Course Handbook
Entry 2018/19

Astronomy Distance Learning Programme

Including

Certificates in:
Astronomy, Cosmology,
Sun, Earth and Climate, Astrobiology

Certificate of Higher Education in Astronomy
Diploma of Higher Education in Astronomy
BSc (Hons) in Astronomy

Course Leader: Dr Barbara Hassall

School of Physical Sciences and Computing
Jeremiah Horrocks Institute for Mathematics, Physics and Astronomy

Please read this Handbook in conjunction with the University’s Student Handbook.

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1. Welcome to the course
Welcome to the StudyAstronomy Distance Learning Courses offered by the Jeremiah Horrocks Institute (JHI) in the School of Physical Sciences and Computing (PSC). We want this to be a positive learning experience for you. There will be some hard work, but we hope that you will find it interesting and challenging, and that you will have the chance to enjoy yourself along the way. We believe you can succeed, and we want you to succeed. Good luck!

If you have any queries or concerns, please contact the Course Leader or other member of the Course Team.

1.1 Rationale, aims and learning outcomes of the course
The Astronomy Distance Learning Programme comprises seven awards ranging from a single module Certificate up to the full BSc (Hons) Astronomy. All courses are designed for study by distance learning. Learning materials are accessed online and all assessments are submitted electronically. No specialist equipment is needed apart from appropriate computer and internet connections. Students study independently following a module schedule and, as expected of a distance learning programme, there is no on-campus attendance.

The programme is structured so that students with a keen interest in Astronomy, but with a minimum of formal qualifications can start with entry level courses, such as the Certificate in Astronomy, and build up through intermediate awards to the BSc (Hons) Astronomy. This is intended as a rigorous education in Astronomy and provides a suitable foundation for further study in the subject.

Each course has its own formal aims and learning outcomes as detailed in the Programme Specifications (see separate document available in the Astronomy Distance Learning Programme area on Blackboard: elearn.uclan.ac.uk and in the appendix). For illustrative purposes the Aims of the BSc (Hons) programme are as follows:

- To provide an academically rigorous programme of Astronomy education suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide a quantitative understanding and knowledge of the physical and mathematical concepts underlying astrophysical processes.
- To provide a broad balance of subject knowledge and skills.
- 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 enable students to apply the advanced tools of maths and physics to solve problems in astrophysics situations.
- To develop the students’ investigative skills either through group activities or independent research using literature sources and/or subject databases.
- To provide a suitable foundation for further study in Astronomy.

The BSc (Hons) Astronomy is recognised by the Institute of Physics (IOP) and all graduates automatically meet requirements for Associate Membership of the Institute. Students on the course are eligible for free IOP digital student membership. All the distance learning awards are endorsed by the Royal Astronomical Society.
1.2 Course Team

Important members of the Course Team are:

<table>
<thead>
<tr>
<th>Course Leader for Astronomy Distance Learning Programmes:</th>
<th>Dr Barbara Hassall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oversees day to day operation of Astronomy Distance Learning programme</td>
<td>01772 89 3570 <a href="mailto:ucastro@uclan.ac.uk">ucastro@uclan.ac.uk</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Head of Jeremiah Horrocks Institute and Acting Head of School:</th>
<th>Prof. Derek Ward-Thompson</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01772 89 3829 <a href="mailto:dward-thompson@uclan.ac.uk">dward-thompson@uclan.ac.uk</a></td>
</tr>
</tbody>
</table>

All team members should be contacted by email via ucastro@uclan.ac.uk. The subject line should contain the module number and the name of the member of staff for whom it is intended.

The academic staff currently associated with the course are:

<table>
<thead>
<tr>
<th>Staff</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbara Hassall</td>
<td>Course Leader</td>
</tr>
<tr>
<td>Roger Clowes</td>
<td>Module Tutor, Alston Weekend</td>
</tr>
<tr>
<td>Anne Sansom</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Silvia Dalla</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Victor Debattista</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Paul Marston</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Dimitris Stamatellos</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Derek Ward-Thompson</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Megan Argo</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Aimilia Smyrli</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Simon Thomas</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Jason Kirk</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Mark Norris</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Alex Dunhill</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Robert Walsh</td>
<td>Module Tutor</td>
</tr>
<tr>
<td>Daniel Holdsworth</td>
<td>Module Tutor</td>
</tr>
</tbody>
</table>

1.3 Expertise of Staff

The staff who deliver the courses are members of the Jeremiah Horrocks Institute (JHI) within the School of Physical Sciences and Computing. The vast majority hold PhDs and are active researchers in a number of areas of physics and astrophysics. Many of our staff have
a national or international research reputation, as assessed by the UK Research Assessment Exercise. Details of their research interests and recent publications can be found by exploring the research pages of the JHI website (http://www.star.uclan.ac.uk). Of particular relevance is the work of the research groups in Solar Physics, Stellar Astrophysics and Extragalactic Astrophysics.

In addition the team is highly experienced in designing and delivering courses in Physics, Astrophysics and Astronomy. The team has designed and delivered the distance learning courses which have been running for over twenty years.

1.4 Academic Advisor
You will be assigned an Academic Advisor who will provide additional academic support during the year. They will be the first point of call for many of the questions that you might have during the year. Your Academic Advisor will be able to help you with personal development, including developing skills in self-awareness, reflection and action planning.

You can find the name of your Academic Advisor on MyUCLan along with other details of your programme of study. Enter your academic advisor’s name here.

<table>
<thead>
<tr>
<th>My Academic Advisor is:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Details:</td>
<td><a href="mailto:Ucastro@uclan.ac.uk">Ucastro@uclan.ac.uk</a></td>
</tr>
</tbody>
</table>

1.5 Administration details
Campus Admin Services provides academic administration support for students and staff and are located at Foster Hub and are open from 8.45am until 5.15pm Monday to Thursday and until 4.00pm on Fridays. The hub can provide general assistance and advice regarding specific processes such as extenuating circumstances, extensions and appeals. Course specific information is also available via school Blackboard sites.

Routine administrative matters should be emailed to the Programmes Officer via ucastro@uclan.ac.uk.

<table>
<thead>
<tr>
<th>Programmes Officer</th>
<th><a href="mailto:Ucastro@uclan.ac.uk">Ucastro@uclan.ac.uk</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tel: 01772 89 1990</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Campus Administrative Services:</th>
<th><a href="mailto:Fosterhub@uclan.ac.uk">Fosterhub@uclan.ac.uk</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Foster Hub – Foster Building</td>
<td>Tel: 01772 89 1990 or 01772 89 1991</td>
</tr>
</tbody>
</table>

If you write to us, please use the following address:-

Programmes Officer, Foster Hub
Astronomy by Distance Learning
School of Physical Sciences and Computing,
University of Central Lancashire
Preston, PR1 2HE, UK

Students using some university services (such as applications for extensions) should use specific email addresses as indicated on the relevant university webpages.
1.6 Communication

The University expects you to use your **UCLan email address** and check regularly for messages from staff. If you send us email messages from other addresses they risk being filtered out as potential spam and discarded unread.

The Admin Hub will normally use email to your **UCLan email address**, or may send important letters to you by post.

The Course Team will normally use your **UCLan email address**. This will be for contacting both individuals and entire cohorts. You should also monitor the Noticeboard and Discussion Forums within the Blackboard Module spaces and the Blackboard Astronomy Distance Learning Programme area.

If more urgent contact is needed, the Course Team or Admin Hub may use your personal email address or telephone you (land line or mobile). It is therefore essential that you ensure that ALL your details are up to date. You can check and change this via MyUCLan: [http://myuclan.uclan.ac.uk](http://myuclan.uclan.ac.uk).

Students can normally expect a reply to email or questions on the Blackboard Discussion Forums within 2 or 3 working days.

1.6.1 Contacting each other

As a distance learning student you are part of a learning community. Formal aspects of this take place via Blackboard for academic discussions on the module discussion forums and the online classroom meetings. In addition you may want to use your module’s discussion forums for more informal interactions. We encourage this by asking you to post a short introduction about yourself to your module’s ‘Welcome’ discussion forum or invite you to post your astrophotography. You are welcome to exchange email addresses with fellow students.

Some students have also established ‘Facebook groups’. These are not maintained or monitored by UCLan. While you are welcome to use them for social interactions, we request that they are not used for academic discussions as this would undermine the Blackboard discussion forums which are open to all students enrolled on the module.

If you wish to ‘meet’ students across all the distance learning courses, then you can use the discussion forums and online classroom available in the Blackboard Astronomy Distance Learning Programme Area. The ‘Lounge’ discussion forum has been set up specifically for social interactions. If you wish to have an online chatroom meeting, you will need to arrange it beforehand to ensure the footfall.

1.7 External Examiner

Section 1.2 of the University Student handbook explains the role of the External Examiner. The details of the current external examiner and copies of recent External Examiner Reports are published on the Blackboard Astronomy Distance Learning Programme area.

<table>
<thead>
<tr>
<th><strong>External Examiner</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Nicholas Labrosse</td>
<td>School of Physics and Astronomy, University of Glasgow.</td>
</tr>
</tbody>
</table>

*If you wish to make contact with your External Examiner, you should do this through your Course Leader and not directly.*
2. Structure of the course

The distance learning programme consists of a number of awards, each of which requires students to complete a specified number of modules to gain the requisite number of credits. All the modules are standard modules of 20 credits, each requiring approximately 200 hours of study. Students can chose how many modules to study each year, subject to the course regulations, the recommendations of the course team and the direction of the assessment board. Since the courses have been validated as part-time courses, 4 modules is the maximum that can be studied in one academic year. The duration of study of the multi-module courses is therefore very flexible.

Each module has a specific level, consistent with the levels used in the UK’s National Qualifications Framework.

- Level 4 corresponds to First Year at University for a full time student
- Level 5 corresponds to Second Year at University for a full time student
- Level 6 corresponds to Third Year at University for a full time student

The first digit in the module code (eg AA1051) encodes the level. The other digits are arbitrary.

2.1 Overall structure

Most students will start by studying separate Certificates. When two of these have been completed, the student can transfer to the Certificate of Higher Education, and when that has been completed, the student can transfer to the Diploma of Higher Education or the BSc (Hons). All credits from the previous awards are transferred. The detailed requirements of each course are given in the corresponding Programme Specification available as a separate document in the Blackboard Astronomy Distance Learning Programme area and in the appendix.

The full list of options indicated may not all be delivered every year, and this may depend on how many students choose that particular option. When accepting your offer of a place to study on this course, you are accepting that not all of these options will be running. Before the start of each year, you will have an opportunity to discuss your course and preferred options with your academic advisor. The University will do all it reasonably can to ensure that you are able to undertake your preferred options.

2.1.1 Certificates

There are currently four Certificates. These are all ‘entry level courses’ which assume a minimum of prior subject knowledge. A Certificate is studied over a period of one academic year. Each award is obtained by passing the appropriate standard module; see Table 1 below.

Most students commence their studies with the Certificate in Astronomy.

2.1.2 Certificate of Higher Education in Astronomy

The Certificate of Higher Education in Astronomy is roughly equivalent to the first year of a full-time degree programme. It is worth 120 national credits at Level 4 and consists of six standard modules, chosen from the level 4 modules listed in Table 2.

AA1051 (or its equivalent by accreditation of prior learning) is a compulsory module and must be taken. All other level 4 modules are options within the CertHE.

Alternatively you can combine modules from this University with those from other institutions through the Accreditation of Prior Learning (APL). Consult the Course Leader for details of this option.

Students are normally expected to have completed two Certificates (or 40 credits of relevant accreditable study) before registering on the Cert HE in Astronomy.
Completion of the Cert HE in Astronomy allows you to progress to the Dip HE in Astronomy or BSc (Hons) in Astronomy. See ‘Progression’ below.

Table 1. Summary of Courses and Numbers of Modules

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Code</th>
<th>Number of Credits</th>
<th>Number of Modules and Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificate in Astronomy</td>
<td>VSASTR501</td>
<td>20</td>
<td>1 module at level 4 (AA1051)</td>
</tr>
<tr>
<td>Certificate in Cosmology</td>
<td>VSCOSM501</td>
<td>20</td>
<td>1 module at level 4 (AA1053)</td>
</tr>
<tr>
<td>University Certificate in Sun, Earth and Climate</td>
<td>VSASUN501</td>
<td>20</td>
<td>1 module at level 4 (AA1058)</td>
</tr>
<tr>
<td>University Certificate in Astrobiology</td>
<td>VSABIO501</td>
<td>20</td>
<td>1 module at level 4 (AA1059)</td>
</tr>
<tr>
<td>Certificate of Higher Education in Astronomy</td>
<td>VSASTR511</td>
<td>120</td>
<td>6 modules at level 4</td>
</tr>
<tr>
<td>Diploma of Higher Education in Astronomy</td>
<td>VSASTR512</td>
<td>240</td>
<td>6 modules at level 4 and 5 modules at level 5 or 7 modules at level 4 and 5 modules at level 5.</td>
</tr>
<tr>
<td>BSc (Hons) Astronomy</td>
<td>VSASTR513</td>
<td>360</td>
<td>6 modules at level 4, 7 modules at level 5 and 5 modules at level 6 or 7 modules at level 4, 6 modules at level 5 and 5 modules at level 6.</td>
</tr>
</tbody>
</table>

2.1.3 Diploma of Higher Education in Astronomy

The Diploma of Higher Education in Astronomy is roughly equivalent to the first two years of a full-time degree programme. It is worth a total of 240 national credits comprising both Level 4 and Level 5 study and is divided into two stages; Stage 1 and Stage 2, summarised by the structure diagram below (Figure 1).

Stage 1 consists of 120 credits at Level 4 and includes

- 100 credits (5 modules) of the distance learning modules at Level 4 listed above in Table 2. As for the Cert HE in Astronomy, AA1051 or its equivalent is a compulsory module. Alternatively you can substitute some of these by appropriate subject modules from another institution by APL.
- 20 credits (1 module) of elective study at level 4, where the student is free to choose the subject area. The primary purpose of the free-choice elective is to enable students to develop skills and acquire knowledge outside their main areas of study. This is normally attained by accreditation of prior learning (APL) of credits from other institutions.

Alternatively, it is permissible for a student to complete 120 credits (6 modules) of level 4 subject modules from Table 2.
Stage 2 consists of 120 national credits of which

- 100 credits (5 modules) must be at Level 5 and can be selected from the distance learning modules listed in Table 2. Note that some modules have prerequisites at Levels 4 or 5 and you should consult the module catalogue for details.
- 20 credits (1 module) can be at level 5 but is normally expected to be at level 4. AA1056 must be included in your programme of studies a compulsory module either at Stage 1 or Stage 2 if you do not have A level or University experience in Physics and Mathematics or the equivalent.

Modules at level 4 and 5 from other institutions may be used towards this award by APL.

Students are normally expected to have completed the Cert HE in Astronomy (or 6 modules = 120 credits at level 4 of relevant accreditable study) before registering on the Dip HE in Astronomy.

Completion of the Dip HE in Astronomy allows you to progress to the BSc (Hons) in Astronomy.

2.1.4 BSc (Hons) in Astronomy

Finally the BSc (Hons) in Astronomy is the full degree programme. The programme is worth a total of 360 national credits comprising modules at Levels 4, 5 and 6. Study is divided into two stages; Stage 1 and Stage 2, and is compatible with previous study of the CertHE or DipHE. It is summarised by the structure diagram in Figure 2.

Stage 1 consists of 120 credits at Level 4 and is identical to Stage 1 of the Dip HE.

Stage 2 consists of 240 national credits of which

- at least 100 credits (5 modules) must be at Level 6 and
- at least 220 (11 modules) must be at Level 5 or above.

In addition to the 5 Level 6 modules, the other 140 credits (7 modules) at Stage 2 will normally consist of

- 20 credits at Level 4, and
- 120 credits at Level 5, of which 20 credits (1 module) can be a Level 5 elective.

Modules at level 4 and 5 from other institutions may be used towards this award by APL.

AA1056 is a compulsory module either at Stage 1 or Stage 2 if you do not have A level or University experience in Physics and Mathematics or the equivalent.

- Students must be ‘Stage 1 complete’ before they can take any Level 6 modules.
• Normally students should complete several level 5 modules before proceeding to Level 6 modules.
• Some Level 6 modules have prerequisites at Levels 4 or 5 (consult the Module Catalogue for details).
• The dissertation would normally be undertaken in the final year of study.

**Figure 2. Structure Diagram for the BSc (Hons) in Astronomy.**

Students are normally expected to have completed the Cert HE in Astronomy (or 6 modules = 120 credits at level 4 of relevant accreditable study) before registering on the BSc (Hons) in Astronomy.

If a student completes the Dip HE in Astronomy before registering on the BSc (Hons) in Astronomy, only the final 6 modules of the BSc will be used to calculate the average mark to be used for the degree classification. See ‘Classification of Awards’ below.

### 2.1.5 Path through the BSc (Hons)
The detailed programme of study will depend upon the student's preferences and the module availability which is advertised on the website [www.studyastronomy.com](http://www.studyastronomy.com). Most students will start by undertaking 1 or 2 modules in the first year, to check that the study mode and type of course is suitable. After that, students may want to study up to three or four modules per year, depending on their other commitments. Since the BSc (Hons) is validated as a part-time course, four is the maximum number of modules permitted per year.

The following scheme shows an example of a 6-year route to the BSc, in which a student enrols on the BSc in the 3rd year of study.

- **1st Year of Study**  AA1051 (comp) AA1053, AA1059 (as Certificates)
- **2nd Year of Study**  AA1056 (comp), AA1057 and AA1058 (to complete CertHE)
- **3rd Year of Study**  AA1055 or AA1066, AA2053, and AA2055
- **4th Year of Study**  AA2051, AA2054 and AA2056
- **5th Year of Study**  AA2052, AA3053 (comp) and AA3051 (comp)
- **6th Year of Study**  AA3050 (comp), AA3057 (comp) and AA3056 (comp)

Most students in full-time employment will probably take considerably more than the minimum of 5 years (see regulations below) to complete the BSc (Hons).

In the early years of study, it is essential to study those modules which are prerequisites for later modules, as defined in their Module Descriptions. Apart from the compulsory module AA1051 *Introduction to Astronomy*, you will probably need to study AA1053 *Introduction to Cosmology* and unless your background in Maths and Physics is strong, AA1056 *Energy, Matter and the Universe*. You should discuss your programme of study with your Academic Advisor or Course Leader each year during ‘Progression’.
2.2 Modules available
Each module is a self-contained block of learning with defined aims, learning outcomes and assessment. A standard module is worth 20 credits. It equates to the learning activity expected from one sixth of a full-time undergraduate year and is designed to require 200 hours of study.

Table 2 lists all the modules of the Astronomy Distance Learning programme. The columns on the right hand side indicate if the module is available to each of the awards Certificate of Higher Education in Astronomy, the Diploma of Higher Education in Astronomy and the BSc (Hons) Astronomy.

- “Comp” indicates that the module is compulsory and must be taken, (but would be eligible for compensation if not passed outright).

Modules marked as Compulsory for a particular award must be included in the programme of study, or an equivalent accredited module.

Some modules, particularly the AA1051 Introduction to Astronomy, run every year, but others at HE levels 4, 5 and 6 are offered according to a rota. We endeavour to ensure that all our students have modules to which they may progress, but they will need to consult the module availability on the StudyAstronomy website when planning their future studies.

Students should note the module requirements for the awards Cert HE, Dip HE and BSc (Hons) specified in Sections 2.1.2 – 2.1.4. In particular any module described as Compulsory must be included. At levels 4 and 5, equivalent modules can be accredited, but at level 6, no accreditation is allowed, so all five of the UCLan level 6 modules must be studied for the BSc.

2.2.1 Accreditation of Prior Learning (APL)
Credits from appropriate modules at level 4 and 5 studied at other institutions can be used towards the Certificate of Higher Education in Astronomy, Diploma of Higher Education in Astronomy and BSc(Hons) in Astronomy. Modules are accredited as 'ungraded' and so do not contribute to the calculation of average percentage marks for the allocation of degree classifications etc. There is no accreditation of prior learning (APL) for Certificates. Modules at level 6 cannot be accredited.

If the credits have not already been used for an award at the same level, a maximum of two thirds of the UCLan award may be through APL (i.e. Cert HE 80 credits, Dip HE 160 credits and BSc (Hons) 240 credits).

If the credits have already been used for an award at the same level, the accreditation is limited to a maximum of one third of the UCLan award (i.e. Cert HE 40 credits, Dip HE 80 credits and BSc (Hons) 120 credits).

In most cases there must be appropriate subject match between the modules to be accredited and UCLan modules, especially for modules designated as compulsory. This may result in the student being prohibited from studying some UCLan modules in the future to avoid duplication in their study programme.
Table 2. Summary of Modules and Pre-requisites

<table>
<thead>
<tr>
<th>Module</th>
<th>Module Code</th>
<th>Pre-requisites</th>
<th>Cert HE</th>
<th>Dip HE</th>
<th>BSc (Hons)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 4 modules</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to Astronomy</td>
<td>AA1051</td>
<td>None</td>
<td>Comp</td>
<td>Comp</td>
<td>Comp</td>
</tr>
<tr>
<td>(Also available as Certificate in Astronomy)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Introduction to Cosmology</td>
<td>AA1053</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(Also available as Certificate in Cosmology)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Sun, Earth and Climate</td>
<td>AA1058</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>(Also available as Certificate in Sun, Earth and Climate)</td>
<td></td>
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<tr>
<td>Introduction to Astrobiology</td>
<td>AA1059</td>
<td>None</td>
<td>Yes</td>
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<td>(Also available as Certificate in Astrobiology)</td>
<td></td>
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<tr>
<td>IT for Astronomy</td>
<td>AA1055</td>
<td>AA1051</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Energy, Matter and the Universe</td>
<td>AA1056</td>
<td>AA1051</td>
<td>Yes</td>
<td>Comp</td>
<td>Comp</td>
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<tr>
<td>Investigations in Astronomy</td>
<td>AA1057</td>
<td>AA1051 and AA1053</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Great Astronomers in History</td>
<td>AA1066</td>
<td>None</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td><strong>Level 5 modules</strong></td>
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<td>The Milky Way</td>
<td>AA2051</td>
<td>AA1051</td>
<td>N/a</td>
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<td>Galaxies Beyond the Milky Way</td>
<td>AA2052</td>
<td>AA2051 (and AA1051)</td>
<td>N/a</td>
<td>Yes</td>
<td>Yes</td>
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<td>UV, Optical and IR Astronomy</td>
<td>AA2053</td>
<td>AA1051</td>
<td>N/a</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Exploring the Solar System</td>
<td>AA2054</td>
<td>None</td>
<td>N/a</td>
<td>Yes</td>
<td>Yes</td>
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<td>Solar Astrophysics</td>
<td>AA2055</td>
<td>AA1051 or AA1058</td>
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<td>Yes</td>
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<td>Solar-Stellar Connection</td>
<td>AA2056</td>
<td>AA2055</td>
<td>N/a</td>
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<td>Yes</td>
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<td><strong>Level 6 modules</strong></td>
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<td>Astronomy Dissertation</td>
<td>AA3050</td>
<td>Stage 1</td>
<td>N/a</td>
<td>N/a</td>
<td>Comp</td>
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<td>Origins</td>
<td>AA3051</td>
<td>Stage 1</td>
<td>N/a</td>
<td>N/a</td>
<td>Comp</td>
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<td>Cosmology and Relativity</td>
<td>AA3053</td>
<td>Stage 1</td>
<td>N/a</td>
<td>N/a</td>
<td>Comp</td>
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<td>Extreme States of Matter</td>
<td>AA3056</td>
<td>Stage 1, AA1056</td>
<td>N/a</td>
<td>N/a</td>
<td>Comp</td>
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<td>Collaborative Investigation</td>
<td>AA3057</td>
<td>Stage 1</td>
<td>N/a</td>
<td>N/a</td>
<td>Comp</td>
</tr>
</tbody>
</table>

Accreditation of Prior Learning normally takes place when a student is first admitted to an award which allows accreditation. However it can take place at any time during their studies. The onus is on the student to apply for accreditation. Currently the university makes no charge for the accreditation of credit-bearing modules.
2.2.2 Electives

The majority of modules specified in the distance learning programme are the UCLan subject modules listed in Table 2. However, the Dip HE and the BSc (Hons) have scope for one or more optional elective modules. This enables students to study modules at the appropriate level in any subject, in order to broaden their education.

Such elective modules are commonly from students’ prior study at another institution and can therefore be accredited as APL. This is a means of reducing the number of UCLan modules to be studied, thereby reducing the duration of study and cost to the student.

- The Dip HE allows 20 credits of elective at level 4.
- The BSc (Hons) allows 20 credits of elective at level 4 and 20 credits of elective at level 5.
- The Cert HE does NOT allow any elective module.

2.3 Entry requirements

Each course has its own regulations that cover the entry requirements, academic requirements of the course and the classification of the awards. These will be addressed in turn for each award.

The Astronomy Distance Learning courses are designed to allow non-specialists access to astronomical concepts. Candidates who show that they have a strong interest in the subject and who will benefit in terms of their personal development and enjoyment will be given preference.

2.3.1 Certificates

To study a Certificate applicants are normally required to have GCSE grade C in Mathematics and English or equivalent high school qualification. Overseas students whose medium of education was not English will be expected to provide evidence of English ability such as IELTS overall 6.0.

2.3.2 Certificate of Higher Education in Astronomy

Entry to the Cert HE will normally be via the successful completion of at least two Certificates, preferably including the Certificate in Astronomy (or equivalent). In addition Cert HE applicants are normally required to have GCSE grade C in Mathematics and English or equivalent high school qualification. Overseas students whose medium of education was not English will be expected to provide evidence of English ability such as IELTS overall 6.0.

Applicants with other qualifications or seeking to obtain accreditation for prior learning (APL) should contact the Course Leader for advice. Students may study up to four modules as certificates before having to decide whether to use them as part of their Cert HE programme.

2.3.3 Diploma of Higher Education in Astronomy

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 or 320 points old UCAS Tariff) including:

1. Two A2 level passes (or equivalent) in any subjects
2. and a pass in a science/technology subject at AS level
3. grade C passes in GCSE English and Mathematics.

Mature students and those who do not meet criteria 1-3 above will be considered in the light of their ability to benefit and their commitment to degree level study.

Entry to the Dip HE will normally be via the successful completion of the Certificate in Higher Education in Astronomy or 120 credits at level 4 of appropriate accreditable study. Overseas students whose medium of education was not English will be expected to provide evidence of English ability such as IELTS overall 6.0. A2 or A-level study of maths or science is
advantageous but not compulsory. On enrolment for the Dip HE, all astronomy modules previously studied with UCLan will be transferred to the new award.

Every applicant seeking to accredit modules from other institutions should contact the Course Leader for advice.

2.3.4 BSc (Hons) in Astronomy
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 or 320 points old UCAS Tariff) including:

1. Two A2 level passes (or equivalent) in any subjects
2. and a pass in a science/technology subject at A2 level
3. grade C passes in GCSE English and Mathematics.

Mature students and those who do not meet criteria 1-3 above will be considered in the light of their ability to benefit and their commitment to degree level study.

Entry to the BSc will normally be via the successful completion of the Certificate in Higher Education in Astronomy or 120 credits at level 4 of appropriate accreditable study. Overseas students whose medium of education was not English will be expected to provide evidence of English ability such as IELTS overall 6.0. A2 or A-level study of maths is advantageous but not compulsory. On enrolment for the BSc, all astronomy modules previously studied with UCLan will be transferred to the new award.

Every applicant seeking to accredit modules from other institutions should contact the Course Leader for advice.

2.4 Course requirements
Under university regulations, a module can only count towards one target award. Therefore if a student studies a module (or modules) while enrolled for the Cert HE, DipHE or BSc, the student will not also receive a Certificate relating to those modules.

2.4.1 Certificates
To be awarded a Certificate:-

a) Students must pass 20 credits at Level 4. The module must be the one named in the Programme Specification for that award.

2.4.2 Certificate of Higher Education in Astronomy
To be awarded the Certificate of Higher Education in Astronomy:-

a) Students must have successfully completed 120 national credits at Level 4 or above derived from the modules listed in Table 2 above or equivalent.

b) Students must successfully complete a minimum of 40 national credits from Table 2 above offered by the University of Central Lancashire. There is no provision for level 4 elective in the Cert HE.

c) AA1051 Introduction to Astronomy is compulsory. It or equivalent must be successfully completed.

d) Students may decide to enrol for the Cert HE programme after completing up to a maximum of 80 national credits as individual certificates.

e) The Cert HE must normally be completed within a minimum of 2 years and a maximum of 8 years.

2.4.3 Diploma of Higher Education in Astronomy
To be awarded the Diploma of Higher Education in Astronomy:-

a) Students must pass a total of 240 credits at Level 4 or above of which 100 must be at Level 5 or above.

b) Students must successfully pass both Stage 1 and Stage 2 of the programme.
Stage 1 may be passed by completing:
- 120 credits of approved Astronomy Level 4 modules or
- 100 credits of approved Astronomy Level 4 modules and a Level 4 elective or
- Cert HE in Astronomy.

Stage 2 may be passed by completing 120 credits of approved Astronomy of which 100 credits must be at Level 5 or above. There is no provision for level 5 elective in the Dip HE.

It is not necessary to complete Stage 1 before embarking upon Level 5 modules.

c) AA1051 Introduction to Astronomy is compulsory. It or equivalent must be successfully completed.
d) AA1056 Energy, Matter and the Universe must be successfully completed by students without A level or University experience in Physics and Mathematics or the equivalent.
e) Students must complete a minimum of 80 credits from the modules available at the University of Central Lancashire.
f) Students may decide to enrol for the Dip HE after completing up to a maximum of 160 credits for lesser awards.
g) The minimum period of study for the Dip HE is 4 years and the normal maximum is 12 years.
h) The classification of the DipHE awarded to successful students will be in accordance with the Academic Regulations. See below.

2.4.4 BSc (Hons) in Astronomy
To be awarded the BSc (Hons) in Astronomy:-

a) Students must pass a total of 360 credits at Level 4 or above of which 220 must be at Level 5 or above and at least 100 must be at Level 6 and include the core modules.
b) Students must successfully pass both Stage 1 and Stage 2 of the programme.

Stage 1 may be passed by completing:
- 120 credits of approved Astronomy Level 4 modules or
- 100 credits of approved Astronomy Level 4 modules and a Level 4 elective or
- Cert HE in Astronomy.

Stage 2 may be passed by completing 240 credits of approved Astronomy of which 100 credits must be at level 6 and 220 credits must be at level 5 or above. 20 credits of the level 5 Astronomy can be replaced by 20 credits of level 5 elective.

Students should be Stage 1 complete before starting Level 6 modules. It is not necessary to be Stage 1 complete before embarking on the study of Level 5 modules subject to fulfilment of any module pre-requisites.

c) The compulsory module (AA1051, Introduction to Astronomy,) or its equivalent and all five UCLan level 6 modules must be successfully completed.
d) AA1056 Energy, Matter and the Universe must be successfully completed by students without A level or University experience in Physics and Mathematics or the equivalent.
e) Students must complete a minimum of 120 credits from the modules available at the University of Central Lancashire.
f) Students may decide to enrol for the BSc (Hons) after completing up to a maximum of 240 credits for lesser awards.
g) The minimum period of study for the BSc (Hons) is 5 years and the normal maximum is 12 years.
h) The classification of the degrees awarded to successful students will be in accordance with the Academic Regulations. 2.4.5 Compensation
2.4.5 Compensation
Compensation describes the process by which a student who fails to satisfy some element of assessment is nevertheless recommended for progression/award on the grounds that the failure is marginal or is offset by good performance in other components of his/her study programme.

At the discretion of the Assessment Board, a maximum of four modules can be compensated for the BSc (Hons) in Astronomy, two at Stage 1 and two at Stage 2.

At the discretion of the Assessment Board, a maximum of three modules can be compensated for the Dip HE in Astronomy and a maximum of two modules can be compensated for the Cert HE in Astronomy.

Under the University’s Academic Regulations, compensation is not admissible for the award of Certificate.

2.4.6 Exit Awards
An Exit Award as specified in the Programme Specifications can in certain circumstances be conferred when a student fails to complete the registered target award. Under current University Academic Regulations, Certificates are NOT available as exit awards.

In the event of failure to pass the BSc (Hons), the available exit awards are

- BSc in Astronomy for students who have passed 16 modules of which 3 must be at level 6 and 9 at level 5 or above. (This award is unclassified.)
- DipHE in Astronomy for students who have passed 12 modules which must include the compulsory module AA1051 and of which 5 must be at level 5 or above.
- Cert HE (unnamed) for students who have passed 6 modules at level 4 or above and must include the compulsory module AA1051, ie are Stage 1 complete.

In the event of failure to pass the Dip HE, the available exit award is

- Cert HE (unnamed) for students who have passed 6 modules at level 4 or above and must include the compulsory AA1051, ie are Stage 1 complete.

In the event of failure to pass the Cert HE, NO exit award is available.

2.5 Module Registration Options
Discussions about your progression through the courses normally take place in February or March each year. It is an opportunity for you to make plans for your study over the next academic year. The course team will tell you about the various modules / combinations available and you will both agree on the most appropriate (and legal) course of study for you.

Be sure to complete your Module Options Questionnaire when asked, using the Guidelines provided by the Course Team. Your choices will be subject to the Module Availability on the StudyAstronomy website and the requirements of your target award.

Confirmation of approval of students’ module choices normally occurs by the end of April, subject to a satisfactory academic outcome at the June Assessment Board.

Students who are completing awards will be contacted at the same time regarding possible future study. Technically, a student who starts on a new award (eg transfer from the CertHE to the BSc) will be a ‘new student’ in the eyes of the university and will be ‘readmitted’.

Students in this position will be informed of the procedure.
2.6 Study Time

2.6.1 Module Schedule
Each module has a module schedule indicating the learning activities on a week by week basis. This details

- when sections of the learning materials are to be studied
- when self-test exercises are to be done
- when assessed courseworks are to be submitted online
- dates and times of the (optional) online classrooms for tutorial help
- date and time of the annual Staff-Student Liaison meeting.

The module schedule is available in each Blackboard module space on elearn.uclan.ac.uk. The rationale is to provide a framework within which distance learning students can organise their study time around their other commitments and submit their assessed work according to the published deadlines. The university’s online timetable is used for locations and class times for on-campus students only and will not show any events for the distance learning modules.

The normal schedule for the distance learning modules runs from September to May. If a student is offered reassessment, the submission deadline will be in June or August. It is the student’s responsibility to ensure they can meet this deadline if required.

2.6.2 Expected hours of Study
20 credits is a standard module size and equals 200 notional learning hours.

Hence, the normal amount of work involved in achieving a successful outcome to your studies is to study for 10 hours per each credit you need to achieve. This includes reading through the module materials, working on non-assessed exercises, reading discussion boards, working on assessed work etc.

Each Module Descriptor, linked from the Blackboard module space on elearn.uclan.ac.uk, contains a Module Learning Plan with suggested breakdown of how the 200 hours could be distributed between the various learning activities. The percentage of time spent in each activity varies from module to module, and also according to a student’s preferred learning style.

2.6.3 Organising your Study Time
If you have not studied for some time you may need to spend extra time beyond the hours mentioned above to keep up with the course. It is important to spend this extra time when it is required, since the course continually builds upon previously developed ideas and skills.

It is also important for you to actively engage with the material – that is to work at understanding it, ask yourself questions as you go along. If you have not studied independently without a teacher managing your learning for you, you may take a little time to adapt. The course team, especially the module tutor, will facilitate your studies, but the learning is your responsibility.

The following advice is to help you organise your study time:

1. Try to find a place to work that is physically comfortable but free from distractions.
2. Spend two or three minutes at the beginning of each session reviewing what you are planning to do in that session.
3. Aim to work for a specified length of time before taking a break. Do not try to study for too long at once. Frequent short breaks are best.
4. Read through the notes, annotate them and highlight the key points. You can supplement the notes with appropriate sections from the textbook.
5. You should allocate a proportion of your study time to trying problems, either as part of your assessments or as self-test exercises. Tackling exercises and problems is an essential part of learning and understanding.

6. Be proactive and check the module discussion forums on Blackboard. Maybe another student has asked a question and you can cement your understanding of the topic and help the other student by posting an answer. Maybe other students have asked similar questions to something that is still puzzling you. If not post a question on the discussion board yourself, or email the module tutor.

7. Plan for the online classroom meetings. These are usually scheduled two or three weeks before an assessment deadline. Check the module tutor’s agenda for the meeting. Make a list of questions you want to ask.

8. Start work on the assessments well before the submission deadline, at least two or three weeks for a typical question sheet.

9. Approximately 70% of your effort will be spent reading and understanding the topics. About 30% of your time will be directed towards the assessed work.

Distance Learning requires independent learning but it is not unsupported. Seek help when needed.

2.6.4 Attendance Requirements

As this suite of courses is conceived as distance learning courses, there is no formal attendance requirement. The courses are designed for off-campus delivery and study and students can participate in normal class activities through the Blackboard module and programme areas.

Some assessment especially at level 6 may take the form of viva voce examination by telephone or videoconference, and online timed assessments.

However, if there is evidence that a student is not participating in the course, they may be deemed to have withdrawn. If this is the case, then the date of withdrawal will be recorded as the day the Course Leader asked the Admin Team to withdraw the student.

Withdrawal may occur if one or more of the following circumstances applies.

- Missed assessment deadlines
- Failure to respond to communications from the university
- No access to Blackboard for several weeks.

Therefore if you know you are going to be away or not active on Blackboard, you should

- inform the Course Leader via email to ucastro@uclan.ac.uk and seek advice.
- consider submitting an application for an extension or extenuating circumstances.
- consider deferring your studies until next academic year, by submitting an application for ‘Interruption of Studies’.

The attendance of on-campus students is monitored using electronic ‘Student Attendance Monitoring’ or SAM. Students can view the Student Attendance Information on MyUCLan or by using Starfish, linked from the Student Portal. For distance learning students, the Student Attendance Information will be blank. However Starfish also displays Blackboard access. This information IS available for distance learning students.

3. Approaches to teaching and learning

3.1 Expertise of staff

In addition to the research expertise of the staff (see Section 1.3) the course team has many years’ experience of teaching Astronomy to both on-campus and distance learning students.
3.2 Learning and teaching methods
In the entry level modules, the emphasis is on independent student learning where students practise subject skills and understanding such as solving simple problems based on the course notes and following scripts to write up an experimental report. At higher levels the module content tends to be more demanding with regard to its mathematical and subject content. Assessed problems may be more challenging and/or introduce open ended elements. As students develop their research skills, the higher level assessments will require more research using sources such as referred journals, culminating in the Astronomy Dissertation which is a major piece of independent work. Higher level modules may also rely on student interaction via the discussion forums, eg for seminar discussion of electronic presentations. One level 6 module requires group work, in which students set common deadlines to produce a group report and presentation, simulating the mode in which professional astronomers frequently work with their distant collaborators.

3.2.1 Accessing Blackboard
The Astronomy Distance Learning Courses on the Elearn server use Blackboard which the University has adopted for its online teaching delivery. It is used as the primary means of delivering course materials, assignments and student-tutor interactions. For each module, it provides a Discussion Forum (including a Noticeboard), as well as a Chat facility for online classrooms. You can connect direct to the UCLan Student Portal that gives access to your Elearn modules as well as many other UCLan facilities.

Figure 3 Screenshot of Student Portal Login Screen

The Username and password required are your UCLan Network User ID and password. See below. In case of difficulty with the user name and password, follow the links just below the password box on the login page. If this fails, contact the LISCustomersupport@uclan.ac.uk.

For more help with using Blackboard itself you should try:

Student Portal and Blackboard Server: portal.uclan.ac.uk
3.2.2 Online Facilities in Blackboard

Blackboard enables you to participate in a variety of online activities which include:

- **Download course materials** including course notes and other learning materials, usually supplied in the form of pdf files. These have basic navigation and modest colour, and can be viewed on screen or can be printed on paper as preferred. Students are responsible for producing their own paper copies if required. Course Notes will be released at the start of the module, or in some cases, sections will be made available online according to the Module Schedule.

- **Uploading assessments** and receiving feedback.

- **Discussion forums** used by students and course team to discuss the module contents and topics of general interest (but not for detailed discussion of assessment questions). Examples include observing tips, tips for self test exercises, exploring aspects of the course notes, and other astronomical news not directly related to the course. The course team uses the *Noticeboard discussion forum* in each module for course notices, such as any changes in schedule.

- **Online Classroom Meetings** for tutorials are based on a chat facility. These *module-specific meetings* take place about once a month, usually midweek between 6pm and 9pm (GMT) in the appropriate module space chatroom. Provisional dates for all formal module-specific meetings are listed on the relevant module schedules. Check your Module Schedule and Module Online Classroom Pages for the regular times and dates of forthcoming Classroom meetings. Note the UK times specified are BST or GMT according to whether daylight saving is in operation.

  At these times the module tutor will be available to meet students and answer questions about the course notes etc. These module discussions will be logged and made available (via a thread in the relevant module Discussion Forum) to other students on the module.

- **Informal meetings.** You are welcome to use the online classroom facilities to meet fellow students at any time, but remember you will probably have to arrange the rendez-vous beforehand, eg via your module Discussion Forum. Staff do not attend informal meetings.

3.3 Study skills

A wide range of help and advice to help you develop your study skills is available from the University’s Student Support Website.

**Student Support Website:** [http://www.uclan.ac.uk/students/support/index.php](http://www.uclan.ac.uk/students/support/index.php)

**Wiser Website:** [http://www.uclan.ac.uk/students/support/wiser/index.php](http://www.uclan.ac.uk/students/support/wiser/index.php)

WISER gives academic support to all students enrolled on University courses to help students learn how to study more effectively and communicate at an advanced and professional level. Developing formal communication skills during your time at university is obviously necessary for academic success, but will also be invaluable in future employment.
WISER also offers a 1-1 support up to 3 times during the academic year. They will read up work and provide feedback on your writing, usually within 3 working days. Email work to: wiseraccess@uclan.ac.uk

The most direct way in which the course team can help you with your study skills is via the written feedback on each of your assessments.

It is important that you read the feedback from your assessments and act on it to improve your future work. So make sure that when you receive any feedback, develop an action plan and keep it handy to refer back to when you write your next piece of work.

3.4 Learning resources

3.4.1 Learning Information Services (LIS)

Extensive resources are available to support your studies provided by LIS – library and IT staff. Take advantage of the free online training resources designed to enable you to gain all the skills you need for your research and study.

LIS Induction materials for many of the facilities offered by LIS will are linked from the Blackboard Module space.

LIS Facilities include:

- University computer registration
- University email
- Remote access to University PC network
- MyUCLan (student record system)
- Starfish
- Library and library catalogue
- Distance Learning Library service
- Online booklists
- Electronic Resources (see below).

The Library building is open 24/7 during normal teaching weeks in Semesters 1 and 2. At other times the library opening hours are typical ‘office hours Monday – Friday’. For details see: https://www.uclan.ac.uk/students/library-it/library/opening_hours.php.

For specific queries such as about journal access or interlibrary loans contact the subject librarian.

Subject Librarian: Bob Frost
Telephone: 01772 89 2261
Email: RS Frost@uclan.ac.uk

3.4.2 Electronic Resources

By this we mean resources other than the normal course materials provided on Blackboard. Occasionally the module tutor may provide access to a specific journal article via Blackboard. In some modules the recommended textbook or other background reading is available as an e-book from the library.

Online booklist: http://readinglists.central-lancashire.ac.uk/index.html

This is also linked directly from the Blackboard module space. Enter your module code in the search box to bring up the reading list.
To open an e-book it may be necessary to use the institutional ‘shibboleth’ login, which is just your uclan user ID and password.

In other cases, especially in the higher level modules, students are expected to access e-journals etc for themselves. Again the ‘shibboleth’ login should enable you to gain access.

LIS provide access to a huge range of electronic resources – e-journals and databases, e-books, images and texts. A good starting point is the Library’s subject page with links to many of the most commonly used journals and databases. Go to the subject page below and select ‘Astronomy and Astrophysics’ from the pull down menu.

**Library subject page:** [http://www.uclan.ac.uk/students/study/library/subject_search.php](http://www.uclan.ac.uk/students/study/library/subject_search.php)

### 3.5 Personal development planning

Many distance learning students are already actively engaged in Personal Development Planning. You may be working full time and taking your course with a view to shift the emphasis of your career in the future. Or you may be studying to fulfil a life-long ambition and ensuring an active and intellectual retirement.

If you have not considered personal development planning, especially if you are enrolling to study for an award consisting of 6 or more modules, you are recommended to discuss it with your Academic Advisor or Course Leader.

A Skills or progress file is becoming a valued record of achievements (academic and transferable skills). Further guidance on personal development planning can be found at [http://www.uclan.ac.uk/students/support/wiser/index.php](http://www.uclan.ac.uk/students/support/wiser/index.php).

A good place to start is with transferable skills. Transferable skills are those which can be applied to any job or career and are much valued by employers and include communication in all its forms - written, visual, and oral - time management, solving problems and dealing with routine and non-routine tasks etc.

### 3.6 Preparing for your career

It’s your future: take charge of it!

**Careers** offers a range of support for you including:

- career and employability advice and guidance appointments
- support to find work placements, internships, voluntary opportunities, part-time employment and live projects
- workshops, seminars, modules, certificates and events to develop your skills
- Daily drop in service available from 09:00-17:00 for CV checks and initial careers information. For more information come along and visit the team (in Foster building near the main entrance) or access our careers and employability resources via the Student Portal.

Careers can be contacted:

<table>
<thead>
<tr>
<th>Careers: Foster Building, main entrance</th>
<th>Telephone: <strong>01772 895858</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Email: <strong><a href="mailto:careers@uclan.ac.uk">careers@uclan.ac.uk</a></strong></td>
<td>Website: <a href="http://www.uclan.ac.uk/students/careers/index.php">http://www.uclan.ac.uk/students/careers/index.php</a></td>
</tr>
</tbody>
</table>

See section 3 of the University Student Handbook for more details.
4. Student support, guidance and conduct

The University’s Student and Academic Support Service provides a centralised Student Information Centre (see Section 4 of the University Student Handbook) known as The ‘i’ and this your first point of contact. You can obtain information on a wide range of topics including Council Tax Exemption Certificates, Bank and Confirmation of Study Letters, Portable Financial Credits, (continuing students only, Printing and Printer Credit, UCLan Cards, the ‘i’ shop and UCLan Financial Support Bursary (first year students only).

In addition to the university-wide student support, the Course Team is also available to offer support or refer you to the appropriate service. Initial contact should be via ucastro@uclan.ac.uk. Campus Admin Services will pick up any administrative queries such as anomalies on your student record. Requests for academic or pastoral advice will be passed on to your Academic Advisor or the Course Leader. Questions concerning conduct or discipline will be forwarded to the Head of School.

4.1 Academic Advisors

The role of academic advisors is to advise students on matters relating to their course of study. The academic advisor will provide academic and basic personal support and provide information about appropriate alternative sources of support.

For students enrolled on a single module award, the Module Tutor normally acts as academic advisor, whom you should contact if needed.

For students enrolled on an award involving 6 or more modules you will be assigned an academic advisor for the duration of your studies. This person may be one of your module tutors, the Course Leader or another member of the Course Team. You will be contacted once during each academic year, typically in February or March or when the Module Options Questionnaire is released online, in which you express your module choices for the next year of study. You are invited to contact your academic advisor for advice about this. This will provide an opportunity for you to discuss your current progress, your plans for further study and your Personal Development File.

In addition, all students can contact their academic advisor at any time by email or telephone.

Your academic advisor’s name appears on MyUCLan along with other details of your programme of study.

4.1.1 Tuition Fees

The module fees are reviewed annually. See the fees page of the Astronomy Distance Learning Website http://www.studyastronomy.com/fees.php and reference therein.

If you have a query regarding fees or invoices you will be referred to the Tuition Fees Team: https://www.uclan.ac.uk/students/support/money/ tuition_fees.php.

| To make a payment: | Cashiers Office  
|                  | Email: fcashiers@uclan.ac.uk  
|                  | 01772 892184 or 01772 892186 |
| To query an invoice: | Customer Accounts  
|                   | Email: CAccounts@uclan.ac.uk  
|                   | 01772 892440 |
| To make a query about fees: | Tuition Fees Team  
|                          | Email: tuitionfeesteam@uclan.ac.uk  
|                          | 01772 892440 |

If a UK or EU student interrupts study or withdraws the student is charged on a sliding scale as specified in the Tuition Fees Policy in force at the time. The remaining fee is left on the
account and can be claimed as a refund by contacting Customer Accounts. At the time of writing (May 2018) the fees charged are as follows:

- Within Term 1: 25%
- Within Term 2: 50%
- Within Term 3: 100%

4.2 Students with disabilities
If you have a disability that may affect your studies, please either contact the Disability Advisory Service - disability@uclan.ac.uk - or let one of the course team know as soon as possible. With your agreement, information will be passed on to the Disability Advisory Service. The University will make reasonable adjustments to accommodate your needs and to provide appropriate support for you to complete your study successfully. Where necessary, you will be asked for evidence to help identify appropriate adjustments.

For the purposes of distance-learning, disclosure may be via the application/enrolment form or through other communication from the student.

4.2.1 Assessment arrangements for students with a disability
Arrangements are made for students who have a disability/learning difficulty for which valid supporting evidence can be made available. Contact the Disability Adviser for advice and information, disability@uclan.ac.uk

Examples of adjustments that can be made are allowing extensions to assessment deadlines and other flexibility in the course schedule to accommodate periods of illness, or marking assessments according to the university's guidelines for marking dyslexic work.

A disability or learning difficulty does not constitute an extenuating circumstance (Academic Regulations: http://www.uclan.ac.uk/aqasu/academic_regulations.php) and so would not be grounds for allowing extensions to assessment deadlines.

4.3 Students’ Union One Stop Shop
For details of the general activities of the Students' Union see Section 5 of the University Student Handbook.

The Opportunities Centre is the Union's One Stop Shop to find employment or volunteering whilst you study. With thousands of jobs and voluntary positions advertised, agency work through the Bridge and information on over 2000 volunteer positions within the Union.

As one of the thousands of students who are not studying on the main UCLan campus in Preston, the Students Union is still your union, please check http://www.uclansu.co.uk/ for full details on what we may be running in your partner institution.

4.4 Health and Safety
Section 4.4 of the University Student Handbook describes the general considerations regarding Health and Safety relevant to a UCLan student. In addition to these, there are some risks that may affect you as a distance learning student.

Possible hazards of which you should be aware and take precautions are:

- Prolonged use of computers and their possible detrimental effect on eyes, posture and contribution to repetitive strain injury.
- Use of telescopes at night: personal safety, trip hazards, lifting hazard.
- The Sun must never be viewed directly with the eye and under no circumstances viewed through a telescope or binoculars without professionally produced solar filters.
- Practical experiments must be carried out with due care for personal safety and any medical conditions.
5. Assessment
Please note that all modules will be assessed. You are expected to attempt all required assessments for each module for which you are registered, and to do so at the times scheduled unless authorised extensions, special arrangements for disability, or extenuating circumstances allow you to defer your assessment. See Section 7 of the University Student Handbook for more detail. Except where small numbers or individual supervision preclude (such as for the dissertation, or a presentation) work should be submitted anonymously to Blackboard, so that it can be marked and moderated anonymously. The students’ identities are only revealed to the module team when the marks and feedback are released on the Turnitin post date typically 15 working days after the submission date.

5.1 Assessment Strategy
Assessment enables the course team to grade students’ work, but we also believe it is an important part of the learning process. The effort that a student puts in to complete an assessment consolidates their understanding of the material and helps to transfer the concepts to long term memory. Likewise, the feedback returned with the marked work highlights where the approach could be improved in the future. Feedback could reasonably be rename ‘feed-forward’. Of course it is important that the student reads and acts upon the feedback to derive greatest benefit.

The programme as a whole is designed to fulfil the aims and learning outcomes specified in the corresponding Programme Specification (see Appendix). The learning outcomes at the programme level are addressed in the various individual modules, and the assessments of each modules are designed to test the module’s learning outcomes. Table 3 lists the learning outcomes for the BSc (Hons) Astronomy and Table 4 is the corresponding matrix.

The Academic Regulations stipulate that to pass any module at levels 4, 5 or 6, an average mark of 40% or above must be obtained, aggregated across all the assessments. The aggregated module mark is a weighted average over all the assessments. Consequently it is necessary to submit all assessments to obtain a high overall module mark.

The types of assessment used in the programme include: questions sheet with problem-solving and conceptual questions, formal report of experimental procedure, researched essay, critical review of journal paper, electronic seminar presentations, viva and dissertation report.

The formal assessment of most of the distance learning modules is by courseworks, effectively continuous assessment. A few of the higher level modules include assessments in the form of timed assessments that are treated as ‘open-book tests’, in which students must complete the assessment within the specified time frame of about 3 days. This gives students some practice in working to short deadlines, a common requirement for graduate employees.

Because feedback to all submitted work is supplied, all formal assessments are effectively ‘formative’ assessments. Model answers to many assessments, especially questions sheets are supplied to all students who submit work for that assignment. These are released at the same time as the feedback and marks (ie the Turnitin post date) typically 15 working days after the submission deadline. In addition in some modules, there is the opportunity for students to submit a draft of part of their assignment for feedback prior to producing their final version. Lastly, the many self-test exercises, with their model answers enable students to assess for themselves how they are progressing.

No distance learning modules contain formal examinations requiring attendance at an examination centre or the university.
5.2 Notification of assessment deadlines and submission requirements

Assessment submission deadlines are published in the Module Schedule at the start of the module. This includes announcement of any online timed tests, to enable students to manage their time. There are no formal examinations.

Each assessment briefing reminds students of the exact submission deadline, which is typically 11:59pm (UK time) on the day in question. It also reminds students which module learning outcomes are assessed in the particular assessment and also gives an indication of the mark scheme (eg number of marks per questions in a problem sheet).

5.2.1 Submitting assessed work

All assessments are to be submitted electronically to Blackboard. The majority of assessments must be word processed in a form suitable for submitting to Turnitin. You are strongly advised to keep your own copy of work submitted, as a precaution, as work can occasionally go astray even in electronic systems.

Do not submit your work by post or email. If you are having difficulty submitting via Blackboard, contact ucastro@uclan.ac.uk for advice.

YOUR WORK SUBMITTED ELECTRONICALLY SHOULD:

- be **uploaded** to the University’s systems by the **ASSESSMENT DEADLINE**
- have a **HEADER PAGE** with declaration that it is your own work and assignment information according to the **TEMPLATE** that can be downloaded from Blackboard (in Word format).
- consist of computer files **NAMED** according to any convention indicated in the module documentation
- use only **FILE FORMATS** specified in the module documentation or otherwise agreed
- for printable files be in **A4 PAPER FORMAT**
- for Turnitin submissions consist of a **SINGLE FILE** in one of the **specified formats** and not exceeding 20 Mb in size.
- for other submissions, consist of the **SPECIFIED NUMBER** of files each of one of the specified formats
- consist of **ALL REQUIRED FILES** whether via Turnitin or otherwise
- if word-processed should use a font size **no smaller** than 12 pt.
- if the document has been uploaded successfully, Turnitin will display a **digital receipt number** on the screen: please make a note of this number and take it as acknowledgement of receipt. Blackboard also sends an email acknowledgement, to your UCLan email address.
- should NOT exceed any maximum page or word limit given in the assessment briefing.

**FAILURE TO ADHERE TO THESE RULES MAY RESULT IN THE WORK NOT BEING MARKED.**
### Table 3 Learning Outcomes  
– definition in BSc(Hons) Programme Specification

<table>
<thead>
<tr>
<th>12. Learning Outcomes, Teaching, Learning and Assessment Methods</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Knowledge and Understanding</strong></td>
<td></td>
</tr>
<tr>
<td>A1. describe and explain the structures of the universe and the processes that take place within it in terms of the underlying physical laws, including some at (or informed by) the forefront of astronomy.</td>
<td></td>
</tr>
<tr>
<td>A2. solve a broad range of advanced problems in astronomy using physical and rigorous mathematical techniques</td>
<td></td>
</tr>
<tr>
<td>A3. discuss and quantify uncertainties and limitations of astronomical theory</td>
<td></td>
</tr>
<tr>
<td>A4. discuss the techniques of observational astronomy and their limitations</td>
<td></td>
</tr>
<tr>
<td><strong>Teaching and Learning Methods</strong></td>
<td></td>
</tr>
<tr>
<td>Course Notes linked to recommended textbook 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.</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment methods</strong></td>
<td></td>
</tr>
<tr>
<td><strong>B. Subject-specific skills</strong></td>
<td></td>
</tr>
<tr>
<td>B1. design and implement astronomical observations</td>
<td></td>
</tr>
<tr>
<td>B2. use investigative techniques to retrieve astronomical information from on-line/library data sources</td>
<td></td>
</tr>
<tr>
<td>B3. analyse and process astronomical data taking into account the uncertainties</td>
<td></td>
</tr>
<tr>
<td>B4. plan and prepare a substantial scientific report on a topical astronomical subject.</td>
<td></td>
</tr>
<tr>
<td>B5. use a range of advanced and rigorous mathematical techniques and physical laws to solve problems</td>
<td></td>
</tr>
<tr>
<td><strong>Teaching and Learning Methods</strong></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment methods</strong></td>
<td></td>
</tr>
<tr>
<td>Researched scientific essays, Experimental reports. Dissertation. Mathematical/numerical problems in assessed question sheets, timed on-line assignment</td>
<td></td>
</tr>
<tr>
<td><strong>C. Thinking Skills</strong></td>
<td></td>
</tr>
<tr>
<td>C1. review and analyse information in a critical way from a variety of sources (including scientific papers)</td>
<td></td>
</tr>
<tr>
<td>C2. Formulate problems in precise terms and think analytically and critically about scientific ideas in order to develop logical arguments and draw conclusions.</td>
<td></td>
</tr>
<tr>
<td>C3. synthesise different strands of a theory or problem to produce a solution</td>
<td></td>
</tr>
<tr>
<td>C4. plan and implement an investigation individually and within a group environment. Critically analyse the outputs and evaluate their significance.</td>
<td></td>
</tr>
<tr>
<td><strong>Teaching and Learning Methods</strong></td>
<td></td>
</tr>
<tr>
<td>Case studies, literature reviews, data analysis exercises, group activities, observations, library research and open-ended problems. Dissertation supervision.</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment methods</strong></td>
<td></td>
</tr>
<tr>
<td>Scientific essays, experimental reports, group reports, question sheets with a balance of quantitative and open-ended questions, on-line assessment. Dissertation and viva.</td>
<td></td>
</tr>
<tr>
<td><strong>D. Other skills relevant to employability and personal development</strong></td>
<td></td>
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<tr>
<td>D1. use written communication skills effectively including a substantial dissertation</td>
<td></td>
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<tr>
<td>D2. use advanced numerical skills</td>
<td></td>
</tr>
<tr>
<td>D3. work independently to plan and manage own time to achieve specific objectives</td>
<td></td>
</tr>
<tr>
<td>D4. use scientific IT skills effectively to produce publication-style documents.</td>
<td></td>
</tr>
<tr>
<td>D5. work effectively as a team member towards common aims and objectives.</td>
<td></td>
</tr>
<tr>
<td><strong>Teaching and Learning Methods</strong></td>
<td></td>
</tr>
<tr>
<td>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. Group activities via Elearn. Use IT to access course materials, analyse data, produce publication style reports, electronic presentations, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>Assessment methods</strong></td>
<td></td>
</tr>
<tr>
<td>Researched scientific essays, Experimental reports Mathematical/numerical problems in assessed question sheets, timed on-line assignment.</td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>Module Code</td>
</tr>
<tr>
<td>-------</td>
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<td></td>
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<tr>
<td>LEVEL 6</td>
<td>AA3050</td>
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<td>AA3051</td>
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<td>AA3053</td>
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<td></td>
<td>AA3056</td>
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<td></td>
<td>AA3057</td>
</tr>
<tr>
<td>LEVEL 5</td>
<td>AA2051</td>
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<td>AA2052</td>
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<td>AA2053</td>
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<td>AA2055</td>
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<td>AA2056</td>
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<tr>
<td>LEVEL 4</td>
<td>AA1051</td>
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<td>AA1053</td>
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<td>AA1058</td>
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<tr>
<td></td>
<td>AA1059</td>
</tr>
<tr>
<td></td>
<td>AA1066</td>
</tr>
</tbody>
</table>
5.2.2 Marking criteria
The University operates a universal marks scheme to denote student performance in modules. See the Academic Regulations for details.

The marking system is the one used by most UK universities and compares with the traditional degree classification.

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Honours Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 - 100%</td>
<td>First Class Honours</td>
</tr>
<tr>
<td>60 - 69.99%</td>
<td>Upper Second Class Honours</td>
</tr>
<tr>
<td>50 - 59.99%</td>
<td>Lower Second Class Honours</td>
</tr>
<tr>
<td>40 - 49.99%</td>
<td>Third Class Honours</td>
</tr>
</tbody>
</table>

Marking schemes are designed so that an “average” performance will score 60%-65% and you will have to have done really exceptionally well to score over 70%. The “pass” mark is 40% or 4 out of 10.

For assessments of an appropriate nature, such as dissertations or presentations, the course team uses the University’s banded marking, which subdivides the decades of marks used for degree classification. For each component of assessment, qualitative criteria describe the characteristics of each band. The overall module mark will be the weighted average of these components, so may not coincide with one of the defined band marks. Table 5 describe the characteristics of different type of assessment typical for the different degree classifications as an indication of the criteria used in banded marking.

5.3 Referencing
The Harvard referencing system will be used throughout the course. In order to have an accurate record of what you have researched and therefore an accurate reference, it is important that you write down the details of the sources as you study. When taking notes, use a separate page for each new book, journal article, or electronic source. At the top of each page, clearly record the following information for future reference.

For books, record:
- The author’s or editor’s name (or names)
- The year the book was published
- The title of the book
- If it is an edition other than the first
  - The city the book was published in
  - The name of the publisher

For journal articles record:
- The author’s name or names
- The year in which the journal was published
- The title of the article
- The title of the journal
- The page number/s of the article in the journal
- As much other information as you can find about the journal, for example the volume and issue numbers

For electronic resources, try to collect author, date etc if it is available, but also record:
- The date you accessed the source
- The electronic address or email
- The type of electronic resource (email, discussion forum, WWW page, etc)
Table 5 Guidance on Marking Criteria in Physics and Astronomy

The School uses many different types of assessment including: problem solving, essays, oral presentations, lab books, formal reports, projects, group projects, essays, etc. In each there are a number of common elements. The criteria listed are the main ones to which staff will be marking. However different assessment types will contain different balances of the criteria.

<table>
<thead>
<tr>
<th>Classification</th>
<th>methods</th>
<th>problem-solving</th>
<th>conceptual understanding</th>
<th>work done</th>
<th>motivation</th>
<th>group work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1 (outstanding) &gt;70%</td>
<td>error-free application of methods to a range of easy and hard problems</td>
<td>thorough grasp of complex problems, possible solutions and their limitations</td>
<td>thorough grasp of the underlying concepts</td>
<td>considerable work done, excellent experimental technique and achievement</td>
<td>highly self motivated and high level of initiative</td>
<td>well organised task management with clear delineation of roles within the group</td>
</tr>
<tr>
<td>Class 2:1 (above average) 60 - 69%</td>
<td>some errors in complex problems</td>
<td>thorough grasp of problems but incomplete understanding of limitations of solutions</td>
<td>a grasp of most of the underlying concepts</td>
<td>Clear evidence of work done, good experimental technique and significant achievement</td>
<td>self motivated but requiring some staff help occasionally</td>
<td>organised task management with some delineation of roles within the group</td>
</tr>
<tr>
<td>Class 2:2 (average) 50 - 59%</td>
<td>able to apply methods to a range of problems, some non-standard</td>
<td>able to solve some complex problems, with some indication of limitations</td>
<td>a superficial understanding of the concepts with indications of the students limitations</td>
<td>reasonable amount of work done, adequate experimental technique and achievement</td>
<td>student requires a moderate level of staff involvement to sustain the work</td>
<td>task management is subdivided within the group but not very clearly</td>
</tr>
<tr>
<td>Class 3 (below average) 40 - 49%</td>
<td>able to apply methods to a range of simple problems</td>
<td>able to produce simple solutions to easy problems</td>
<td>limited conceptual understanding</td>
<td>Some evidence of work done, poor experimental technique and some identifiable achievement even if not the original aim</td>
<td>student shows little self motivation or initiative and requires a lot of staff involvement</td>
<td>task management is poorly subdivided within the group and there is some confusion over roles.</td>
</tr>
</tbody>
</table>

In marginal cases:
- able to apply methods to some simple problems; often with errors
- an understanding of simple problems, with some idea of appropriate solutions
- an understanding of only very simple concepts with conceptual gaps and misunderstandings
- small amount of work done with a small but identifiable achievement; experimental technique is very poor
- student shows little motivation and requires considerable staff involvement to sustain work
- task management is ineffectively subdivided within the group and there is confusion about job allocation

Fail <40% failure to apply methods to simple problems, or many errors
- failure to understand the nature of the problem
- no grasp of even the simplest concepts
- inadequate work and achievement; inadequate experimental technique
- no motivation and lack of positive input into the project
- no attempt to work as a group
### Table 5 continued

<table>
<thead>
<tr>
<th>Classification</th>
<th>relevance</th>
<th>knowledge</th>
<th>analysis</th>
<th>structure</th>
<th>originality</th>
<th>presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1</td>
<td>directly relevant to the title; able to address the implications, assumptions and nuances of the title</td>
<td>makes effective use of excellent knowledge and thorough understanding of the relevant material</td>
<td>a very good analysis of the evidence, arguments or results, giving clear and illuminating conclusions</td>
<td>coherently and logically structured, making use of appropriate standard formats</td>
<td>distinctive work showing independent thought and critical judgement</td>
<td>Very well presented in good English and correct spelling and syntax; creative use of IT and inclusion of bibliography and clear, instructive diagrams</td>
</tr>
<tr>
<td>Class 2:1</td>
<td>directly relevant to the title</td>
<td>a substantial knowledge and understanding of the relevant material</td>
<td>good analysis, clear and orderly</td>
<td>generally coherent and logical structure</td>
<td>may contain some distinctive or independent work and some evidence of critical judgement</td>
<td>well written, with good style, spelling and syntax, acceptable use of IT, diagrams and bibliography</td>
</tr>
<tr>
<td>Class 2:2</td>
<td>some attempt to address the title, may drift away from the title in the less focussed passages</td>
<td>adequate knowledge of a fair range of the relevant material with intermittent evidence of understanding</td>
<td>some analytical treatment but may be prone to description or lacking in analytical purpose</td>
<td>some attempt at using a logical structure and/or standard format</td>
<td>sound work but showing no distinctive elements; conforming to standard patterns of approach</td>
<td>competently written with only minor errors of spelling and syntax. Acceptable use of IT, diagrams and bibliography</td>
</tr>
<tr>
<td>Class 3</td>
<td>some significant degree of irrelevance to the title is common</td>
<td>basic understanding of a limited range of material</td>
<td>largely descriptive with little evidence of analytical skill</td>
<td>a basic argument may be evident, but tends to lack clarity</td>
<td>largely derivative showing little originality of approach</td>
<td>Rather poorly written with numerous lapses of spelling and syntax; poor diagrams, use of IT and bibliography</td>
</tr>
<tr>
<td>In marginal cases:</td>
<td>relevance to the title may be intermittent; the topic may be reduced to its vaguest and least challenging terms</td>
<td>a limited understanding of a narrow range of material</td>
<td>mainly descriptive with little analytical content</td>
<td>little evidence of a logical structure</td>
<td>mostly derivative</td>
<td>Poorly presented with numerous lapses of spelling, syntax and poor diagrams</td>
</tr>
<tr>
<td>Fail</td>
<td>outright irrelevance to the title</td>
<td>lack of basic knowledge necessary for an understanding of the topic</td>
<td>inadequate description and no analysis</td>
<td>no evidence of a clear and logical structure</td>
<td>no originality shown</td>
<td>Garbled and negligently presented</td>
</tr>
</tbody>
</table>
In addition to these details, when you are taking notes, if you copy direct quotations or if you put the author’s ideas in your own words, write down the page numbers where you obtained the information.

Most essays and reports require citations in the text (eg Smith et al, 2017), explaining the source of information or ideas being used as well as full bibliographic details at the end of your work. Failure to provide adequate referencing is academic bad practice and in some cases constitutes plagiarism.

More details can be found in the Research Skills content area of your Blackboard module space where you will find links to Harvard system Referencing Guides and to the WISER web pages https://www.uclan.ac.uk/students/study/wiser/index.php.

5.4 Confidential material
In some subjects, students are expected to access confidential information during the course e.g. patient notes which might inform assignments. Although there are no obvious circumstances in the Astronomy Distance Learning courses where this may arise, students are reminded of their ethical and legal responsibilities to respect confidentiality and maintain the anonymity of individuals and organisations within their assignments.

5.5 Dealing with difficulties in meeting assessment deadlines
Section 7.1 of the University Student handbook describes what you should do if you have difficulty meeting assessment deadlines. More details of the University’s Extensions procedure (for up to 10 working days) is available on https://www.uclan.ac.uk/students/support/extensions.php.

If unexpected and significant personal events occur so that a 10 working day extension is not adequate, you should apply for extenuating circumstances; see https://www.uclan.ac.uk/students/support/extenuating_circumstances.php for details of the University Extenuating Circumstances procedure.

There is further guidance to distance learning students about extensions in the Help area in the Blackboard module spaces. Please note the following.

- Requests received on or after the day of the deadline will NOT be accepted.
- Note that University guidelines do not include normal work commitments (academic or employment even for distance learning students) as justification for extensions. Acceptable reasons for the extensions are personal illness, or illness of a close family member, bereavement etc. In exceptional circumstances unexpected work commitments can be accepted.
- If a student asks for an extension on more than one assessment (across all modules in any one year), or requires a longer extension, the request will be passed on to the Course Leader. Students with severe extenuating circumstances may be advised to interrupt their studies until the following year.
- Students are advised that it is often preferable to submit an incomplete assignment on time than to ask for extensions and fall behind with the module as a result.
- Any work that arrives after the normal deadline cannot be guaranteed to be returned to you within our normal 3-week target.
- If a student has already done enough to pass a module, an extension would only be granted on the final assessment in exceptional circumstances.

If the difficulty is long-term, it may be appropriate for you to apply to ‘Interrupt your Studies’ for up to one academic year. Details of the procedure can be found at: https://www.uclan.ac.uk/students/study/interruption_to_study.php. You should consult the Tuition Fees Policy for information about tuition fees liability.

Alternatively if you see no prospect of returning to study you should apply to ‘Withdraw’ from the course. Details of the procedure can be found at:
https://www.uclan.ac.uk/students/support/study/leaving_study.php. You should consult the Tuition Fees Policy for information about tuition fees liability.

In all these cases, you are advised to seek advice from the Course Leader via ucastro@uclan.ac.uk at the earliest possible opportunity. Please note that under university procedures, the course team itself is not authorised to grant extensions or extenuating circumstances.

5.5.1 Late submissions
The University’s penalties for late submission of assessment are described in Section 7.4 of the University Student Handbook. If you submit work more than 5 working days late without authorisation it will be awarded a mark of 0% and marked for feedback purposes only. It may in due course be considered as a reassessment submission.

5.6 Cheating, plagiarism, collusion or re-presentation
Please refer to the information included in section 7.6 of the University Student Handbook for full definitions of these terms. In particular you should note the definition of re-presentation.

- Re-presentation is an attempt to gain credit twice for the same piece of work. This includes re-presentation of your own work previously submitted for any module either in its entirety or extracts of previous submissions.

The University uses an online Assessment Tool called Turnitin. A pseudo-Turnitin assignment is set up using the School space on Blackboard to allow students to check as many drafts as the system allows before their final submission to the ‘official’ Turnitin assignment. Students are required to self-submit their own assignment on Turnitin and will be given access to the Originality Reports arising from each draft submission. Turnitin may be used to assist with plagiarism detection and collusion, where there is suspicion about individual piece(s) of assessed work. In operating Turnitin, Schools take steps to ensure that the University’s requirement for all summative assessment to be marked anonymously is not undermined and therefore Turnitin reports are anonymised and considered separately from marking.

The Assessment Coversheet that we ask you to attach to each piece of submitted work includes a statement which confirms that individual work submitted for an assessment is your own and properly referenced. It is implicit when you submit work electronically in your name that it is all your own work.

How to avoid plagiarism will be discussed in relevant modules, such as those involving researched essays or reports. In addition you should follow the advice on Study Skills on the WISER website.

For many modules you are required to submit your work electronically to Turnitin on Blackboard. This automatically checks against databanks of student papers, refereed articles, web pages and other electronic resources. When necessary, you will be given details of how to submit your work to Turnitin and given guidance on how to avoid plagiarism and bad practice.

5.7 Results and Reassessments
The marks from the individual coursework assessments released to you via Blackboard are provisional until the assessment board at the end of the academic year when the quality assurance processes are complete.

The official module results and programme recommendation are released on University Results Day to students via MyUCLan where students can view an electronic form of their transcripts. For students completing an award, the University also sends a paper copy of the transcript to their permanent address on the University Student Record system. Mailing of the certificate itself is organised by Exams and Awards and will take place September-November following the June Results Day.
However, if you fail a module, several things can happen:

- If you fail a module, but not too badly, you may be given the opportunity to redo the piece or pieces of work that were below the pass mark. If you succeed in this referral work, each piece of referral work is capped at 40%, but the overall module mark may be over 40%.
- You are unlikely to be offered reassessment if you have attempted half or less of the assessments or if your module mark, averaged over all its assessments is below about 30%.
- If you fail the module very badly, you may be given fail repeat, but next time the module mark will be capped at 40%.

The most common reason for not passing these distance learning courses is non-completion of assessments. We may remind you if you miss the early deadlines, but if you know you are only interested in receiving the learning materials and not in taking the assessments, then we would like to know early on so that we do not waste our time and yours chasing you. You would continue to have access to the course material but without taking the assessments you obviously would not be entitled to the qualification. Alternatively, you can withdraw from the course. Students may be entitled to a partial refund, depending on their date of withdrawal. See Tuition Fees Policy for details.

6. Classification of Awards
The University publishes the principles underpinning the way in which awards and results are decided in Academic Regulations. Decisions about the overall classification of awards are made by Assessment Boards through the application of the academic and relevant course regulations. Since accreditation of prior learning is 'ungraded', only UCLan modules can be included in the calculations of average percentage marks.

7. Student feedback
You can play an important part in the process of improving the quality of this course through the feedback you give. See section 8 of the University Student Handbook for details of the Student Voice and the University’s system of course representatives and school president.

We are very keen to get your views on the courses that we offer. Past student comment has led to improvements over the years. For example recently students asked for a means of 'meeting' students across all modules, and as a result the 'Lounge' was created in the Astronomy Distance Learning Programme Area on Blackboard.

Mechanisms for feedback include:

- Informal feedback to the module tutor via module discussion boards
- Informal feedback by Email to ucastro@uclan.ac.uk.
- Staff-Student Liaison Committee discussion forum and meeting (see below).
- Module Review Questionnaires (see below).

If you have something to tell us about the course, please use at least one of these methods! We want to help you learn, and you are the best judge of how you do that!

7.1 Student Staff Liaison Committee Meetings (SSLC)
Details of the purpose and protocol for the operation of SSLCs is included in section 8.2 of the University Student Handbook. Please note that all astronomy distance learning students are invited to the formal meetings and submit their own individual feedback, so that they do not have formally elected course representatives as for on-campus courses.
Your Course Leader will facilitate the meetings using guidelines and provide a record of the meeting with any decisions and / or responses made and / or actions taken as a result of the discussions held. The meetings include discussion of items forwarded by students, normally related to the following agenda items (dependent on time of year).

The course team encourage student feedback in all areas and recognise that additional items for discussion may also be raised at the meeting:

- Update on actions completed since the last meeting
- Feedback about the previous year – discussion of external examiner’s report;
- Discussion of outcomes of National /UCLan student surveys;
- Review of enrolment / induction experience;
- Course organisation and management (from each individual year group, and the course overall);
- Experience of modules - teaching, assessment, feedback;
- Experience of academic support which may include e.g. Personal Development Planning, academic advisor arrangements and Student Charter;
- Other aspects of University life relevant to student experience e.g. learning resources, IT, library;
- Any other issues raised by students or staff.

The committee for the Astronomy Distance Learning courses meets the above requirements and functions by:

a) A SSLC discussion topic in the Blackboard Astronomy Distance Learning Programme area is open throughout both semesters for students from all courses.

b) A meeting, chaired by the school president, is held in the Blackboard online classroom during Semester 2, usually shortly before or after Easter. All students are invited to attend this online meeting. Students who cannot attend in person can email feedback to ucastro@uclan.ac.uk or post it on the Blackboard SSLC discussion topic mentioned above. Students who wish to provide feedback anonymously to this meeting can do so via the Student Union’s Academic Representation Coordinator.

<table>
<thead>
<tr>
<th>Academic Representation Coordinator</th>
<th>(For anonymous input)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email: <a href="mailto:coursereps@uclan.ac.uk">coursereps@uclan.ac.uk</a></td>
<td>Telephone 01772 895384</td>
</tr>
</tbody>
</table>

The date of the next SSLC meeting is:

<table>
<thead>
<tr>
<th>Staff Student Liaison Committee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Next Meeting: To be announced</td>
</tr>
<tr>
<td>Venue: Online Classroom. Blackboard Astronomy Distance Learning Programme</td>
</tr>
</tbody>
</table>

The SSLC date appears on each Module Schedule from the start of the year, and on the SSCL pages within the Blackboard Astronomy Distance Learning Programme area. All students are reminded about it by email, and the agenda is circulated by email approximately one week before the meeting.

The Course Team aims to give continual informal student feedback on various issues. Minutes of the Staff-Student Liaison meetings are kept and made available on the Astronomy Distance Learning Programme area.
Minutes of the Staff-Student Liaison meetings are used to inform Course Team discussions and contribute to the University's Quality Assurance procedures through the Course Leader's Annual Report.

7.3 Module Review Questionnaire
Module Review Questionnaires (MRQs) provide one of the most important means for you to express your opinion about your teaching and learning experience. They capture feedback on your experience within each module and inform staff about where improvements could be made. A summary of the feedback and actions taken are reported at staff student liaison meetings and feed into the course-leader's report.

In recent years, the MRQs have been provided online via the Blackboard module spaces towards the end of the academic year. All responses are anonymized before collation and analysis. Please complete and submit these to ensure your voice is heard.
8. Appendices
These are provided as separate documents on the Astronomy Distance Learning Programme area on Blackboard.

8.1 Programme Specifications
Certificate in Astronomy

<table>
<thead>
<tr>
<th>UNIVERSITY OF CENTRAL LANCASHIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme Specification</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>1. Awarding Institution / Body</th>
<th>University of Central Lancashire</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Teaching Institution and Location of Delivery</td>
<td>University of Central Lancashire, Preston Campus</td>
</tr>
<tr>
<td>3. University School/Centre</td>
<td>Physical Sciences and Computing</td>
</tr>
<tr>
<td>4. External Accreditation</td>
<td>IOP (recognition)</td>
</tr>
<tr>
<td>5. Title of Final Award</td>
<td>Certificate in Astronomy</td>
</tr>
<tr>
<td>6. Modes of Attendance offered</td>
<td>Distance Learning</td>
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<tr>
<td>7a) UCAS Code</td>
<td>n/a</td>
</tr>
<tr>
<td>7b) JACS Code</td>
<td>F500</td>
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<tr>
<td>9. Other external influences</td>
<td>National STEM Projects Institute of Physics</td>
</tr>
<tr>
<td>10. Date of production/revision of this form</td>
<td>April 2017</td>
</tr>
</tbody>
</table>
### 11. Aims of the Programme

- To provide an academically rigorous programme of Astronomy education suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide an understanding of the physical laws as applied to the Universe.
- To provide an introduction to aspects of observational astronomy.
- To develop elementary problem solving skills.
- To provide the opportunity to develop skills and techniques used in astronomy, which have wider applications (these include data analysis, preparation of scientific reports).
- To enhance the student’s key skills (communication, numerical skills, IT, time-management).

### 12. Learning Outcomes, Teaching, Learning and Assessment Methods

#### A. Knowledge and Understanding

| A1. | Describe and explain physical laws and concepts as applied to the Universe. |
| A2. | Describe and explain the basic structures of the Universe and the processes that take place within it. |
| A3. | Explain and implement a selection of techniques of observational astronomy. |

**Teaching and Learning Methods**

Course Notes with worked examples, self-test questions and solutions. Classroom tutorials and discussions via Elearn.

**Assessment methods**

Continuous assessment via courseworks including: Questions Sheets with both mathematical and conceptual problems, experimental report.

#### B. Subject-specific skills

| B1. | Design and implement astronomical observations. |
| B2. | Analyse and process astronomical results. |
| B3. | Construct and write scientific reports. |

**Teaching and Learning Methods**

Tutorials and online classrooms on use of appropriate astronomical software. Tutorials and online classrooms on simple data processing and analysis and report writing.

**Assessment methods**

Self test exercises in naked eye observation (or own telescope if available) to acquire own data.

#### C. Thinking Skills

| C1. | Analyse information |
| C2. | Draw conclusions from astronomical results & information sources. |
| C3. | Solve elementary problems. |
| C4. | Plan and implement a brief investigation |

**Teaching and Learning Methods**

Observational exercises to do at home. Worked examples, self-test questions of simple problem-solving.

**Assessment methods**

Assessed questions with balance of quantitative and descriptive questions/short essays. Scientific report to apply and develop concepts and synthesise different strands of a problem.

#### D. Other skills relevant to employability and personal development

| D1. | Use written communication (eg scientific reports, essays) |
| D2. | Use numerical and IT skills and electronic communication via e-mail and internet. |
D3. Plan and manage own time to achieve specific objectives.

Teaching and Learning Methods

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, produce electronic reports, etc.

Assessment methods

Experimental report, Mathematical/numerical problems in assessed question sheets

13. Programme Structures

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 4</td>
<td>AA1051</td>
<td>Introduction to Astronomy</td>
<td>20</td>
</tr>
</tbody>
</table>

14. Awards and Credits

Certificate in Astronomy
Requires 20 credits at Level 4: AA1051.

15. Personal Development Planning

It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:
• 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.
• The induction process, using Handbook and Elearn links, provides opportunities for students to use the University’s Skills and PDP resources.
• The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.
• Self-test exercises encourage students to assess their academic progress within a module.

16. Admissions criteria*

(Advanced standing is not available for Certificate awards.)
*Correct as at date of approval. For latest information, please consult the University’s website.

To study the Certificate in Astronomy students are normally required to have GCSE grade C in Mathematics and English or equivalent high school qualification.

17. Key sources of information about the programme

Student Handbook
Astronomy Module Catalogue
uclan website
www.StudyAstronomy.com
## 18. Curriculum Skills Map

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Core (C), Compulsory (COMP) or Option (O)</th>
<th>Knowledge and understanding</th>
<th>Subject-specific Skills</th>
<th>Thinking Skills</th>
<th>Other skills relevant to employability and personal development</th>
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<tr>
<td>LEVEL 4</td>
<td>AA1051</td>
<td>Introduction to Astronomy</td>
<td>C</td>
<td>A1 ✔️ A2 ✔️ A3 ✔️ B1 ✔️ B2 ✔️ B3 ✔️</td>
<td>C1 ✔️ C2 ✔️ C3 ✔️ C4 ✔️</td>
<td>D1 ✔️ D2 ✔️ D3 ✔️</td>
<td></td>
</tr>
</tbody>
</table>

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

### 19. LEARNING OUTCOMES FOR EXIT AWARDS:

No exit awards are available for Certificate awards.
Certificate in Cosmology

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

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>13. Teaching Institution and Location of Delivery</td>
<td>University of Central Lancashire, Preston Campus</td>
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<td>14. University School/Centre</td>
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<td>15. External Accreditation</td>
<td>IOP (recognition)</td>
</tr>
<tr>
<td>16. Title of Final Award</td>
<td>Certificate in Cosmology</td>
</tr>
<tr>
<td>17. Modes of Attendance offered</td>
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<td>7a) UCAS Code</td>
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<tr>
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### 11. Aims of the Programme

- To provide an academically rigorous programme of Astronomy education suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide an understanding of the physical laws as applied to the Universe.
- To provide an introduction to basic concepts in Cosmology.
- To develop elementary problem solving skills.
- To provide the opportunity to develop skills and techniques used in astronomy, which have wider applications (these include problem solving and preparation of scientific essays).
- To enhance the student’s key skills (communication, numerical skills, IT, time-management).

### 12. Learning Outcomes, Teaching, Learning and Assessment Methods

#### A. Knowledge and Understanding

A1. Describe and explain physical laws and concepts as applied to the Universe.
A2. Describe and explain basic structures of the Universe and the processes that take place within it.

**Teaching and Learning Methods**
Course Notes with worked examples linked to recommended textbook, self-test questions and solutions. Classroom tutorials and discussions via Elearn.
Feedback to students on assessed work, together with model answers to assessed questions.

**Assessment methods**
Continuous assessment via courseworks including: Questions Sheets with both mathematical and conceptual problems, and researched essay.

#### B. Subject-specific skills

B1. Analyse and describe cosmological results
B2. Solve elementary problems in cosmology
B3. Construct and write scientific reports.

**Teaching and Learning Methods**
Tutorials and online classrooms on solving simple problems in cosmology
Tutorials and online classrooms on and scientific writing.

**Assessment methods**
Question sheet with mix of problems and conceptual questions.
Write a researched essay

#### C. Thinking Skills

C1. Draw conclusions from results and information sources.
C2. Solve elementary problems.
C3. Plan and implement a brief investigation

**Teaching and Learning Methods**
Worked example in the notes, Self-test exercises.

**Assessment methods**
Assessed questions with balance of quantitative and descriptive questions. Scientific essay and essays to apply and develop concepts and synthesise different strands of a problem.

#### D. Other skills relevant to employability and personal development

D1. Use written communication (eg scientific reports, essays)
D2. Use numerical and IT skills and electronic communication via e-mail and internet.
D3. Plan and manage own time to achieve specific objectives.

**Teaching and Learning Methods**
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, produce electronic reports, etc.

**Assessment methods**
Essay, Mathematical/numerical problems in assessed question sheets

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
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<th>Credit rating</th>
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<td>Level 4</td>
<td>AA1053</td>
<td>Introduction to Cosmology</td>
<td>20</td>
</tr>
</tbody>
</table>

**14. Awards and Credits**

**University Certificate in Cosmology**
Requires 20 credits at Level 4: AA1053.

**15. Personal Development Planning**

It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:
- 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.
- The induction process, using Handbook and Elearn links, provides opportunities for students to use the University’s Skills and PDP resources.
- The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.
- Self-test exercises encourage students to assess their academic progress within a module.

**16. Admissions criteria**

Programme Specifications include minimum entry requirements, including academic qualifications, together with appropriate experience and skills required for entry to study. These criteria may be expressed as a range rather than a specific grade. Amendments to entry requirements may have been made after these documents were published and you should consult the University’s website for the most up to date information. Students will be informed of their personal minimum entry criteria in their offer letter.

To study the Certificate in Cosmology students are normally required to have GCSE grade C in Mathematics and English or equivalent high school qualifications.

**17. Key sources of information about the programme**

- Student Handbook
- Astronomy Module Catalogue
- uclan website
- www.StudyAstronomy.com
18. Curriculum Skills Map

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<th>Subject-specific Skills B1 B2 B3</th>
<th>Thinking Skills C1 C2 C3</th>
<th>Other skills relevant to employability and personal development D1 D2 D3</th>
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<tr>
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<td>AA1053</td>
<td>Introduction to Cosmology</td>
<td>C</td>
<td>√</td>
<td>√</td>
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Note: Mapping to other external frameworks, e.g. professional/statutory bodies, will be included within Student Course Handbooks

19. LEARNING OUTCOMES FOR EXIT AWARDS:

No exit awards are available for Certificate awards.
Certificate in Sun, Earth and Climate

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.

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</tr>
<tr>
<td>22. Title of Final Award</td>
<td>Certificate in Sun, Earth and Climate</td>
</tr>
<tr>
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</tr>
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<td>7b) JACS Code</td>
<td>F530</td>
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<tr>
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<td>April 2017</td>
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</tbody>
</table>
### 11. Aims of the Programme

- To provide an academically rigorous programme of Astronomy suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide an understanding of physical laws and concepts as applied to the Sun-Earth system and the Earth's climate.
- To provide an introduction to aspects of observational solar astronomy.
- To develop elementary problem solving skills.
- To provide the opportunity to develop skills and techniques used in solar astronomy and solar-terrestrial physics, which have wider applications (these include data analysis, preparation of scientific reports).
- To enhance the student’s key skills (communication, numerical skills, IT, time-management).

### 12. Learning Outcomes, Teaching, Learning and Assessment Methods

#### A. Knowledge and Understanding

A1. Describe and explain physical laws and concepts involved in the study of solar effects impinging on the Earth.
A2. Describe and explain the basic structures of the Sun and Earth and the associated solar-terrestrial phenomena.
A3. Explain and implement a selection of techniques of observational solar astronomy and solar-terrestrial geophysics.

#### Teaching and Learning Methods

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.

#### Assessment methods

Continuous assessment via courseworks including: Questions Sheets with both mathematical and conceptual problems, experimental report.

#### B. Subject-specific skills

B1. Design and implement safe solar observations.
B2. Analyse and process observational results.
B3. Construct and write scientific report.

#### Teaching and Learning Methods

Tutorials and online classrooms on use of appropriate astronomical software and safe observing
Tutorials and online classrooms on simple data processing and analysis
Carry out own safe solar observations.

#### Assessment methods

Assessed experimental report.

#### C. Thinking Skills

C1. Analyse information
C2. Draw conclusions from observational results & information sources.
C3. Solve elementary problems.
C4. Plan and implement a brief investigation

#### Teaching and Learning Methods

Exercises to do at home. Worked examples in notes, self-test questions of simple problem-solving.

#### Assessment methods

Assessed questions with balance of quantitative and descriptive questions. Scientific report to apply and develop concepts and synthesise different strands of a problem.
D. Other skills relevant to employability and personal development

D1. Use written communication (eg scientific reports, essays).
D2. Use numerical and IT skills and electronic communication via e-mail and internet.
D3. Plan and manage own time to achieve specific objectives.

Teaching and Learning Methods

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, produce electronic reports, etc.

Assessment methods

Experimental report, Mathematical/numerical problems in assessed question sheets.

13. Programme Structures

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit rating</th>
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</thead>
<tbody>
<tr>
<td>Level 4</td>
<td>AA1058</td>
<td>Sun, Earth and Climate</td>
<td>20</td>
</tr>
</tbody>
</table>

14. Awards and Credits

University Certificate in Sun, Earth and Climate
Requires 20 credits at Level 4: AA1058.

15. Personal Development Planning

It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:
• 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.
• The induction process, using Handbook and Elearn links, provides opportunities for students to use the University’s Skills and PDP resources.
• The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.
• Self-test exercises encourage students to assess their academic progress within a module.

16. Admissions criteria

(Advanced standing is not available for Certificate awards.)
*Correct as at date of approval. For latest information, please consult the University’s website.

To study the Certificate in Sun Earth and Climate students are normally required to have GCSE grade C in Mathematics and English or equivalent high school qualification.

17. Key sources of information about the programme

Student Handbook
Astronomy Module Catalogue
ucan website
www.StudyAstronomy.com
18. Curriculum Skills Map

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Core (C) or Option (O)</th>
<th>Knowledge and Understanding</th>
<th>Subject-specific Skills</th>
<th>Thinking Skills</th>
<th>Other skills relevant to employability and personal development</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL 4</td>
<td>AA1058</td>
<td>Sun, Earth and Climate</td>
<td>C</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

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

19. LEARNING OUTCOMES FOR EXIT AWARDS:

No exit awards are available for Certificate awards.
Certificate in Astrobiology

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

<table>
<thead>
<tr>
<th>24. Awarding Institution / Body</th>
<th>University of Central Lancashire</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. Teaching Institution and Location of Delivery</td>
<td>University of Central Lancashire, Preston Campus</td>
</tr>
<tr>
<td>26. University School/Centre</td>
<td>Physical Sciences and Computing</td>
</tr>
<tr>
<td>27. External Accreditation</td>
<td>IOP (recognition)</td>
</tr>
<tr>
<td>28. Title of Final Award</td>
<td>Certificate in Astrobiology</td>
</tr>
<tr>
<td>29. Modes of Attendance offered</td>
<td>Distance Learning</td>
</tr>
<tr>
<td>7a) UCAS Code</td>
<td>n/a</td>
</tr>
<tr>
<td>7b) JACS Code</td>
<td>F590</td>
</tr>
</tbody>
</table>


9. Other external influences | National STEM Projects Institute of Physics |

10. Date of production/revision of this form | April 2017 |
11. Aims of the Programme

- To provide an academically rigorous programme of education suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide an understanding of scientific laws and concepts as applied to the universe and astrobiology.
- To provide an introduction to aspects of observational or laboratory science.
- To develop elementary problem solving skills.
- To provide the opportunity to develop skills and techniques used in astrobiology (astrophysics, biology and chemistry), which have wider application (these include data analysis, preparation of scientific reports).
- To enhance the student’s key skills (communication, numerical skills, IT, time-management).

12. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1. Describe biochemical and physical processes that take place in the universe with relevance to astrobiology.
A2. Describe a range of environments capable of supporting a wide range of life forms.
A3. Conduct a scientific investigation and rigorously report on the outcomes.
A4. Solve elementary problems and apply appropriate practical skills.

Teaching and Learning Methods

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.

Assessment methods

Continuous assessment via courseworks including: Questions Sheets with both mathematical and conceptual problems, experimental report.

B. Subject-specific skills

B1. Describe biochemical and physical processes that take place in the universe with relevance to astrobiology.
B2. Describe a range of environments capable of supporting a wide range of life forms.
B3. Conduct a scientific investigation and rigorously report on the outcomes.
B4. Solve elementary problems and apply appropriate practical skills.

Teaching and Learning Methods

Activities (home based experiments), on-line tutorials, self-test and assessed questions.

Assessment methods

Formal Report on Activities.

C. Thinking Skills

C1. Analyse information.
C2. Draw conclusions from observational results and information sources.
C3. Solve elementary problems.

Teaching and Learning Methods

Exercises to do at home, including activities equivalent to science labs. Worked examples in course note, self-test question of simple problem-solving.

Assessment methods

Formal scientific reports. Question sheets with problems.

D. Other skills relevant to employability and personal development

D1. Use written communication (eg scientific reports, essays).
D2. Use numerical and IT skills and electronic communication via e-mail and internet.
D3. Plan and manage own time to achieve specific objectives.

Teaching and Learning Methods
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, produce electronic reports, etc.

**Assessment methods**

Experimental report, Mathematical/numerical problems in assessed question sheets.

**13. Programme Structures**

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 4</td>
<td>AA1059</td>
<td>Introduction to Astrobiology</td>
<td>20</td>
</tr>
</tbody>
</table>

**14. Awards and Credits**

**University Certificate in Astrobiology**

Requires 20 credits at Level 4: AA1059

**15. Personal Development Planning**

It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:

- 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.
- The induction process, using Handbook and Elearn links, provides opportunities for students to use the University’s Skills and PDP resources.
- The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.
- Self-test exercises encourage students to assess their academic progress within a module.

**16. Admissions criteria**

(Advanced standing is not available for Certificate awards.)

*Correct as at date of approval. For latest information, please consult the University’s website.*

To study the Certificate in Astrobiology students are normally required to have GCSE grade C in Mathematics and English or equivalent high school qualification.

**17. Key sources of information about the programme**

- Student Handbook
- Astronomy Module Catalogue
- uclan website
- www.StudyAstronomy.com
### 18. Curriculum Skills Map

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Core (C) or Option (O)</th>
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<td>Introduction to Astrobiology</td>
<td>C</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

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

### 19. LEARNING OUTCOMES FOR EXIT AWARDS:

No exit awards are available for Certificate awards.
## Certificate of Higher Education in Astronomy

**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*

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<th>30. Awarding Institution / Body</th>
<th>University of Central Lancashire</th>
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<tr>
<td>33. External Accreditation</td>
<td>IOP (recognition)</td>
</tr>
<tr>
<td>34. Title of Final Award</td>
<td>Certificate of Higher Education Astronomy</td>
</tr>
<tr>
<td>35. Modes of Attendance offered</td>
<td>Distance Learning</td>
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<td>7a) UCAS Code</td>
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</tr>
<tr>
<td>7b) JACS Code</td>
<td>F500</td>
</tr>
<tr>
<td>9. Other external influences</td>
<td>National STEM Projects Institute of Physics</td>
</tr>
<tr>
<td>10. Date of production/revision of this form</td>
<td>April 2017</td>
</tr>
</tbody>
</table>
### 11. Aims of the Programme

- To provide an academically rigorous programme of Astronomy education suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide an understanding of the physical laws as applied to the Universe.
- To provide a foundation for Level 5 study in Astronomy.
- To develop students’ awareness of the interrelationships between different areas of astronomy and show how other disciplines may be used to progress astronomy knowledge.
- 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).

### 12. Learning Outcomes, Teaching, Learning and Assessment Methods

#### A. Knowledge and Understanding

<table>
<thead>
<tr>
<th>A1</th>
<th>describe and explain physical laws as applied to the Universe.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2</td>
<td>describe and explain the basic structures of the Universe &amp; the processes that take place within it.</td>
</tr>
<tr>
<td>A3</td>
<td>recognise and explain the development of Astronomy from the historical perspective.</td>
</tr>
<tr>
<td>A4</td>
<td>explain and implement a selection of techniques of observational astronomy</td>
</tr>
</tbody>
</table>

#### Teaching and Learning Methods

- 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.

#### Assessment methods

- Continuous assessment via course work including: Assessed Questions Sheets, scientific reports, student centred work and researched essays, role-play letters and book review to demonstrate historical perspective.

#### B. Subject-specific skills

<table>
<thead>
<tr>
<th>B1</th>
<th>design and implement astronomical observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>B2</td>
<td>retrieve and use astronomical information from the web</td>
</tr>
<tr>
<td>B3</td>
<td>analyse and process astronomical results</td>
</tr>
<tr>
<td>B4</td>
<td>construct and write scientific reports and essays</td>
</tr>
<tr>
<td>B5</td>
<td>use simple mathematical tools to solve problems</td>
</tr>
</tbody>
</table>

#### Teaching and Learning Methods

- Conduct observations at home, make measurements and record results. Perform simple data analysis Use appropriate software. Use web resource, office applications and astronomical software. Build skills in maths and physics for level 5 study.

#### Assessment methods

- Assessed reports and essays on scientific investigations (in a variety of forms including written reports, web page and electronic presentation).

#### C. Thinking Skills

<table>
<thead>
<tr>
<th>C1</th>
<th>analyse information</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>draw conclusions from astronomical results and information sources</td>
</tr>
<tr>
<td>C3</td>
<td>solve elementary problems.</td>
</tr>
<tr>
<td>C4</td>
<td>plan and implement a brief investigation</td>
</tr>
</tbody>
</table>

#### Teaching and Learning Methods

- Observational exercises to do at home. Workbook worked examples, self-test question of simple problem-solving.

#### Assessment methods

- Assessed questions with balance of quantitative and descriptive questions. Scientific reports and essays to apply and develop concepts and synthesise different strands of a problem.
D. Other skills relevant to employability and personal development

D1. use written communication (e.g. scientific reports and essays)
D2. use numerical skills
D3. Plan and manage own time to achieve specific objectives.
D4. use scientific IT skills and electronic communication via email and internet.

Teaching and Learning Methods

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.

Assessment methods

Researched scientific essays, Experimental reports
Mathematical/numerical problems in assessed question sheets.

13. Programme Structures

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 4</td>
<td>AA1051</td>
<td>Introduction to Astronomy</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA1053</td>
<td>Introduction to Cosmology</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA1055</td>
<td>IT for Astronomy</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA1056</td>
<td>Energy, Matter and the Universe</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA1057</td>
<td>Investigations in Astronomy</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA1058</td>
<td>Sun, Earth and Climate</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA1059</td>
<td>Introduction to Astrobiology</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA1066</td>
<td>Great Astronomers in History</td>
<td>20</td>
</tr>
</tbody>
</table>

14. Awards and Credits

Certificate of Higher Education Astronomy
Requires 120 credits at Level 4 or above.

15. Personal Development Planning

It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:
• 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.
• The induction process, using Handbook and Elearn links, provides opportunities for students to use the University’s Skills and PDP resources.
• The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.
• Self-test exercises encourage students to assess their academic progress within a module.

16. Admissions criteria

(including agreed tariffs for entry with advanced standing)

*Correct as at date of approval. For latest information, please consult the University’s website.

Entry to the Cert HE will normally be via the successful completion of at least one Certificate, preferably the Certificate in Astronomy (or equivalent.) Applicants for the Certificate in Higher
Education in Astronomy will therefore normally have GCSE grade C in Mathematics and English or equivalent, as required for the individual certificates.

### 17. Key sources of information about the programme

<table>
<thead>
<tr>
<th>Student Handbook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astronomy Module Catalogue</td>
</tr>
<tr>
<td>uclan website</td>
</tr>
<tr>
<td><a href="http://www.StudyAstronomy.com">www.StudyAstronomy.com</a></td>
</tr>
</tbody>
</table>
### 18. Curriculum Skills Map

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Core (C), Compulsory (COMP) or Option (O)</th>
<th>Knowledge and understanding</th>
<th>Subject-specific Skills</th>
<th>Thinking Skills</th>
<th>Other skills relevant to employability and personal development</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVEL 4</td>
<td>AA1051</td>
<td>Introduction to Astronomy</td>
<td>Compulsory</td>
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<tr>
<td></td>
<td>AA1053</td>
<td>Introduction to Cosmology</td>
<td>O</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AA1055</td>
<td>IT for Astronomy</td>
<td>O</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AA1056</td>
<td>Energy, Matter and the Universe</td>
<td>O</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AA1057</td>
<td>Investigations in Astronomy</td>
<td>O</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
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<td>AA1058</td>
<td>Sun, Earth and Climate</td>
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<td>AA1059</td>
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<td>√</td>
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<td></td>
<td>AA1066</td>
<td>Great Astronomers in History</td>
<td>O</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

### 19. LEARNING OUTCOMES FOR EXIT AWARDS:

No exit awards are available for Certificate of Higher Education awards.
### Diploma of Higher Education in Astronomy

**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**

| 36. Awarding Institution / Body | University of Central Lancashire |
| 37. Teaching Institution and Location of Delivery | University of Central Lancashire, Preston Campus |
| 38. University School/Centre | Physical Sciences and Computing |
| 39. External Accreditation | IOP (recognition) |
| 40. Title of Final Award | DipHE Astronomy |
| 41. Modes of Attendance offered | Distance Learning |
| 7a) UCAS Code | n/a |
| 7b) JACS Code | F500 |

#### 8. Relevant Subject Benchmarking Group(s)


#### 9. Other external influences

- National STEM Projects
- Institute of Physics

#### 10. Date of production/revision of this form

April 2017
### 11. Aims of the Programme

- To provide an academically rigorous programme of Astronomy education suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide a quantitative understanding and knowledge of the physical and mathematical concepts underlying astrophysical processes.
- To provide a broad balance of subject knowledge and skills
- 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 (e.g., 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.

### 12. Learning Outcomes, Teaching, Learning and Assessment Methods

#### A. Knowledge and Understanding

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

**Teaching and Learning Methods**
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.

**Assessment methods**
Continuous assessment via courseworks including: Questions Sheets with both mathematical and conceptual problems, scientific essay, experimental report. Timed on-line open-book assignment.

#### B. Subject-specific skills

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

**Teaching and Learning Methods**
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.

**Assessment methods**
Researched scientific essays, Experimental reports
Mathematical/numerical problems in assessed question sheets, timed on-line assignment

#### C. Thinking Skills

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

**Teaching and Learning Methods**
Case studies, literature reviews, data analysis exercises, observations, library research and open-ended problems.
### Assessment methods

Scientific essays, experimental reports, question sheets with a balance of quantitative and open-ended questions, on-line assessment.

### D. Other skills relevant to employability and personal development

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.

### Teaching and Learning Methods

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.

### Assessment methods

Researched scientific essays, Experimental reports  
Mathematical/numerical problems in assessed question sheets, timed on-line assignment

### 13. Programme Structures

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit</th>
<th>rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 5</td>
<td>AA2051</td>
<td>The Milky Way</td>
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<tr>
<td></td>
<td>AA2052</td>
<td>Galaxies beyond the Milky Way</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AA2053</td>
<td>Ultraviolet, Optical and Infrared Astronomy</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AA2054</td>
<td>Exploring the Solar System</td>
<td>20</td>
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<td></td>
<td>AA2055</td>
<td>Solar Astrophysics</td>
<td>20</td>
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<td></td>
<td>AA2056</td>
<td>Solar-Stellar Connectio</td>
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</tr>
<tr>
<td></td>
<td>AA1066</td>
<td>Great Astronomers in History</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

### 14. Awards and Credits

- **Diploma of Higher Education Astronomy**  
  Requires 240 credits including a minimum of 100 at Level 5 or above.

- **Exit Award: Certificate of Higher Education**  
  Requires 120 credits at Level 4 or above.

In addition a student may include one module (20 credits) of elective at level 4.

### 15. Personal Development Planning

It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:  
- 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.  
- The induction process, using Handbook and Elearn links, provides opportunities for students to use the University’s Skills and PDP resources.
• The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.
• Self-test exercises encourage students to assess their academic progress within a module.

### 16. Admissions criteria
(including agreed tariffs for entry with advanced standing)
*Correct as at date of approval. For latest information, please consult the University’s website.*

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:
• two A2 level passes (or equivalent) in any subjects
• and a pass in a science/technology subject at AS level
• grade C passes in GCSE English and Mathematics.

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.

### 17. Key sources of information about the programme

- Student Handbook
- Astronomy Module Catalogue
- uclan website
- www.StudyAstronomy.com
### 18. Curriculum Skills Map

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Core (C), Compulsory (COMP) or Option (O)</th>
<th>Knowledge and understanding</th>
<th>Subject-specific Skills</th>
<th>Thinking Skills</th>
<th>Other skills relevant to employability and personal development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>A1 A2 A3 A4 B1 B2 B3 B4 B5 C1 C2 C3 C4 D1 D2 D3 D4</td>
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<tr>
<td>LEVEL 5</td>
<td>AA2051</td>
<td>The Milky Way</td>
<td>O</td>
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<td>Galaxies Beyond the Milky Way</td>
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<td></td>
<td>AA2053</td>
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<tr>
<td></td>
<td>AA2055</td>
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<td></td>
<td>AA2056</td>
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<td>LEVEL 4</td>
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<td>O</td>
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<td>AA1056</td>
<td>Energy, Matter and the Universe</td>
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<td>√</td>
<td>√</td>
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<tr>
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<td>AA1057</td>
<td>Investigations in Astronomy</td>
<td>O</td>
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<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>AA1058</td>
<td>Sun, Earth and Climate</td>
<td>O</td>
<td>√</td>
<td>√</td>
<td>√</td>
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</tr>
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<td></td>
<td>AA1066</td>
<td>Great Astronomers in History</td>
<td>O</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
</tbody>
</table>

**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
**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*

<table>
<thead>
<tr>
<th>42. Awarding Institution / Body</th>
<th>University of Central Lancashire</th>
</tr>
</thead>
<tbody>
<tr>
<td>43. Teaching Institution and Location of Delivery</td>
<td>University of Central Lancashire, Preston Campus</td>
</tr>
<tr>
<td>44. University School/Centre</td>
<td>Physical Sciences and Computing</td>
</tr>
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<td>45. External Accreditation</td>
<td>IOP (recognition)</td>
</tr>
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<td>46. Title of Final Award</td>
<td>BSc (Hons) Astronomy</td>
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<td>47. Modes of Attendance offered</td>
<td>Distance Learning</td>
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<tr>
<td>7a) UCAS Code</td>
<td>n/a</td>
</tr>
<tr>
<td>7b) JACS Code</td>
<td>F500</td>
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</table>
QAA: Subject Benchmark Statement for Physics, Astronomy and Astrophysics: Draft for Consultation, April 2016.  
| 9. Other external influences | National STEM Projects  
Institute of Physics |
| 10. Date of production/revision of this form | April 2017 |
11. Aims of the Programme

- To provide an academically rigorous programme of Astronomy education suitable for astronomy enthusiasts with or without previous formal qualifications.
- To provide a quantitative understanding and knowledge of the physical and mathematical concepts underlying astrophysical processes.
- To provide a broad balance of subject knowledge and skills.
- 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 (e.g., independent working, scientific problem solving, data analysis, preparation of scientific reports and use of [IT], communication of scientific ideas.)
- To enable students to apply the advanced tools of maths and physics to solve problems in astrophysics situations.
- To develop the students’ investigative skills either through group activities or independent research using literature sources and/or subject databases.
- To provide a suitable foundation for further study in Astronomy.

12. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1. describe and explain the structures of the universe and the processes that take place within it in terms of the underlying physical laws, including some at (or informed by) the forefront of astronomy.
A2. solve a broad range of advanced problems in astronomy using physical and rigorous mathematical techniques.
A3. discuss and quantify uncertainties and limitations of astronomical theory.
A4. discuss the techniques of observational astronomy and their limitations.

Teaching and Learning Methods
Course Notes linked to recommended textbook 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.

Assessment methods
Continuous assessment via courseworks including:

B. Subject-specific skills

B1. design and implement astronomical observations.
B2. use investigative techniques to retrieve astronomical information from on-line/library data sources.
B3. analyse and process astronomical data taking into account the uncertainties.
B4. plan and prepare a substantial scientific report on a topical astronomical subject.
B5. use a range of advanced and rigorous mathematical techniques and physical laws to solve problems.

Teaching and Learning Methods
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.

Assessment methods
Researched scientific essays, Experimental reports. Dissertation.
Mathematical/numerical problems in assessed question sheets, timed on-line assignment.

C. Thinking Skills
C1. review and analyse information in a critical way from a variety of sources (including scientific papers)
C2. Formulate problems in precise terms and 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 an investigation individually and within a group environment.
   Critically analyse the outputs and evaluate their significance.

**Teaching and Learning Methods**

Case studies, literature reviews, data analysis exercises, group activities, observations, library research and open-ended problems. Dissertation supervision.

**Assessment methods**

Scientific essays, experimental reports, group reports, question sheets with a balance of quantitative and open-ended questions, on-line assessment. Dissertation and viva.

**D. Other skills relevant to employability and personal development**

D1. use written communication skills effectively including a substantial dissertation
D2. use advanced 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.
D5. work effectively as a team member towards common aims and objectives.

**Teaching and Learning Methods**

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. Group activities via Elearn. Use IT to access course materials, analyse data, produce publication style reports, electronic presentations, etc.

**Assessment methods**

Researched scientific essays, Experimental reports Mathematical/numerical problems in assessed question sheets, timed on-line assignment.

### 13. Programme Structures

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Credit rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 6</td>
<td>AA3050</td>
<td>Astronomy Dissertation</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA3051</td>
<td>Origins</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA3053</td>
<td>Cosmology and Relativity</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA3056</td>
<td>Extreme States of Matter</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA3057</td>
<td>Collaborative Investigation.</td>
<td>20</td>
</tr>
<tr>
<td>Level 5</td>
<td>AA2051</td>
<td>The Milky Way</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA2052</td>
<td>Galaxies beyond the Milky Way</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA2053</td>
<td>Ultraviolet, Optical and Infrared Astronomy</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>AA2054</td>
<td>Exploring the Solar System</td>
<td>20</td>
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<tr>
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<tr>
<td></td>
<td>AA2056</td>
<td>Solar-Stellar Connection</td>
<td>20</td>
</tr>
</tbody>
</table>

| 14. Awards and Credits |

- **BSc (Hons) Astronomy**
  Requires 360 credits including a minimum of 220 at Level 5 or above and 100 at Level 6 or above

- **BSc Astronomy**
  Requires 320 credits including a minimum of 180 at Level 5 or above and 60 at Level 6 or above and must include AA1051 and AA1056.

- **Exit Award: Diploma of Higher Education Astronomy**
  Requires 240 credits including a minimum of 100 at Level 5 or above and must include AA1051 and AA1056.
Level 4  |  Module Code | Module Title | Credits |
---|---|---|---|
AA1051  |  | Introduction to Astronomy | 20 |
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 |

Exit Award: Certificate of Higher Education
Requires 120 credits at Level 4 or above and must include AA1051.

In addition a student may include one module (20 credits) of elective at level 4 and one module (20 credits) of elective at level 5.

15. Personal Development Planning

It is particularly important that the PDP offered by our courses is optional and flexible. Currently the following opportunities for PDP exist:

- 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.
- The induction process, using Handbook and Elearn links, provides opportunities for students to use the University’s Skills and PDP resources.
- The Distance Learning courses provide a structured environment for independent learning and time management, to pace study and meet coursework deadlines.
- Self-test exercises encourage students to assess their academic progress within a module.

16. Admissions criteria *

*(including agreed tariffs for entry with advanced standing)*

Correct as at date of approval. For latest information, please consult the University’s website.

Programme Specifications include minimum entry requirements, including academic qualifications, together with appropriate experience and skills required for entry to study. These criteria may be expressed as a range rather than a specific grade.

Students will be informed of their personal minimum entry criteria in their offer letter.

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:

- two A2 level passes (or equivalent) in any subjects
- and a pass in a science/technology subject at A2 level
- grade C passes in GCSE English and Mathematics.

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.
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<thead>
<tr>
<th>Source</th>
</tr>
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<tbody>
<tr>
<td>Student Handbook</td>
</tr>
<tr>
<td>Astronomy Module Catalogue</td>
</tr>
<tr>
<td>uclan website</td>
</tr>
<tr>
<td><a href="http://www.StudyAstronomy.com">www.StudyAstronomy.com</a></td>
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## 18. Curriculum Skills Map

<table>
<thead>
<tr>
<th>Level</th>
<th>Module Code</th>
<th>Module Title</th>
<th>Core (C), Compulsory (COMP) or Option (O)</th>
<th>Programme Learning Outcomes</th>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Knowledge and understanding</td>
<td>Subject-specific Skills</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>A1</td>
<td>A2</td>
</tr>
<tr>
<td>LEVEL 6</td>
<td>AA3050</td>
<td>Astronomy Dissertation</td>
<td>Comp</td>
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<tr>
<td></td>
<td>AA3051</td>
<td>Origins</td>
<td>Comp</td>
<td>✓</td>
</tr>
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<td>Cosmology and Relativity</td>
<td>Comp</td>
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<td>Comp</td>
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</tr>
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<td>The Milky Way</td>
<td>O</td>
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<td>AA2054</td>
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<td>Solar Astrophysics</td>
<td>O</td>
<td>✓</td>
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<td>LEVEL 4</td>
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<td>Comp</td>
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<td>Introduction to Cosmology</td>
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<td>IT for Astronomy</td>
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<td>AA1056</td>
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<td>Comp</td>
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<td>AA1058</td>
<td>Sun, Earth and Climate</td>
<td>O</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>AA1059</td>
<td>Introduction to Astrobiology</td>
<td>O</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>AA1066</td>
<td>Great Astronomers in History</td>
<td>O</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Note:** Mapping to other external frameworks, e.g. professional/statutory bodies, will be included within Student Course Handbooks
Learning outcomes for the award of: ________BSc in Astronomy________

A1. describe and explain some structures of the universe and the processes that take place within it in terms of the underlying physical laws, including some at (or informed by) the forefront of astronomy.
A2. solve a range of advanced problems in astronomy using physical and advanced mathematical techniques
A3. discuss and quantify uncertainties and limitations of some astronomical theory
A4. discuss the techniques of observational astronomy and their limitations

B1. design and implement astronomical observations
B2. use investigative techniques to retrieve astronomical information from on-line/library data sources
B3. analyse and process astronomical data taking into account the uncertainties
B4. plan and prepare a substantial scientific report on a topical astronomical subject.
B5. use a range of advanced mathematical techniques and physical laws to solve problems

C1. review and analyse information in a critical way from a variety of sources (including scientific papers)
C2. Formulate problems in precise terms and 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 an investigation individually. Critically analyse the outputs and evaluate their significance.

D1. use written communication skills effectively to produce scientific documents.
D2. use advanced 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.

Learning outcomes for the award of: ________Dip HE in Astronomy________

A1. describe and explain some 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

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 astronomical topic
B5. use simple mathematical techniques and physical laws to solve problems

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 simple problem to produce a solution
C4. plan and implement a brief investigation.

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.
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 simple 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