UNIVERSITY OF SALFORD FORM MS (2011/12)

MODULE SPECIFICATION

A blank pro forma can be downloaded from http://www.governance.salford.ac.uk/page/aqa_forms

Date of completion of this version of Module Specification

Date of approval by the College Partnerships and Programme Approval and Review Committee:

Module Title: Physics of the Universe An Introduction to Astrophysics				CRN:
University module code:			HESA/JACS subject area code[i]: F300	
Level[ii]: 5	Credit Value[iii]: 20	ECTS Value[iv]: 10	Length (in Semesters)[v] 2	Semester(s) in which to be offered: S1+S2
Existing module ☐ New module ☒[vi]	Title of Module being replaced *(if any):* Previous 10 credit Physics modules at L5			With effect from[vii]: 2012
Originating School: CSE	Module Co-ordinator(s) Keith Robinson			
Programme(s) in which to be offered: MPhys: Physics, Physics with Studies in North America BSc: Physics, Pure and Applied Physics				
Pre-requisites *(between levels):* none			Co-requisites *(within a level):* none	
Indicative learning hours: 200	Percentage taught by School(s) other than originating School[viii] *:* 0%			
Aims of Module: To develop a knowledge and critical understanding in the area of astrophysics including the origin and limitations of the associated laws. To develop analytical, numerical and computer based problem solving skills in the area of astrophysics				
Intended Learning Outcomes <u>Knowledge and Understanding</u> Students will be able to (1) Demonstrate a critical understanding of the laws and their origins in the area of astrophysics (2) Demonstrate competence in the specification of problems using the laws of astrophysics and their analytical and numerical solution.				

Transferable/Key Skills and other attributes
Students will be able to

(1) Demonstrate Communication through written material
(2) Demonstrate problem solving skills
(3) Demonstrate key analytical and numerical skills

Module mark calculation: Method A[ix]

Assessment components (in chronological order of submission/examination date)
Denote final assessment component in box marked **final assessment component (99)**

Type of assessment[x]	Weighting%	Duration *(if exam)*	Word count *(if essay/dissertation):*	Component pass required[xi]
Continuous Assessment	40%			Yes ☐ No x
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
				Yes ☐ No ☐
Final assessment component (99) Exam	60%	3hrs		Yes ☐ No x

Learning and teaching strategies[xii]:

The module is taught through a combination of lectures and tutorial classes

The continuous assessment element is a combination of class tests and exercises.

Lectures – 48 hrs, Tutorials – 24 hrs

Syllabus outline:

The celestial sphere
Observational properties of stars
Photometry, Detectors
Spectral classification of stars; The Hertzsprung-Russell (HR) diagram
Astronomical Spectroscopy
Stellar spectra
Stellar structure
Stellar energy sources
Orbits & Kepler's Laws
Stellar Evolution
Variable stars; pulsating stars; cataclysmic variable stars – novae & supernovae
Element abundances in stars
The Sun
The Milky Way
Galaxies
Cosmology

Indicative texts and/or other learning materials/resources[xiii]:

M Zeilik and S A Gregory, Introductory astronomy and astrophysics (Saunders) 3rd ed, 1992 ISBN 0030316979

B.W. Carroll & D.A. Ostlie, An Introduction to Modern Astrophysics (Addison-Wesley) 2nd ed, 2006 ISBN 0321442849

[i] *see UoS guidance notes on selecting JACS codes (http://www.planning.salford.ac.uk/jacs_codes/)*
see HESA JACS Codes webpage http://www.hesa.ac.uk/index.php/content/view/356/233/

[ii] *indicate level 3,4,5,6,7*

[iii] *permissible credit values are set out in Academic Regulations 3.1.3 to 3.1.5*

[iv] *European Credit Transfer System: 2 Salford Credits = 1 ECTS credit*

[v] *indicate 0.5, 1, 1.5 or 2, subject to permissible module shapes in Academic Regulations 3.1.8/9*

[vi] *check one box as applicable*

[vii] *insert month and year of first/next delivery of module*

[viii] *identify all participating Schools other than Originating School*

[ix] *delete as applicable; refer to Academic Regulations 8.5. Where applicable, indicate where both methods are used, i.e. where module is delivered to students of more than one programme and at least one requires Method B for PRSB reasons*

[x] *please indicate, in chronological order of submission date, each assessment component by type, e.g. examination, oral, coursework, project, dissertation; denote* ***final*** *assessment component in box marked Final assessment component (99)*

[xi] *if Method B is used for module mark calculation, indicate* Yes *to specify the assessment component(s) to be passed in order to pass the module*

xii *refers to the choice and range of teaching activities which are most appropriate in creating learning experiences which help students to achieve the module's learning outcomes and develop transferable skills; issues of equality, diversity and accessibility must also be given full consideration*

xiii the "Indicative texts and/or learning materials/resources" box should include a maximum of 5 items for new modules; for existing modules the box should include a link for CPPARC reviewers and readers to the comprehensive reading list at http://lasu.salford.ac.uk