

Liverpool John Moores University

Title: PLANETARY ATMOSPHERES
Status: Definitive
Code: **4008ASTRON** (101069)
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:** 100.00
Total Learning Hours: 120 **Private Study:** 20

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Online	8.000
Practical	80.000
Seminar	6.000
Tutorial	6.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Practice	AS1	Practical Exercises	70.0	
Test	AS2	Multiple Choice, open-book test over web	30.0	

Aims

A multimedia astronomy course using interactive CD-ROM material and video material. It will follow a syllabus designed to give students a solid understanding of planetary atmospheres and their relevance both for an understanding of our own atmosphere but for the planets in our solar system and those now being discovered

in large numbers outside our solar system.

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe in broad terms the way our knowledge of atmospheres has developed from pre-history to the present day.
- 2 Be confident with astronomical computing and the use of an internet browser.
- 3 Describe in broad terms our understanding of the range of atmospheres found in our solar system.
- 4 Discuss how extrasolar planets can be detected and the possibilities for understanding their atmospheres and any life on them.

Learning Outcomes of Assessments

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

Practicals	2	3	4	
MC Test	1	2	3	4

Outline Syllabus

- (1) History of planetary atmospheres*
- (2) Discovery of planets in our solar system*
- (2) Star and planet formation*
- (3) Atmospheres of terrestrial planets: Greenhouse effect, atmospheric circulation (coriolis force, Hadley cells, superrotation), sources of volatiles, atmospheric evolution, photodissociation, climate changes, adiabatic structures, Titan, signatures of life*
- (4) Atmospheres of Jovian planets: atmospheric compositions, energy budgets, clouds and vertical structure, atmospheric dynamics, long-lived storms, fluid interior motions, atmospheric chemistry*
- (5) Methods for the detection of extrasolar planets*
- (6) Atmospheres of extrasolar planets*
- (7) Spectral analysis of the atmospheres of extrasolar planets and their parent stars*
- (8) The search for extra-terrestrial intelligence*

Learning Activities

CD-ROM, videos, www, email, newsgroup, discussions with tutor, television and radio programmes

References

Course Material	Book
Author	Kaufmann, Freedman
Publishing Year	1999
Title	Universe
Subtitle	
Edition	5th
Publisher	Freedman
ISBN	0716734958

Course Material	Book
Author	Astronomy Now, Astronomy, Sky & Telescope, New Scientist
Publishing Year	0
Title	
Subtitle	
Edition	
Publisher	magazines
ISBN	

Course Material	Book
Author	Lunine
Publishing Year	1999
Title	Earth
Subtitle	Evolution of a habitable world
Edition	1st
Publisher	Cambridge
ISBN	0521644232

Notes

This module will be delivered by distance learning.