

## UNIVERSITY OF CENTRAL LANCASHIRE

### Programme Specification

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided.

***Sources of information on the programme can be found in Section 17***

<b>1. Awarding Institution / Body</b>	University of Central Lancashire
<b>2. Teaching Institution and Location of Delivery</b>	University of Central Lancashire, Preston Campus
<b>3. University School/Centre</b>	Physical Sciences and Computing
<b>4. External Accreditation</b>	RAS (endorsement) IOP (recognition)
<b>5. Title of Final Award</b>	DipHE Astronomy
<b>6. Modes of Attendance offered</b>	Distance Learning
<b>7a) UCAS Code</b>	n/a
<b>7b) JACS Code</b>	F500
<b>8. Relevant Subject Benchmarking Group(s)</b>	QAA: Subject Benchmark Statement for Physics, Astronomy and Astrophysics. Part A: Setting and Maintaining Academic Standards, February 2017. Part B: Assuring and Enhancing Academic Quality of the Quality Code, to be published. QAA: Subject Benchmark Statement for Physics, Astronomy and Astrophysics: Draft for Consultation, April 2016. QAA: Subject Benchmark Statement for Physics, Astronomy and Astrophysics, 2008.
<b>9. Other external influences</b>	National STEM Projects Institute of Physics
<b>10. Date of production/revision of this form</b>	April 2017
<b>11. Aims of the Programme</b>	
<ul style="list-style-type: none"> <li>• To provide an academically rigorous programme of Astronomy education suitable for astronomy enthusiasts with or without previous formal qualifications.</li> <li>• To provide a quantitative understanding and knowledge of the physical and mathematical concepts underlying astrophysical processes.</li> <li>• To provide a broad balance of subject knowledge and skills</li> </ul>	

- To develop students' ability to think analytically and critically about scientific ideas in order to develop logical arguments and draw conclusions
- To provide the opportunity to develop skills and techniques used in astronomy which have wider applications (eg independent working, scientific problem solving, data analysis, preparation of scientific reports and use of IT, communication of scientific ideas.
- To provide a suitable foundation for further study in Astronomy.

<b>12. Learning Outcomes, Teaching, Learning and Assessment Methods</b>
<b>A. Knowledge and Understanding</b>
A1. describe and explain the structures of the universe and the processes that take place within it in terms of the underlying physical laws. A2. solve a range of problems in astronomy using physical and mathematical techniques A3. discuss uncertainties and limitations of astronomical theory A4. discuss the techniques of observational astronomy and their limitations
<b>Teaching and Learning Methods</b>
Course Notes with worked examples, self-test questions and solutions. Classroom tutorials and discussions via Elearn. Feedback to students on assessed work, together with model answers to assessed questions.
<b>Assessment methods</b>
Continuous assessment via courseworks including: Questions Sheets with both mathematical and conceptual problems, scientific essay, experimental report. Timed on-line open-book assignment.
<b>B. Subject-specific skills</b>
B1. design and implement astronomical observations B2. retrieve astronomical information from on-line/library data sources B3. analyse and process astronomical data taking into account the uncertainties B4. plan and prepare accurate scientific reports and essays on a specific topic B5. use simple mathematical techniques and physical laws to solve problems
<b>Teaching and Learning Methods</b>
Observational exercises to carry out at a distance. Case studies using astronomical data, on-line discussions, tutorials Self-test and assessed questions requiring use of mathematical techniques/spreadsheets/pocket calculator to solve quantitative problems.
<b>Assessment methods</b>
Researched scientific essays, Experimental reports Mathematical/numerical problems in assessed question sheets, timed on-line assignment
<b>C. Thinking Skills</b>
C1. review and analyse information from a variety of sources C2. think analytically and critically about scientific ideas in order to develop logical arguments and draw conclusions C3. synthesise different strands of a theory or problem to produce a solution C4. plan and implement a brief investigation
<b>Teaching and Learning Methods</b>
Case studies, literature reviews, data analysis exercises, observations, library research and open-ended problems.
<b>Assessment methods</b>
Scientific essays, experimental reports, question sheets with a balance of quantitative and open-ended questions, on-line assessment.
<b>D. Other skills relevant to employability and personal development</b>
D1. use written communication skills effectively D2. use numerical skills D3. work independently to plan and manage own time to achieve specific objectives D4. use scientific IT skills effectively to produce publication-style documents.
<b>Teaching and Learning Methods</b>
Effective communication via the written word and electronic media, such as discussion boards. Use of structured documents. Self-test questions. Manage personal study time to meet course deadlines. Use IT to access course materials, analyse data, produce publication style reports, electronic presentations, etc.
<b>Assessment methods</b>
Researched scientific essays, Experimental reports Mathematical/numerical problems in assessed question sheets, timed on-line assignment

13. Programme Structures				14. Awards and Credits
Level	Module Code	Module Title	Credit rating	
Level 5	AA2051	The Milky Way	20	<b>Diploma of Higher Education Astronomy</b> Requires 240 credits including a minimum of 100 at Level 5 or above.
	AA2052	Galaxies beyond the Milky Way	20	
	AA2053	Ultraviolet, Optical and Infrared Astronomy	20	
	AA2054	Exploring the Solar System	20	
	AA2055	Solar Astrophysics	20	
	AA2056	Solar-Stellar Connectio	20	
Level 4	AA1051	Introduction to Astronomy	20	<b>Exit Award: Certificate of Higher Education</b> Requires 120 credits at Level 4 or above.
	AA1053	Introduction to Cosmology	20	
	AA1055	IT for Astronomy	20	
	AA1056	Energy, Matter and the Universe	20	
	AA1057	Investigations in Astronomy	20	
	AA1058	Sun, Earth and Climate	20	
	AA1059	Introduction to Astrobiology	20	
	AA1066	Great Astronomers in History	20	
<b>In addition a student may include one module (20 credits) of elective at level 4.</b>				
<b>15. Personal Development Planning</b>				
<p>It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:</p> <ul style="list-style-type: none"> <li>• The admissions process includes interaction between Course Leader and applicant, advising on suitability of the course, given a student's aspirations for short or long-term study.</li> <li>• The induction process, using Handbook and Elearn links, provides opportunities for students to use the University's Skills and PDP resources.</li> <li>• The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.</li> <li>• Self-test exercises encourage students to assess their academic progress within a module.</li> </ul>				
<b>16. Admissions criteria</b>				
<p>(including agreed tariffs for entry with advanced standing)  <i>*Correct as at date of approval. For latest information, please consult the University's website.</i></p>				
<p>Students who enter the programme within 2 years of completing full-time school education would normally be expected to have a new UCAS tariff of at least 128 points (eg ABB at A level) including:</p> <ul style="list-style-type: none"> <li>• two A2 level passes (or equivalent) in any subjects</li> <li>• and a pass in a science/technology subject at AS level</li> <li>• grade C passes in GCSE English and Mathematics.</li> </ul> <p>Mature students and those without formal qualifications meeting the admissions criteria will be considered in the light of their ability to benefit and their commitment to degree level study. The latter may be demonstrated (for instance) by successful completion of the Certificate of Higher Education or other relevant courses at University level. Applicants with a CertHE would have advanced standing of 120 credits and would be Stage 1 complete on admission. A2 or A-level study of maths or science is advantageous but not compulsory.</p>				
<b>17. Key sources of information about the programme</b>				
<p>Student Handbook  Astronomy Module Catalogue  uclan website  www.StudyAstronomy.com</p>				
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## 18. Curriculum Skills Map

Level	Module Code	Module Title	Core (C), Compulsory (COMP) or Option (O)	Programme Learning Outcomes																	
				Knowledge and understanding				Subject-specific Skills					Thinking Skills				Other skills relevant to employability and personal development				
				A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	C4	D1	D2	D3	D4	
LEVEL 5	AA2051	The Milky Way	O	√	√		√		√	√	√		√	√	√		√	√	√	√	
	AA2052	Galaxies Beyond the Milky Way	O	√	√	√	√		√	√	√	√	√	√	√			√	√		
	AA2053	UVOIR Astronomy	O	√	√		√	√		√	√		√	√		√	√	√	√		
	AA2054	Exploring the Solar System	O	√		√			√		√		√	√		√		√		√	√
	AA2055	Solar Astrophysics	O	√	√	√	√			√	√	√	√	√	√	√	√	√	√	√	√
	AA2056	Solar-Stellar Connection	O	√	√	√	√				√		√	√		√	√	√	√	√	√
LEVEL 4	AA1051	Introduction to Astronomy	<b>Compulsory</b>	√	√		√	√		√	√	√		√		√	√	√	√	√	
	AA1053	Introduction to Cosmology	O	√	√	√					√		√		√		√	√	√	√	
	AA1055	IT for Astronomy	O						√	√	√		√			√		√	√	√	
	AA1056	Energy, Matter and the Universe	<b>Compulsory</b>		√							√			√			√	√		
	AA1057	Investigations in Astronomy	O	√		√	√		√		√		√	√	√	√	√	√		√	√
	AA1058	Sun, Earth and Climate	O	√	√	√	√	√		√	√			√		√	√	√	√	√	√
	AA1059	Introduction to Astrobiology	O	√			√				√		√	√		√	√	√	√	√	√
	AA1066	Great Astronomers in History	O			√					√		√			√		√		√	√

**Note:** Mapping to other external frameworks, e.g. professional/statutory bodies, will be included within Student Course Handbooks

19. LEARNING OUTCOMES FOR EXIT AWARDS:

**Learning outcomes for the award of: \_\_\_\_\_ Cert HE \_\_\_\_\_**

- A1. describe and explain the basic structures of the universe and the processes that take place within it in terms of some underlying physical laws.
- A2. solve a range of simple problems in some areas of astronomy using simple mathematical techniques
- A4. describe some simple techniques of observational astronomy and their limitations

- B1. design and implement simple astronomical observations
- B2. retrieve some types of astronomical information from on-line/library data sources
- B3. analyse and process astronomical results
- B4. plan and prepare scientific reports and essays on a specific astronomical topic
- B5. use simple mathematical techniques to solve problems

- C1. analyse information from a given source
- C2. develop logical arguments and draw conclusions about astronomical results.
- C3. solve elementary problems
- C4. implement a brief investigation

- D1. use written communication skills
- D2. use numerical skills
- D3. plan and manage own time to achieve specific objectives
- D4. use scientific IT skills to communicate and produce documents