

Liverpool John Moores University

Title: CPD STARS
Status: Definitive
Code: **4011ASTRON** (101073)
Version Start Date: 01-08-2011

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

Team	Leader
Andrew Newsam	Y
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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	14.000
Practical	80.000
Tutorial	6.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Computer and practical exercises ("Studies of solar activity" and "Creating and using a Hertzsprung-Russell diagram")	50.0	
Essay	AS2	Popular Essay	25.0	
Test	AS3	Multiple choice test	25.0	

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 ASTAS1017, *The Wider Universe*. This is a multimedia course using interactive CD-ROM and video material, and looks at our current understanding of the formation and evolution of all types of stars and stellar systems. Emphasis is placed on the types of observational and theoretical 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 formation and evolution of stars and the physical processes that govern them.
- 2 Have an appreciation of the types of techniques used by modern astronomers to investigate stellar objects, and in particular the complementary information available from the different regions of the electromagnetic spectrum
- 3 Describe the importance of stars in defining our knowledge of the evolution of matter in the universe.

Learning Outcomes of Assessments

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

Report	1	2	3
Essay	1	3	
Test	1	2	3

Outline Syllabus

1. *Historical background and the basic observable properties of stars*
2. *The Sun as a Star: The physical processes that provide the heat source within a star and how these create a stable system. The use of observations over a range of wavelengths to determine the details of our understanding of the Sun.*
3. *Observing Stars: The magnitude system and colours*
4. *Colour-Magnitude Diagrams: The nature of stars unlike the Sun, and how we can understand them from simple observational properties*
5. *Stellar Classification: Different types of stars and an introduction to stellar spectroscopy*
6. *Stellar Evolution: The formation and "Main Sequence" evolution of stars. Stellar "death" and the remnant objects.*
7. *Clusters and larger groups of stars: What we can learn from clusters of stars, and what we can learn about galaxies from studying the stars within them.*

Learning Activities

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

References

Course Material	Book
Author	Kaufmann & Freedman
Publishing Year	2004
Title	Universe
Subtitle	
Edition	
Publisher	W.H. Freedman
ISBN	

Course Material	Book
Author	Carroll & Ostlie
Publishing Year	1997
Title	An introduction to modern astrophysics
Subtitle	
Edition	
Publisher	Addison Wesley
ISBN	

Course Material	Book
Author	Green & Jones
Publishing Year	2004
Title	An introduction to the Sun and Stars
Subtitle	
Edition	
Publisher	Cambridge University Press
ISBN	

Notes

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