

Course Material	Book
Author	Silk, J.
Publishing Year	2001
Title	The Big Bang
Subtitle	
Edition	
Publisher	WH Freeman
ISBN	

Notes

This module will give students a detailed understanding of all aspects of this complex and rapidly evolving field.