



**CORPORATE AND ACADEMIC SERVICES**

**PROGRAMME SPECIFICATION**

| <b>Part 1: Basic Data</b>                              |  |
|--|--|
| <b>Awarding Institution</b>                            | University of the West of England, Bristol   |
| <b>Teaching Institution</b>                            | University of the West of England, Bristol   |
| <b>Delivery Location</b>                               | University of the West of England, Bristol   |
| <b>Faculty responsible for programme</b>               | Faculty of Health and Applied Sciences   |
| <b>Department responsible for programme</b>            | Department of Biological, Biomedical and Analytical Sciences   |
| <b>Modular Scheme Title</b>                            | Applied Sciences   |
| <b>Professional Statutory or Regulatory Body Links</b> | Accredited by the Institution of Environmental Sciences  |
| <b>Highest Award Title</b>                             | BSc (Hons) Environmental Science   |
| <b>Default Award Title</b>                             | N/A  |
| <b>Fall-back Award Title</b>                           | N/A  |
| <b>Interim Award Titles</b>                            | Diploma in Higher Education in Environmental Science, Certificate in Higher Education in Environmental Science |
| <b>UWE Progression Route</b>                           | N/A  |
| <b>Mode(s) of Delivery</b>                             | FT / SW / PT/ Foundation   |
| <b>Codes</b>   | <b>UCAS :</b><br><b>ISIS2:</b>   |
|  | <b>JACS:</b><br><b>HESA:</b>   |
| <b>Relevant QAA Subject Benchmark Statements</b>       | Earth Sciences, Environmental Sciences and Environmental Studies (2014)  |
| <b>CAP Approval Date</b>                               | 19 November 2015   |
| <b>Valid from</b>                                      | September 2016   |
| <b>Valid until Date</b>                                | September 2022   |
| <b>Version</b>   | Version 1  |

**Part 2: Educational Aims of the Programme**

The BSc (Hons) Environmental Science (with Foundation Year) programme is a four-year full-time or five-year sandwich degree designed to provide a comprehensive foundation in science, and graduates with the knowledge and skills necessary to work effectively in the field of environmental science, for example in environmental regulation, environmental consultancy or environmental biotechnology. It provides an opportunity for students to explore the theory and practice related to the subject of environmental science, and to develop both subject-specific and important generic graduate skills, particularly analytical and communication skills. It aims to develop, in students, an in-depth understanding of the natural world and the potential consequences to the natural environment of a wide range of human activities. Students will also develop a broad understanding of the social, political and economic context within which environmental decisions are made.

## Part 2: Educational Aims of the Programme

The design of the programme enables the student to:

- complete a Foundation Year that is designed to prepare learners for success as scientists by studying the breadth and relevance of the natural and social sciences which underpin the BSc(Hons) Environmental Science;
- understand the principles that govern biological, physical and human systems in an environmental context.
- explore the impact of human activities on these systems, and appreciate the relationship between lifestyle choices (including their own) and the sustainable use of environmental resources at a local, regional and global scale.
- develop subject-specific and generic practical, analytical and communication skills which will equip them for the world of work.

The specific aims of the programme are to:

- Provide the educational and resource environment which will enable students to develop:
  - a strong scientific understanding of the principles and processes that underpin contemporary environmental issues
  - an understanding of environmental issues from a multi-disciplinary and interdisciplinary perspective.
  - the field, laboratory and investigative skills necessary to undertake independent investigations and analyses of environmental problems, and the presentational skills necessary to communicate their findings to audiences with a variety of backgrounds.
  - the skills of a literate and numerate student capable of independent learning.
- Create a friendly and supportive atmosphere that will enable individual students to use the learning experience at UWE to create a graduate foundation, on which they can develop their future careers and on-going social and educational development.
- Provide a curriculum that is enhanced by a balance of experience from both research and consultancy.

## Programme requirements for the purposes of the Higher Education Achievement Record (HEAR)

### **BSc (Hons) Environmental Science (with Foundation Year)**

The Foundation Year gives students an appropriate grounding in the subject areas of biology, chemistry, physics, mathematics, and psychology. This grounding, in addition to the development of transferable skills, prepares learners to successfully study at Level 1 and beyond. At Levels 1 and above the BSc Environmental Science programme has been designed to provide graduates with the knowledge and skills necessary to work effectively in the field of environmental science. It includes physical, chemical, biological and human processes, and the monitoring and management of natural and human-induced environmental changes. Graduates have an in-

depth understanding of key environmental problems, including the sustainable use of resources and climate change, and are able to critically evaluate the range of possible solutions. Students also develop a broad understanding of the social, political, legal and economic context within which environmental decisions are made. The programme also provides opportunities for students to develop important generic graduate skills, particularly analytical and communication skills.

### **Part 3: Learning Outcomes of the Programme**

#### A. Knowledge and Understanding (subject specific)

1. The breadth and relevance of the natural and social sciences which underpin the environmental sciences subject area.
2. The need for both a multi-disciplinary and an interdisciplinary approach in knowledge and understanding of earth systems, drawing from the natural and social sciences.
3. The processes which shape the natural world at different temporal and spatial scales including the influence of human activities.
4. The terminology, nomenclature and classification systems relevant to Environmental Science.
5. Methods of acquiring, interpreting and analysing information and data with a critical understanding of the appropriate contexts for their use.
6. Issues concerning the availability and sustainable use of resources.
7. The contribution of the environmental sciences to debate on environmental issues and how knowledge forms the basis for informed concern about the Earth and its people.
8. The contribution of their subject to the development of knowledge of the world we live in.
9. The applicability of the environmental sciences to the world of work.

#### B. Intellectual Skills (generic)

1. Recognising and using subject-specific theories, paradigms, concept and principles.
2. Analysing, synthesising and summarising information critically, including prior research.
3. Collecting and integrating several lines of evidence to formulate and test hypotheses.
4. Applying knowledge and understanding to address familiar and unfamiliar problems.
5. Recognising the moral and ethical issues of investigation and appreciating the need for professional codes of conduct.

#### C. Subject/Professional/Practical Skills (subject specific)

A successful graduate will be able to:

1. Plan, conduct, and report on investigations, including the use of secondary data.
2. Collect, record and analyse data using appropriate techniques in the field and laboratory.
3. Undertake field and laboratory investigations in a responsible and safe manner, paying due attention to risk assessment, rights of access, relevant health and safety regulations, and to display sensitivity to the impact of investigations on the environment and stakeholders.
4. Reference work in an appropriate manner

D. Transferable Skills and other attributes (generic)

A successful graduate will be able to:

1. Receive and respond to a variety of sources of information (e.g. textual, numerical, verbal, and graphical).
2. Communicate appropriately to a variety of audiences using a range of formats and approaches.
3. Appreciate issues of sample selection, accuracy, calibration, precision, replicability and uncertainty during collection, recording and analysis of data in the field and laboratory.
4. Prepare, process, interpret and present data, using appropriate qualitative and quantitative techniques and packages
5. Solve numerical problems using computer and non-computer based techniques.
6. Use the internet and other electronic sources critically as a means of communication and a source of information.
7. Identify individual and collective goals and responsibilities and perform in a manner appropriate to these roles.
8. Recognise and respect the views and opinions of others.
9. Evaluate performance as an individual and a team member.
10. Develop the skills necessary for self-managed and life-long learning (e.g. working independently, time management and organisation skills).
11. Identify and work towards targets for personal, academic and career development.
12. Develop an adaptable, flexible and effective approach to study and work.

The Learning outcomes of the programme are mapped to the **compulsory modules** as shown below. This is to demonstrate that all students are able achieve all programme outcomes although many outcome will be re-enforced through **optional modules**.

| <b>Learning Outcomes:</b>  | USSKJ-30-0 Biology in Practice | USSKCK-30-0 Chemistry in <b>Practice</b> | USSKCL-30-0 Skills for Science | USSKCM-30-0 People and Science | Module No: USSK5C-30-1 Life on Earth | Module No: USSJFB-30-1 The Earth | Module No: USSKAB-30-1 Environment and Society | Module No: USSK5B-30-1 Field Skills | Module No: USSK5G-30-2 Env Field Techniques | Module No: USSKAF-30-2 Earth Systems Science | Module No: USSK5F-30-2 Ecology & Ecosystem Protection | Module No: USSKAH-30-2 People & Env. Change | Module No: USSK5K-30-3 Research Project | USSKBC-30-3 Dissertation Project | Module No: USSKBE-30-3 Resource Security & Sustainability |
|--|--------------------------------|--|--------------------------------|--------------------------------|--------------------------------------|----------------------------------|--|-------------------------------------|---|--|---|---|---|----------------------------------|---|
| <b>A) Knowledge and understanding of:</b>  |                                |  |                                |                                |                                      |                                  |  |                                     |   |  |   |   |   |                                  |   |
| 1. The breadth and relevance of the natural and social sciences which underpin the environmental | X                              | X  | X                              | X                              | X                                    | X                                | X  | X                                   |   |  |   |   |   |                                  |   |



|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| responsible and safe manner   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4. Reference work appropriately   | X |   | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| <b>(D) Transferable skills and other attributes</b>   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1. Use a variety of sources of information  | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 2. Communicate appropriately to a variety of audiences  |   |   | X | X |   |   |   | X | X |   |   |   | X | X |   |   |
| 3. Appreciate issues of sample selection, accuracy, calibration, precision, replicability and uncertainty | X | X | X |   | X | X |   | X | X | X | X |   | X | X |   |   |
| 4. Prepare, process, interpret, present data  | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 5. Solve numerical problems   |   | X | X | X | X | X |   | X | X | X | X |   | X | X | X |   |
| 6. Use the internet and other electronic sources critically   | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 7. Identify individual and collective goals   | X | X |   |   | X | X | X | X | X | X | X | X | X | X | X | X |
| 8. Respect the views of others.   | X | X |   | X | X | X | X | X | X | X | X | X | X | X |   |   |
| 9. Evaluate own performance   |   |   | X | X |   | X |   | X | X |   |   |   | X | X |   |   |
| 10. Develop skills for life-long learning   | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| 11. Personal, academic and career development.  |   |   |   |   |   |   |   | X | X |   |   |   | X | X |   |   |
| 12. Develop an adaptable, flexible and effective approach to study and work.                              | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

#### Part 4: Student Learning and Student Support

The BSc (Hons) Environmental Science (with Foundation Year) programme is an interdisciplinary degree which combines a sound scientific understanding of environmental systems with the analysis of those socio-economic and political factors which determine the context within which environmental decisions are made. Hence its teaching is supported by tutors from not only a wide range of disciplines within the Faculty of Health & Applied Sciences, but also by staff from other Faculties, including the Faculty of Environment and Technology. The sustainable use of natural resources is a theme which is integrated across the programme, as is the importance of interdisciplinarity, which is also developed explicitly through dedicated modules.

All students follow a core first year (Year Zero) which is designed to provide a strong grounding in biology, chemistry, mathematics and physics, along with the core concepts of psychology. Students will be supported in understanding the place of a scientist in society, appreciating the importance of communication skills and the focus upon functional team working as the keystone of successful scientific endeavour. The Foundation Year will also support students to gain excellent analytical, communication and time management skills, which will substantially enhance their learning potential in

## Part 4: Student Learning and Student Support

Levels 1-3.

Core modules in the second year (Level 1) build on this foundation and provide a broad underpinning to the environmental sciences. In the third year, students focus on the application of environmental theory to problems in the real world, and help develop their independent learning skills, particularly those relating to the planning, implementation, analysis and communication of environmental research. In the final year, all students undertake an independent project, working alongside researchers at the leading edge of the environmental sciences, or developing their own ideas with the guidance of expert tutors. They also study compulsory modules that focus on the key environmental issues of the day, as well as exploring the relationships between science and enterprise. Optional modules in the fourth year allow students to focus their degree studies around a number of themes, including: the quantification and diversity of the living environment; the analysis of the physical environment and sustainable exploitation of earth resources; the management of human: environment interactions in business and industry. Alternatively, students may choose to pick a broad range of modules to match their interests and career aspirations

### **Transition to HE and student support**

BSc( Hons) Environmental Science (with Foundation Year) degree is managed as part of a suite of programmes within the Biological and Environmental Sciences & Science Communication Subject Group. All students are provided with a Programme Handbook which contains information on the Faculty, the University, its regulations and procedures. Detailed information is distributed in guides for each module. At the start of the programme, students undertake a comprehensive induction programme and are introduced to university regulations, aims of the programme, laboratory working, support systems (e.g. Drop-ins, PAL) and their personal tutor. Students also have Inductions at the beginning of their second, third and final years of study, which are targeted towards the specific needs of their year. Students are also supported during their time at UWE by student advisors and module leaders. Guidance on year issues is overseen by the Programme Leader, who is supported by the Teaching Team and Associate Head of Department. Issues relating to groups of students are dealt with through the Student Rep / Staff Forum (SRSF) that includes student representatives, who also meet with the Programme Leader on a regular basis. Students who elect to undertake a placement year, are allocated a placement tutor who maintains contact, plans a visit where possible, provides support and liaises with work supervisors. For all students, access to academic staff and the student advisors is via e-mail or by personal access, with most staff offering an office-hours policy facilitating the booking of appointments. The central University counselling and support services also provide assistance and guidance for students. The programme welcomes mature students, and students with disabilities or additional needs. Where possible, and following individual consultation, adjustments are made to practical and field work to allow all students to achieve the learning outcomes of the programme.

### **Teaching and Learning facilities**

The Bolland library provides an extensive range of literature that supports the programme, with additional material held in the Field Studies Resource Room. Students have 24-hour access to computers, and IT support services are available from the University's Computing Helpdesk. The University's Virtual Learning Environment, hosted by Blackboard, has been developed to enhance the student's learning experience and provide comprehensive support on a module-by-module basis. Support includes access to teaching materials, links to relevant online resources and background reading, facilities for interaction and coordination during group work (e.g. blogs, wikis) and communication between tutors and students. The Faculty has a well-equipped range of general and specialist laboratories, a dedicated field laboratory, a large glasshouse used for teaching and project work, a dedicated project laboratory, and a wide range of specialist scientific equipment, both lab-based and portable that is available for use by the students at appropriate stages in their study programme. The university's campus at Frenchay covers over 60 hectares, and provides a wide range

## **Part 4: Student Learning and Student Support**

of habitats that can be utilized by students for formal and informal learning, including ponds, grassland, woodland, and the built environment which includes some buildings that incorporate cutting-edge sustainable building design and micro-generation technologies. In addition, the geographical location of Bristol gives access to a wide variety of natural and man-made environments and provides students with opportunities for fieldwork that enhance their learning experience.

In addition to programme-specific facilities, the university offers a wide range of opportunities for learning and participation outside of the formal curriculum. These include: research talks by visiting experts and UWE research staff, and access to research seminars hosted by other organisations in Bristol, for example Bristol Zoo; a wide range of student societies, some which are particularly targeted at environmental issues; a wide range of volunteering opportunities including working with local environmental organisations and supporting pupils in local schools; and opportunities to get involved with entrepreneurial projects, publish their own work, or take part in environmental, conservation, or development projects at home and abroad. Such extra-curricular activities can now be formally recognised through the UWE Bristol Futures Award.

### **Preparation for the world of work**

An aim of this programme is to produce graduates that are ready for the world of work.

Environmental Science graduates have a long track record in gaining employment across a number of different professions including environment-based industries. This is due to the wide range of skills they develop in the study of the subject through hands-on learning activities such as fieldwork, laboratory work and team-based projects. Working in the natural environment provides opportunities and constraints on project work that are different, unexpected and more challenging than those found in classroom-based activities. The skills and qualities developed through studying Environmental Science are highly transferable into a variety of roles and different working environments, including the ability to think through issues, analyse situations and problems and come up with creative solutions, and to work with others in sometimes difficult and tight timeframes, and unfamiliar environments.

Students are introduced to the world of work through their taught modules, especially the 'Skills' modules at levels Zero, One and Two, and through their group and one-to-one tutor sessions at all levels. These sessions focus on the identification of career aspirations, analysis of skills gaps and acquisition planning, C.V. preparation and the job application process. Students are encouraged to take the Placement Year to build up their work experience skills and this occurs between Level 2 and the Final Year. Scientific and generic careers events are organised throughout the year for students at all levels and careers advice is available from academic staff and the university's Careers Service. Enterprise, social enterprise and consultancy are all key topics delivered in the optional Final Year module 'Scientific Frontiers and Enterprise'.

Field work is of fundamental importance to the development of employability skills and occurs across a range of modules at all levels, including half-day, whole day, and residential visits. In particular, residential field trips take place at Level 1 (compulsory), Level 2 (compulsory) and Final Year (optional modules). The costs associated with compulsory field trips are generally met by the Faculty, however, optional trips may incur an additional cost. All Final Year students undertake an independent research project. This is supported by compulsory modules at Levels 1 and 2 during which students develop the skills to project plan, self-manage, collect, analyse and interpret data, and write scientific reports.

In addition to the practical work experience opportunities throughout this programme, technology is used to enhance teaching, learning and employability. Environmental scientists are often required to communicate and disseminate their findings through a variety of modern media, to a range of audiences. A number of the technologies incorporated within this programme link directly to feedback from employers on relevant graduate skills (e.g. GIS, data bases, webpages, blogs, new media).

### **Teaching and Learning, Technology Enhanced Learning (TEL)**

## Part 4: Student Learning and Student Support

In order to support students during their transition to HE and to help students become independent learners, taught sessions at Level Zero (the Foundation Year) and One are a mixture of interactive lectures, tutorials, workshops, laboratory, field and computer practicals. During this year students are taught the skills necessary to engage with appropriate technologies to allow a gradual move towards facilitated learning at Level 2 and Final Year. The taught sessions at UWE utilise TEL to support a pedagogy of Inductive Learning where the students engage in facilitated activities such as debates, problem based learning, group working, research etc. Integral to this programme is the use of subject based as well as generic use of technologies. For instance, data analysis and modelling, remote sensing and mapping (GIS), and communication are subject areas reliant on a range of contemporary technologies. In addition modern technologies are incorporated as vehicles of learning (e.g. blogs, web pages, data bases) and as vehicles for learning through assessment (e.g. online portfolios, online tests, wikis, etc.). Below is a map showing the use of TEL in subject knowledge, subject delivery and subject assessment.

TEL mapping showing **Subject based technologies**, **TEL incorporated as vehicles of learning** and **TEL incorporated as vehicles for learning through assessment**

|                                   |   | TEL as subject knowledge   | TEL as a Vehicle for subject delivery                         | TEL as vehicle for subject assessment and learning   |
|-----------------------------------|---|--|---|--|
| <b>Compulsory Modules Level 0</b> | <b>USSKJ-30-0</b> Biology in Practice               | Data analysis  | Bb, Online resources  | Data analysis & data presentation, formative & summative quizzes   |
|                                   | <b>USSKCK-30-0</b> Chemistry in Practice            | Data analysis  | Bb, Online resources  | Data analysis & data presentation, formative & summative quizzes   |
|                                   | <b>USSKCL-30-0</b> Skills for Science               | Data analysis, Skills development                                  | Bb, Online resources  | Data analysis & data presentation, formative & summative quizzes   |
|                                   | <b>USSKCM-30-0</b> People and Science               | Data analysis  | Bb, Online resources  | Data analysis & data presentation, formative & summative quizzes   |
| <b>Compulsory Modules Level 1</b> | <b>USSK5C-30-1</b> Life on Earth                    | Data analysis  | Bb, Online resources, i.d. keys                               | Data analysis & data presentation  |
|                                   | <b>USSJFB-30-1</b> The Earth                        | Data analysis  | Bb, Online resources  | Data analysis & data presentation OLA Oral feedback  |
|                                   | <b>USSKAB-30-1</b> Environment & Society            | On-line Research   | Bb, Online discussions  | Data presentation  |
|                                   | <b>USSK5B-30-1</b> Field Skills                     | Data analysis, research, GPS                                       | Bb, Online resources, ECDL skills i.d. keys                   | Online portfolio with ECDL cert. Data analysis & data presentation   |
| <b>Compulsory Modules Level 2</b> | <b>USSK5G-30-2</b> Environmental & Field Techniques | Remote sensing, GIS, data analysis, GPS Questionnaires, new media, | Bb, Online resources, collaborative working, ECDL, Web pages, | Online portfolio with ECDL cert. Data analysis & data presentation; Online questionnaire; web page. Presentation |
|                                   | <b>USSKAF-30-2</b> Earth System Science             | Remote sensing, data analysis                                      | Bb, Online resources  | Data analysis & data presentation  |
|                                   | <b>USSK5F-30-2</b> Ecology & Ecosystem Protection   | Data analysis  | Bb, Online resources  | Data analysis & data presentation Online portfolio   |
|                                   | <b>USSKAH-30-2</b> People & Environmental Change    | Data analysis, env. modelling                                      | Bb, online resources, audio recordings,                       | Data analysis & data presentation OLA Oral feedback;   |
| <b>Compulsory Modules Level 3</b> | <b>USSK5K-30-3</b> Research Project                 | Data analysis  | Bb, Online resources  | Blog- diary, Gantt chart Data analysis Presentation  |
|                                   |   | Data analysis  | Bb, Online resources  | Blog- diary, Gantt chart   |

## Part 4: Student Learning and Student Support

|                                |   |                                       |  |  |
|--------------------------------|---|---------------------------------------|--|--|
|                                | USSKBC-30-3 Dissertation project                      |                                       |  | Data analysis<br>Presentation                            |
|                                | USSKBE-30-3 Resource Security & Sustainability        | Data analysis, modelling, data bases, | Bb Online discussions & resources  | Data analysis<br>Modelling, data bases-<br>networks,     |
| Optional<br>Modules<br>Level 3 | USSKCC15-3 Energy Technologies                        | Data analysis                         | Bb, Online resources   | Data analysis, databases & data presentation             |
|                                | USSK54-15-3 Forests and Agricultural Systems          | Data analysis modelling               | Bb, Online resources   | Data analysis & data presentation<br>OLA Oral feedback   |
|                                | USSK55-15-3 Marine Ecosystems                         | Data analysis                         | Bb, Online resources   | Data analysis & data presentation                        |
|                                | USSK58-15-3 Remote Sensing & GIS                      | Remote sensing, GIS, data analysis    | Bb, Online resources   | Remote sensing, GIS, data analysis<br>Presentation       |
|                                | USSK59-15-3 Tropical Expedition                       | Field technology<br>Filming           | Bb, Online resources   | Data analysis & data presentation                        |
|                                | USSKCD-15-3 Environmental Forensics                   | Remote sensing, data and DNA analysis | Bb, Online resources   | Data analysis and Data presentation                      |
|                                | USSKCE-15-3 Science Communication                     | Communication ad media                | Bb, online resources, audio, TV/film and written on-line archives eg. Nexis, BoB | New Media, press releases etc.                           |
|                                | USSKCF-15-3 Scientific Frontiers & Enterprise         | Data Analysis & Interpretation        | Bb, On-line resources  | Presentation   |
|                                | USSK57-15-3 Professional Practice in Applied Sciences | Data analysis                         | Bb, Online resources   | Presentation,<br>Online portfolio,<br>Learning agreement |

At UWE, Bristol there is a policy for a minimum average requirement of 12 hours/week contact time over the course of the full undergraduate programme. This contact time encompasses a range of face:face activities as described below. In addition a range of other learning activities will be embedded within the programme which, together with the contact time, will enable learning outcomes to be achieved and demonstrated.

On the BSc Environmental Science (with Foundation Year) programme teaching is a mix of scheduled, independent and placement learning.

**Scheduled learning** includes interactive lectures and lectorials, seminars, tutorials, project supervision, demonstration, laboratory, computer and field practical classes and workshops; fieldwork; external visits; and work based learning. Scheduled sessions may vary slightly depending on the module choices made.

**Independent learning** includes hours engaged with essential reading, case study preparation, scientific research activity, attendance at professional seminars, assignment preparation and completion, revision etc.

**Placement learning:** may include a professional practice placement year that may be undertaken at home or abroad.

### Description of any Distinctive Features

The Environmental Science (with Foundation Year) programme has been developed in consultation with a range of stake holder and has the following key features:

- An interdisciplinary and multi-disciplinary approach to the study of environmental science;
- Field work and field experience at local, national and international locations;
- The opportunity to spend a year working with leading environmental organisations, at home and abroad;

- Built in key skills such as GIS, IT (ECDL), environmental analysis, modelling, species identification, communication, and optional skills in SCUBA and assessing tropical wildlife;
- Delivery by experts in their field, drawn from across the university;
- High emphasis on the development of practical skills, with excellent facilities to support student learning;
- A range of final year options which, along with the research project, allow students to tailor their degree to their specific areas of interest;
- Built-in enterprise skills and an understanding of the world of work.

In addition, the BSc (Hons) Environmental Science (with Foundation Year) degree is accredited by the Institution of Environmental Sciences (IES).

## Part 5: Assessment

Approved to [University Regulations and Procedures](#)

### Assessment Strategy

A range of assessment methods are employed to monitor student attainment of the full range of Learning Outcomes. Assessment incorporates the Department's assessment strategy and The QAA Code of Practice on Assessment of Students. The principles, procedures and processes of assessment for each module are described in the module booklet, which is provided to each student and available online at the start of the module. Further, these assessments are summarised in the Assessment Calendar provided via the UWE Portal, which also facilitates the appropriate scheduling of assessment loading. The Final Year optional modules (15 credit) have semester based delivery. This allows assessments to be spread across both semesters for even loading.

Effective learning is achieved by employing a range of assessment approaches across the suite of modules that recognises differential approaches to learning. These include opportunities for placements, field work, and "real-world" assignments. The development of a flexible, inclusive and accessible curriculum ensures a high quality learning experience for all students. The programme incorporates a range of innovative and novel assessments, many utilizing new technologies.

As shown above, Technology Enhanced Learning (TEL) is integral to the subject matter within this programme (see TEL map). Many taught topics are technology rich and TEL is also used to supplement learning and to help student learn through assessment. The mapping demonstrates a range of modern technologies across the programme, but also shows repetition, of technologies, thus re-enforcement of skills. This is particularly important between levels as it provides opportunities for students to become proficient with these media in key areas. The need for proficiency and an emphasis on technology aided skills was identified by employers (e.g. GIS, new media, blogs, web pages, data bases) and this feedback has been used to inform the assessment strategy.

The Assessment Strategy has been designed to support and enhance the development of both subject-based and generic key skills and allow students to realise their true potential. The focus

is on assessments that link directly to employability as well as assessments for learning.

The nature of feedback on student work is varied, and relates to the nature of the work undertaken. Methods of feedback include: detailed comments on scripts; oral feedback; generic or assignment-specific feedback forms; peer assessment; and model answers. As well as supplying feedback on summative assessment, the teaching team also employ feed-forward strategies, both on summative work (for example detailed commentaries provided on drafts for the final year project) and formative assessment, such as in-class tests (using clickers), on-line quizzes, model answers for past exam questions, posters and presentations.

Assessments are designed to achieve the learning outcomes for each module and this is described on the module specification. The range and progression of assessment methods are shown below.

### Assessment Map

The programme encompasses a range of **assessment methods** including: practical exams, written exams, open book exams, posters, presentations, practical reports, field logs, portfolios,

These are detailed in the following assessment map:

#### Assessment Map for BSc Environmental Science (with Foundation Year)

|                                   |   | Unseen Written Exam | Open Book Written Exam | Practical Exam | Practical Skills Assessment | Oral assessment and/or presentation | Investigative Report/Case Study | Practical or Field Report | Research Report / Project | Skills/Reflective Portfolio | Written Assignment | Problem-solving Exercise |
|-----------------------------------|---|---------------------|------------------------|----------------|-----------------------------|-------------------------------------|---------------------------------|---------------------------|---------------------------|-----------------------------|--------------------|--------------------------|
| <b>Compulsory Modules Level 0</b> | <b>USSKJ-30-0</b><br>Biology in Practice    | <b>A (40)</b>       |                        |                |                             |                                     |                                 | <b>B (30)</b>             |                           |                             | <b>B (30)</b>      |                          |
|                                   | <b>USSKCK-30-0</b><br>Chemistry in Practice | <b>A (40)</b>       |                        |                |                             |                                     |                                 | <b>B (30)</b>             |                           |                             |                    | <b>B (30)</b>            |
|                                   | <b>USSKCL-30-0</b><br>Skills for Science    | <b>A (40)</b>       |                        |                |                             |                                     |                                 |                           |                           | <b>B (60)</b>               |                    |                          |
|                                   | <b>USSKCM-30-0</b><br>People and Science    | <b>A (30)</b>       |                        |                | <b>A (10)</b>               |                                     |                                 |                           |                           | <b>B x2 (60)</b>            |                    |                          |
| <b>Compulsory Modules Level 1</b> | <b>USSK5C-30-1</b><br>Life on Earth         | <b>A (40)</b>       |                        |                |                             |                                     | <b>B (18)</b>                   | <b>B (42)</b>             |                           |                             |                    |                          |
|                                   | <b>USSJFB-30-1</b><br>The Earth             | <b>A (30)</b>       |                        | <b>A (10)</b>  |                             |                                     | <b>B (24)</b>                   | <b>B (36)</b>             |                           |                             |                    |                          |
|                                   | <b>USSKAB-30-1</b><br>Environment & Society | <b>A (40)</b>       |                        |                |                             |                                     | <b>B (20)</b>                   |                           |                           | <b>B (40)</b>               |                    |                          |
|                                   | <b>USSK5B-30-1</b><br>Field Skills          |                     | <b>A (40)</b>          |                |                             |                                     |                                 | <b>B (30)</b>             |                           | <b>B (30)</b>               |                    |                          |
|                                   | <b>USSK5G-30-2</b>                          |                     |                        |                |                             | <b>A</b>                            |                                 | <b>B</b>                  |                           | <b>B</b>                    |                    |                          |

|                                   |  |               |  |              |  |               |              |                  |               |               |               |              |
|-----------------------------------|--|---------------|--|--------------|--|---------------|--------------|------------------|---------------|---------------|---------------|--------------|
| <b>Compulsory Modules Level 2</b> | Environmental & Field Techniques   |               |  |              |  | (40)          |              | (20)             |               | (40)          |               |              |
|                                   | <b>USSKAF-30-2</b><br>Earth System Science   | <b>A (50)</b> |  |              |  |               |              | <b>B (25)</b>    | <b>B (25)</b> |               |               |              |
|                                   | <b>USSK5F-30-2</b><br>Ecology & Ecosystem Protection   | <b>A (50)</b> |  |              |  |               |              | <b>B (30)</b>    |               |               | <b>B (30)</b> |              |
|                                   | <b>USSKAH-30-2</b><br>People & Env. Change   | <b>A (40)</b> |  |              |  |               |              | <b>B (25)</b>    | <b>B (25)</b> |               |               |              |
|                                   | <b>USSK5K-30-3</b><br>Research Project   |               |  |              |  | <b>A (20)</b> |              |                  | <b>A (20)</b> | <b>A (60)</b> |               |              |
| <b>Compulsory Modules Level 3</b> | <b>USSKBC-30-3</b><br>Dissertation Project   |               |  |              |  | <b>A (20)</b> |              |                  | <b>A (10)</b> | <b>A (70)</b> |               |              |
|                                   | <b>USSKBE-30-3</b><br>Resource Security & Sustainability   | <b>A (60)</b> |  |              |  |               |              | <b>B 2x (20)</b> |               |               |               |              |
|                                   | <b>USSK58-15-3</b><br>Remote Sensing & GIS   |               |  |              |  | <b>A (60)</b> |              | <b>B (40)</b>    |               |               |               |              |
| <b>Optional Modules Level 3</b>   | <b>USSK59-15-3</b><br>Tropical Expedition  |               |  | <b>A P/F</b> |  |               |              | <b>B (30)</b>    | <b>B (70)</b> |               |               |              |
|                                   | <b>USSKCC-15-3</b><br>Energy Technologies  | <b>A (60)</b> |  |              |  |               |              | <b>B (40)</b>    |               |               |               |              |
|                                   | <b>USSK55-15-3</b><br>Marine Ecosystems  | <b>A (60)</b> |  |              |  |               |              |                  | <b>B (40)</b> |               |               |              |
|                                   | <b>USSKCF-15-3</b><br>Scientific Frontiers & Enterprise  |               |  |              |  | <b>A (40)</b> |              |                  |               |               | <b>B (60)</b> |              |
|                                   | <b>USSK54-15-3</b><br>Forests & Agricultural Systems   | <b>A (60)</b> |  |              |  |               |              | <b>B (40)</b>    |               |               |               |              |
|                                   | <b>USSKCD-15-3</b><br>Environmental Forensics  | <b>A (60)</b> |  |              |  |               |              | <b>B (40)</b>    |               |               |               |              |
|                                   | <b>USSKCE-15-3</b><br>Science Communication  |               |  |              |  | <b>A (60)</b> |              | <b>B (40)</b>    |               |               |               |              |
|                                   | <b>USSK57-15-3</b><br>Professional Practice in Applied Sciences ( <i>study &amp; assessments for this module are carried out whilst on placement</i> ) |               |  |              |  | <b>A P/F</b>  | <b>A P/F</b> | <b>B P/F</b>     |               |               |               | <b>B P/F</b> |

\*Assessment are shown in terms of either **Written Exams**, **Practical exams**, or **Coursework** as indicated by the colour coding above.

Note, A = Component A; B = Component B; P/F = Pass or Fail and the number in brackets represent the module weighting.

**Part 6: Programme Structure**

This structure diagram demonstrates the student journey from Entry through to Graduation for a typical **full time student**.

|   |        |  |   |  |
|---|--------|--|---|--|
| <b>ENTRY</b>  | Year 0 | Compulsory Modules                         | Optional Modules  | Interim Awards   |
|   |        | <b>USSKCJ-30-0</b> Biology in Practice     | None  | None   |
|   |        | <b>USSKCK-30-0</b> Chemistry in Practice   |   |  |
|   |        | <b>USSKCL-30-0</b> Skills for Science      |   |  |
|   |        | <b>USSKCM-30-0</b> People and Science      |   |  |
|   |        |  |   |  |
|   | Year 1 | Compulsory Modules                         | Optional Modules  | Interim Awards   |
|   |        | <b>USSK5C-30-1</b> Life on Earth           | None  | Certificate of Higher Education:<br>Environmental Science<br><br>Other requirements:<br>120 credits at Level 1 or above. |
|   |        | <b>USSJFB-30-1</b> The Earth               |   |  |
|   |        | <b>USSKAB-30-1</b> Environment and Society |   |  |
|   |        | <b>USSK5B-30-1</b> Field Skills            |   |  |
|   |        |  |   |  |
|   | Year 2 | Compulsory Modules                         | Optional Modules  | Interim Awards   |
| <b>USSK5G-30-2</b> Environmental and Field Techniques |        | None                                       | Diploma of Higher Education:<br>Environmental Science<br><br>Other requirements:<br>240 credits at which not less than 100 are at Level 2 or above and 120 are at Level 1 or above. |  |
| <b>USSKAF-30-2</b> Earth System Science               |        |  |   |  |
| <b>USSK5F-30-2</b> Ecology and Ecosystem Protection   |        |  |   |  |
|   |        |  |   |  |

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | <b>USSKAH-30-2</b><br>People and Environmental Change |  |  |
|--|--|---|--|--|

**Year Out:**  
Students may elect to spend a year out working for an organisation, in an appropriate placement to gain relevant work experience. Credit is achieved through the USSK57-15-3 Professional Practice in Applied Sciences module.

|        |   |   |   |
|--------|---|---|---|
| Year 3 | <b>Compulsory Modules</b>   | <b>Optional Modules</b>                                   | <b>Interim Awards</b>   |
|        | <b>USSK5K-30-3</b><br>Research Project<br><i>OR</i><br><b>USSKBC-30-3</b><br>Dissertation Project | <b>USSKCF-15-3</b><br>Scientific Frontiers and Enterprise | BSc Environmental Science<br><br>300 credits of which at least 60 must be at level 3, a further 100 at Level 2 or above and a further 140 at Level 1 or above |
|        | <b>USSKBE-30-3</b><br>Resource Security and Sustainability  | <b>USSKCC-15-3</b><br>Energy Technologies                 |   |
|        |   | <b>USSK55-15-3</b><br>Marine Ecosystems                   | <b>Highest Award</b><br>BSc (Hons)<br>Environmental Science   |
|        |   | <b>USSK59-15-3</b><br>Tropical Expedition                 | 360 credits of which not less than 100 are Level 3 or above, and 100 are at Level 2 or above, and 140 are Level 1 or above                                    |
|        |   | <b>USSKCD-15-3</b><br>Environmental Forensics             |   |
|        |   | <b>USSK54-15-3</b><br>Forest and Agricultural Systems     |   |
|        |   | <b>USSK58-15-3</b><br>Remote Sensing and GIS              |   |
|        |   | <b>USSKCE-15-3</b><br>Science Communication               |   |





|  |  |  |  |
|--|--|--|--|
|  |  | <b>USSK57-15-3</b><br>Professional Practice in<br>Applied Sciences |  |
|--|--|--|--|

## GRADUATION

### Part 7: Entry Requirements

The Foundation Year is designed to accept a wide range of people with different educational backgrounds. Each applicant will be considered on an individual basis.

Minimum entry requirements are as follows:

GCSE Grade C or above in English Language, Mathematics and Double Science, or equivalent.

Science AS or A2. Points from A-Level General Studies and AS-Level subjects (not taken onto full A-Level) can be included towards overall tariff. You must have a minimum of one A-Level.

The UCAS points tariff will be reviewed on a regular basis and published for new applicants. Tariff points as appropriate for the year of entry - up to date requirements are available through the courses database.

Non-standard applicants without appropriate A-levels, or an equivalent qualification, will be considered on a case-by-case basis.

### Part 8: Reference Points and Benchmarks

#### Framework for Higher Education Qualifications

The learning outcomes for the programme have been developed with reference to the qualification descriptors used in the QAA Framework for Higher Education Qualifications. In particular, the learning outcomes for modules at level one and level two have been considered to be consistent with the award of a Certificate of Higher Education and a Diploma in Higher Education respectively. Graduates of the award achieving an Honours classification will develop an understanding of a complex body of knowledge related to the environmental sciences. In addition, the graduate will develop analytical techniques, problem-solving skills and communication skills that can be applied to a range of employment opportunities.

#### Subject benchmark statements

This programme maps to the benchmark statements for Earth Sciences, Environmental Sciences and Environmental Studies. The benchmarking statement identifies four key features which should characterise degree programmes in the Environmental/Earth Sciences:

*'a holistic, multi-disciplinary and inter-disciplinary approach'*. This is evident in this programme from the breadth of the subject matter, the range of subject specialisms of the tutors involved (in both the analytical and social sciences) and the existence of integrating, 'issues' or case-study based modules and student work.

*'the integration of fieldwork, experimental and theoretical investigations'*. At levels 1 and 2 of this programme, students spend typically around 50% of their time involved in practical work

## Part 8: Reference Points and Benchmarks

of all types (field or laboratory based work, library or internet investigations) and all year 3 projects involved a high degree of investigation, be they practical or more theoretical (desk-based) in nature.

*'quantitative and qualitative approaches to acquiring and interpreting' data.* These approaches are integrated both in the practical work of the student as highlighted above, and through the lecture and assessment components of the programme, which encourage the students to develop skills in the objective analysis of all type of information and data, in order to recognise, understand and challenge current theories and paradigms. Examples include: the analysis of legal case material; the conducting of public opinion surveys; conducting literature searches and summarising bodies of evidence and opinion.

*'the exploration for, and exploitation of, physical and biological resources in the context of sustainability'.* The diversity and extent of physical and biological resources are introduced at levels 0 and 1 through the compulsory modules, which also begin the exploration of issues relating to unwise or over-exploitation of these resources. These themes are further explored at level 2 in all modules, which consider the social, economic, legal and political aspects of resource exploitation, as well as its physical consequences (loss of biodiversity, land degradation, pollution). At level 3 more emphasis is placed on precisely defining the impacts of over-exploitation and on investigating appropriate techniques for remediation.

The benchmarking statement also specifies the subject knowledge it expects to be covered to some degree of depth in an Environmental Science degree programme:

*'The Earth as a system'* which is dealt with explicitly in compulsory modules at levels 0 and 1 and at level 2 but more implicitly throughout the suite of modules taken.

*'Human systems and their interactions with global systems'* which are explored in detail via the interdisciplinary and 'issues' based modules and a knowledge of which is underpinned by the compulsory modules at levels 0, 1 and 2. Human impacts on environmental systems forms an important theme in most level 3 modules, as well as underpinning most of the research topics investigated as part of the final year Research Project.

*'Inter-disciplinary/multi-disciplinary context'* which is implicit in the structure of the programme, as well as being dealt with explicitly in a range of modules at all three levels.

*'Activities, patterns, processes, impacts and responses'* including environmental impact assessment, management and sustainable development. These themes are integrated throughout the programme, with knowledge and understanding of activities, patterns and processes typically being obtained at levels 0 and 1, whilst impacts and responses are investigated in greater breadth and depth at levels 2 and 3.

*'Temporal and spatial scales'* which are dealt with in all modules. It is a specific aim of the programme for students to gain an understanding of the interactions between local issues and actions, and regional and global consequences.

### SEEC credit level descriptors (2010)

SEEC credit level descriptors have been used to establish the level of the programme and its modules, and to inform the learning outcomes and assessment criteria at level 4 (Cert. HE), level 5 (Dip. HE), and level 6 (BSc).

These credit levels descriptors inform the following areas:

## Part 8: Reference Points and Benchmarks

- The development of subject specific knowledge and understanding, generic cognitive and intellectual skills, key/transferrable skills, and subject specific practical skills;
- Teaching, learning and assessment strategies that deliver, ensure and assess the attainment of these levels;
- The programme level learning outcomes that are reinforced by the modular learning outcomes, teaching, learning and assessment strategies described in individual module specifications.

*What methods have been used in the development of this programme to evaluate and improve the quality and standards of learning? This could include consideration of stakeholder feedback from, for example current students, graduates and employers.*

To ensure the programme is fit for purpose and to gain an in-depth knowledge of the needs of employers, key personal from a range of environmental organisations (local, national and international) have been consulted. These discussions highlighted the key skills required to produce an employable graduate ready to work in this field. Common themes emerging from these consultations were the need for proficiency in Geographical Information Systems (GIS), data analysis, scientific writing, use of data bases, field-based skills and communication skills.

In addition, the Environmental Science (with Foundation Year) programme has been subject to regular (annual) and periodic (every six years) reviews which have considered the content, learning outcomes, and assessment strategy of the programme, to ensure that it remains current and fit for purpose. These reviews have been informed by external advice from industry (periodic reviews), as well as feedback from our placement providers and alumni. The BSc Environmental Science is accredited by the Institution of Environmental Sciences, and periodic re-accreditation also ensures the 'fit-for-purpose' nature of the programme.

This 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. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of individual modules can be found in module specifications, available on the [University's website](#).