

## ACADEMIC SERVICES

### PROGRAMME SPECIFICATION

| Part 1: Basic Data                                     |   |
|--|---|
| <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. Frenchay Campus.  |
| <b>Faculty responsible for programme</b>               | Faculty of Health and Applied Sciences  |
| <b>Department responsible for programme</b>            | Department of Applied Sciences  |
| <b>Modular Scheme Title</b>                            |   |
| <b>Professional Statutory or Regulatory Body Links</b> | None  |
| <b>Highest Award Title</b>                             | MSci Biological Sciences  |
| <b>Default Award Title</b>                             |   |
| <b>Fall-back Award Title</b>                           |   |
| <b>Interim Award Titles</b>                            | BSc (Hons) Biological Sciences<br>BSc Biological Sciences<br>Certificate of Higher Education Biological Sciences<br>Diploma of Higher Education Biological Sciences |
| <b>UWE Progression Route</b>                           |   |
| <b>Mode(s) of Delivery</b>                             | FT / SW / PT / Foundation Year  |
| <b>Codes</b>   | <b>UCAS:</b><br><b>ISIS2:</b>   |
|  | <b>JACS:</b><br><b>HESA:</b>  |
| <b>Relevant QAA Subject Benchmark Statements</b>       | Biosciences (2007)  |
| <b>CAP Approval Date</b>                               |   |
| <b>Valid from</b>                                      | September 2016<br>September 2017 (v2)   |
| <b>Valid until Date</b>                                |   |
| <b>Version</b>   | 2   |

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

The MSci Biological Sciences (with Foundation Year) programme is a five-year full-time or six-year sandwich degree designed to provide a comprehensive foundation in science enabling outstanding learning, advancing knowledge in the human, molecular and ecological areas of the biological sciences. It provides an opportunity for students to explore the theory and practice

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related to the biological sciences, and to develop both subject-specific and important generic graduate skills, such as practical and analytical skills, work experience, project management and use of technology and communication media in addition to developing students as independent researchers. The MSci Biological Sciences (with Foundation Year) programme has been designed to deliver a broadly based core encompassing the processes and mechanisms of life from the molecular to ecosystem level in addition to developing in students, the understanding of and ability to engage with the scientific process. The programme has been designed around three principal themes; **ecology**, **human** and **molecular**, each constructed from a series of subject-relevant modules. The themes enable students the flexibility to develop their own subject-specific interests and have been structured to demonstrate clear routes through the degree programme, culminating in an extended research project and advanced subject specific and research focused learning in during the final year of study. The combination of modules offered enables students to advance their knowledge and explore the breadth of the biological sciences while working at the cutting edge of the subjects using state-of-the-art equipment and learning support materials.

The programme has been designed to:

- Provide the educational and resource environment which will enable students to develop:
  - success as scientists by studying the breadth and relevance of the natural and social sciences which underpin MSci Biological Sciences.
  - an advanced understanding of the biological sciences from a multi-disciplinary and interdisciplinary perspective;
  - the field, laboratory, investigative, problem-solving, technical and communication skills necessary to undertake independent investigations and analyses, and the presentation skills necessary to communicate their findings to audiences with a variety of backgrounds;
  - the skills needed by a literate, numerate, technologically agile student capable of independent lifelong learning;
  - the ability to learn through practice and apply research, subject-specific and generic skills in the context of the sustainable global society and to realise their potential as ready and able graduates.
  - an in-depth understanding of the practice of independent research, the value of research integrity, research with impact and the communication of research.

The specific aims of the programme are to enable students to:

- Develop an appreciation of the complexity and diversity of life processes through the study of organisms, their molecular, cellular and physiological processes, their genetics and evolution, and the interrelationships between them and their environment.
- Advance knowledge within the field of the biological sciences with respect to its impact on humans and to human health and wellbeing and make a positive contribution to society and to their chosen field of employment through application and communication of the biological sciences.
- Use, interpret and evaluate literature appropriate to the biological sciences with a full and critical understanding, while addressing such questions as content, context, aims, objectives, quality of information, and its interpretation and application.
- Create a friendly, supportive and contemporary atmosphere that will enable individual students to use the whole learning experience at UWE to create a graduate foundation, on which they can develop their future careers and on-going social and educational development as independent lifelong learners.

## Part 2: Educational Aims of the Programme

- Provide a curriculum that is enhanced by the strong relationship between teaching, research, and professional practice and informed by employers.

MSci Biological Sciences has been designed to map to the QAA Biosciences benchmark (2007), with the majority of the modules available to our biological sciences students, addressing the *“study of life at all levels of complexity”* (Biosciences 2.1) and recognising that *“complexity and the relationship between form and function are intrinsic”* (Biosciences 2.2) with *“studies at a variety of levels from molecules to populations”* (Biosciences 2.3) embedded across all Levels. These aspects are addressed in core Level 1 modules including Life on Earth, Cell From Level2, but particularly at Level 3, increasing emphasis is placed on the recognition by the student that much of what is taught is *“contested and provisional, particularly in the light of continuing scientific advances”* (Biosciences 3.3) and that *“the biosciences exist in an environment of current hypotheses rather than certainty, where natural variation occurs and can confuse empirical data”* (Biosciences 2.4). There are a number of ways in which we provide the student with the intellectual and practical tools required to deal not only with the consequences of this paradigm within the complexity of cutting-edge biosciences but also those that stem from the pace of scientific advances in terms of *“continuing their self-education and development after graduation”* (Biosciences 2.5).

At Level 1, 2, 3 and M, a strand of compulsory modules develops and reinforces the theoretical underpinnings as well as the laboratory practice of scientific investigation beyond that offered in the context of subject-specific modules; Skills for Biosciences is taught in the first year, and Research Skills in the second year. This develops at Level 3 with an independent Research Project module in which a student works with a member of staff on an original piece of research. This strand addresses Biosciences 2.4 by helping students *“develop competence in comparing the merits of alternative hypotheses and receive guidance in terms of how to construct experiments or to make observations to challenge them”*, for the *“appreciation of hypothesis formation and testing”* (Biosciences 2.6), for *“competence in team and individual working and in numeracy (often including IT and statistics...), as well as proficiency in preparing reports in a written format for many different purposes”* (Biosciences 2.7) and *“knowledge of a range of practical and presentational techniques and methodologies relevant to the particular discipline, including data analysis and the use of statistics (where appropriate)”* (Biosciences 3.2).

The practise of bioscience occurs primarily in the laboratory, and the MSci Biological Sciences programme provides students with a solid training in the laboratory techniques that permits the contextualisation of existing knowledge in biological sciences and provide the means for its extension. In addition to the practical experience to be gained from the sandwich year, and given that the final year project is research-based, the students spend a significant proportion of their contact time within the teaching/research laboratories or engaging in field-work, therefore offering *“appropriate opportunities to participate in collecting data by undertaking experiments and practical investigations”* (Biosciences 2.6).

The teaching and learning strategies adopted by modules offered within the Biological Sciences degree cover the greater majority of those listed in Biosciences 4.2. With particular reference to lectures (Biosciences 4.3), many staff use *“computer-based or other audio-visual aids”* and place their material on the University’s VLE as a learning resource to consolidate learning. For laboratory work (Biosciences 4.4) students experience practicals *“carried out on material at a variety of levels from molecules to whole organisms”*. For *“personal experience of the approach, practice and evaluation of scientific research”* (Biosciences 4.6), both Research Skills at Level 2 and the research project modules at Levels 3 and M offer such opportunities, the assessment of which includes an oral examination component (Biosciences 4.8). For all modules, students are expected to spend a period of time equivalent to the timetabled sessions on *“set assignments and self-directed study, individually and within groups... [entailing] information seeking and the use of learning resources available in electronic or other format, reading, report writing and problem solving”* (Biosciences 4.7). Assessment strategies map well against Biosciences 4.9 and include unseen examinations, computer-based assessments, self and peer assessment, laboratory reports, essays, summaries and assignments, data interpretation exercises, case studies, poster, audio-visual/electronic presentations, a project report, and a work experience report.



| Part 3: Learning Outcomes of the Programme                         |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ability to plan, execute and present independent piece of research |   |   |   |   |   |   |   |   | X | X | X | X | X |
| Impact of research   |   |   |   |   |   |   |   |   |   | X |   | X | X |
| <b>(B) Intellectual Skills</b>                                     |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Using theories and paradigms                                       | X | X | X | X | X | X | X |   |   | X |   | X | X |
| Analyse, synthesise, summarise information                         | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Obtain evidence, test hypotheses                                   | X | X | X | X |   |   |   | X | X | X |   | X |   |
| Apply knowledge to problems  | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Independent learner, self-manager                                  | X | X | X | X |   |   |   | X | X | X |   | X | X |
| Appreciate moral, ethical issues around investigation              |   |   |   | X |   |   |   |   | X | X | X | X |   |
| <b>(C) Subject/Professional/Practical Skills</b>                   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Appreciate knowledge and complexity of life processes              | X |   |   |   | X | X | X |   |   | X |   |   | X |
| Practical competence   | X | X |   |   | X | X | X | X | X | X |   | X |   |
| Design, plan, conduct and report on investigations                 | X | X |   |   |   |   |   | X | X | X |   | X | X |
| Collect, analyse and present data                                  | X | X | X | X | X | X | X | X | X | X |   | X | X |
| Safe and ethical investigations of living systems                  | X |   |   |   | X | X | X | X | X | X |   |   | X |
| Read and critically appraise literature                            |   |   |   |   |   |   |   |   | X | X | X | X | X |
| <b>(D) Transferable skills and other attributes</b>                |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Use a variety of sources of information                            | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Communicate appropriately using contemporary technologies          |   |   | X | X |   |   |   | X | X | X | X | X |   |
| Appreciate issues of accuracy uncertainty                          |   |   | X |   | X | X | X | X | X | X |   |   | X |
| Prepare, process, interpret data                                   | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Solve numerical problems   |   |   | X |   | X | X | X | X | X |   |   | X | X |
| Use internet appropriately for transfer of information             | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Respect views of others  |   |   |   | X | X |   |   | X | X |   | X |   | X |
| Evaluate individual performance                                    |   |   | X |   |   |   |   | X |   | X |   |   | X |
| Active & independent learning                                      | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Skills for employment  |   |   | X |   |   |   |   | X | X | X | X | X |   |

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

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

MSci Biological Sciences (with Foundation Year) is managed as part of a suite of programmes within the Biological and Environmental Sciences & Science Communication Subject Group. Programme handbooks provide 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 regulation, aims of the programme, laboratory working, support systems (e.g. Drop-ins, PAL) and their Academic Personal Tutor (APT). Students are allocated an Academic Personal Tutor and become part of a tutor group (typically < 15 tutees). APT sessions for the BSc (Hons) Biological Sciences programme include a provision of at least 90 minutes of contact with the APT tutor in the first year then twice for 30 minutes each in the second and third years, with the student able to book meetings upon request. In addition, timetabled APT sessions are included in the Level 1 and 2 skills modules. Students are further supported during their time at UWE by student advisors and module leaders. Guidance on year issues is overseen by the Programme Manager, who is supported by the Teaching Team and AHoD. 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 Manager on a regular basis. Students who elect to undertake a placement year, are allocated a placement tutor who will maintain contact, plan a visit where possible and provide support and liaise 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 programme welcomes mature students and students with disabilities. When 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. The central University counselling and support services provide assistance and guidance for students with disabilities and issues guidance to Module Leaders via Programme Managers in making provision for students' reasonable adjustments.

### **Teaching and Learning facilities**

The Faculty has a well-equipped range of state-of-the-art general and specialist laboratories, a dedicated field laboratory, large glasshouse used for teaching and project work, a dedicated project laboratory and a wide range of specialist scientific equipment that is available for use by the students at appropriate stages in their study programme. This provision supports experiential learning and the development of ready and able graduates, equipped to enter the employment market with outstanding practical skills in the biological sciences. The Bolland library provides an extensive range of literature that supports the programme. Additional material is held in the Field Studies Resource Room. Students have 24-hour access to computers, and IT support services are available within the University's Computing Helpdesk. Learning Zones are available throughout the University, providing IT equipment to support both individual and group learning. 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.

### **Preparation for future learning**

The Foundation Year is designed to provide a strong grounding in biology, chemistry, mathematics and physics, along with the core concepts of psychology, which underpin MSci Biological Sciences. 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 gaining excellent analytical, communication and time management skills, which will substantially enhance their learning potential in Levels 1-M. The final year focuses on advanced contemporary biology and independent research, fully equipping students for postgraduate research degrees.



## Part 4: Student Learning and Student Support

### Preparation for the world of work

An aim of this programme is to produce ready and able graduates that are able to make a positive contribution to society and to their chosen field of employment. To support this objective and to develop employability skills, as part of the core Biological Sciences programme at Level 0 students undertake the Physical World or Skills for Science module and at Level 1 students undertake the Skills for Biosciences module which enhances subject-based and generic key skills and emphasises student understanding of the need to develop transferrable graduate skills in addition to subject-specific learning. This is reinforced by the Level 2 Research Skills module, designed to develop students' scientific skills in preparation for both the placement year and the Level 3 Research Project module. Students are encouraged to take the Placement Year to build up their work experience skills and this occurs between Level 2 and Level 3. Students are encouraged to consider placement opportunities across a variety of occupational areas, reflective of the breadth of the Biological Sciences. Scientific and generic careers events are organised throughout the year for students at all levels and career advice and C.V. preparation is a key aspect of the APT programme. Enterprise and entrepreneurship are key topics delivered in the compulsory Final Year module Scientific Frontiers and Enterprise. The level M module Research with Impact reinforces the concept of research integrity whilst further developing project management and science communication skills.

Laboratory and field work are of fundamental importance to the development of employability skills and understanding in the biological sciences, and occur across a range of modules at all levels. Subject specific and generic laboratory skills are learned at all levels; field-based practicals are compulsory at Levels 1 and 2 and residential field trips are optional at Level 3. The costs associated with compulsory field trips are generally met by the Faculty, however, optional trips may incur an additional cost. At Level 3 students undertake an independent research project. This is supported by compulsory modules at Levels 0, 1 and 2 during which students develop the skills to project plan, self manage, collect data, analyse and interpret data and write scientific reports. An extended research project is undertaken at Level M where students will undertake independent research, supported by developing skills in project design, management and research communication.

MSci Biological Sciences students also have the option to enrol on the UWE Bristol Futures Award. This employability award is open to all full-time and sandwich undergraduate students at UWE and recognises the variety of activities that that students can engage in during their time at university. This includes opportunities to develop their practical experience, leadership skills, enterprise skills and global and cultural awareness. Completing a selection of these enables students to achieve the UWE Bristol Futures Award, enhancing their C.V. and their employability skills.

### Placement Learning

The Biological Sciences sandwich placement year is considered an integral part of the programme, with the expectation that students will undertake a placement in an industrial or academic organisation in a research and development environment. Students may opt to take the Professional Practice Module whilst on placement, and successful completion of 40 weeks of appropriate employment in biosciences qualifies the student for a Sandwich Award on graduation. The Faculty has a Placements Support Team, comprising the Faculty Placements Tutor, specific BMS training (if a biomedical placement is chosen) and Environmental tutors, and the Placements co-ordinator to provide administrative support. The Biological Sciences programme has 30 years experience in arranging placements for up to 100 students per annum; placements include major pharmaceutical companies around the world, within North American universities and also European organisations. In many instances, students are successful in obtaining placements through competitive interview, often with students from other Universities. Further research/development style placements are currently being sought in the pharmaceutical and nutraceutical industries. Placement learning contributes to the Level 3 module Professional Practice in Applied Sciences.

## Part 4: Student Learning and Student Support

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

In order to support students during their transition to HE and to help students become independent learners, taught sessions at Levels 0 & 1 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, 3 and M. 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, and research. Integral to this programme is the use of subject based as well as generic use of technologies. For instance, data analysis and modelling, mapping (GIS), communication for conservation, are subject areas reliant on a range of contemporary technologies. Furthermore, research equipment used for the acquisition and manipulation of data is becoming increasingly integrated with IT infrastructure. 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, press releases and poster presentations).

### Description of any Distinctive Features

The MSci Biological Sciences programme has the following key features:

- A broadly based core at Levels 0 and 1 designed to introduce the range of Biological Sciences and to provide students with the requisite knowledge and scientific skills to develop as biological scientists.
- A flexible modular structure through Levels 2 and 3 to allow Biological Sciences students to explore their individual interests.
- A modular structure clustered into clearly identified **themes** (human, molecular, ecology) at Levels 2 and 3. Identifying these themes amongst the rich diversity of biological sciences subjects affords students a clear path from entry on to the course through to students' chosen area of employment.
- A strong practical provision providing subject specific learning and generic scientific skills to enhance employability through experiential learning (learning by doing).
- Decided scientific and research skills modules at Levels 1 and 2 designed to empower students to develop into competent, questioning and independent scientists.
- An independent research project at Level 3 enabling students to apply the knowledge and skills learned at Levels 1 and 2 through their own independent research.
- An extended independent research project at Level M, allowing students to develop as independent researchers with ownership of the planning and management of their research, an awareness of research impact and the opportunity to further study at the cutting edge of the biological sciences.

## Part 5: Assessment

A: 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



## Part 5: Assessment

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 Level 3 optional modules (15 credit) have semester based delivery. This allows assessments to be spread across both semesters for even loading. The 30 credit Level M module 'Contemporary Biology' is delivered in Semester 1 allowing for appropriate focus on the project report for the 60 credit 'Research in Practice' module.

Effective learning is achieved by employing a range of assessment approaches, embedded within the compulsory modules and reinforced within the optional modules that recognise differential approaches to learning. These include opportunities for work-based learning, placements and field work. 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. 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 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. 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

#### Assessment Map for BSc. (Hons) Biological Sciences

|                                  |  | Unseen Written Exam/<br>embedded online<br>exam/activities | In-class Written Test | Practical Exam/Skills<br>Assessment | Oral assessment and/or<br>presentation | Researched Report/Written<br>Assignment | Data Analysis | Research Project Report | Laboratory /Field Report | Skills/Reflective Portfolio |
|----------------------------------|--|--|-----------------------|-------------------------------------|--|---|---------------|-------------------------|--------------------------|-----------------------------|
| Compulsory<br>Modules<br>Level 0 | <b>USSKCJ-30-0</b><br>Biology in<br>Practice   | A<br>(40)  |                       |                                     |  | B<br>(30)                               |               |                         | B<br>(30)                |                             |
|                                  | <b>USSKCK-30-0</b><br>Chemistry in<br>Practice | A<br>(40)  |                       |                                     |  |   | B<br>(30)     |                         | B<br>(30)                |                             |
|                                  | <b>USSKCL-30-0</b><br>Skills for<br>Science    | A<br>(40)  |                       |                                     |  |   | B<br>(60)     |                         |                          |                             |

## Part 5: Assessment

|                                   |   |         |  |        |        |                  |        |  |        |        |
|-----------------------------------|---|---------|--|--------|--------|------------------|--------|--|--------|--------|
|                                   |   | A (100) |  |        |        |                  |        |  |        | B P/F  |
|                                   | <b>USSKCM-30-0</b><br>People and Science  | A (40)  |  |        | B (30) |                  | B (30) |  |        |        |
|                                   |   | A (50)  |  | A(50)  |        | B P/F            |        |  |        |        |
| <b>Compulsory Modules Level 1</b> | <b>USSK5C-30-1</b> Life on Earth  | A (40)  |  |        |        | B (18)           |        |  |        | B (42) |
|                                   | <b>USSKA3-30-1</b> Anatomy and Physiology   | A (40)  |  | B (60) |        |                  |        |  |        |        |
|                                   | <b>USSKA4-30-1</b> Cell Biochemistry and Genetics   | A (40)  |  |        |        | B (30)           | B (30) |  |        |        |
|                                   | <b>USSKA6-30-1</b> Skills for Biosciences   | A (40)  |  |        |        | B (12)           |        |  |        | B (48) |
| <b>Compulsory Modules Level 2</b> | <b>USSKAP-30-2</b> Research Skills  | A (50)  |  |        |        | B (25)           | B (25) |  |        |        |
| <b>Compulsory Modules Level 3</b> | <b>USSK5K-30-3</b> Research Experimental Project <b>OR</b> <b>USSKBC-30-3</b> Research Dissertation Project |         |  |        | A (20) | A (10)           |        |  | A (70) |        |
|                                   | <b>USSKCF-15-3</b> Scientific Frontiers and Enterprise  |         |  |        | A (40) |                  |        |  |        | B (60) |
| <b>Compulsory Modules Level M</b> | <b>-60-M</b> Research in Practice   |         |  |        | A (30) | A (20)           |        |  | A (50) |        |
|                                   | <b>USSKM5-30-M</b> Research with Impact   |         |  |        | A (30) | A (20)<br>B (20) |        |  |        | B (30) |
|                                   | <b>USSKM4-30-M</b> Contemporary Biology   |         |  |        | A (50) | B (25)           | B (25) |  |        |        |
| <b>Optional Modules Level 2</b>   | <b>USSKAQ-30-2</b> Microbial Life   | A (50)  |  |        |        | B (30)           |        |  |        | B (20) |
|                                   | <b>USSKAL-30-2</b> Molecular Biology  | A (50)  |  |        |        | B (25)           |        |  |        | B (25) |
|                                   | <b>USSKAM-30-2</b> Genes & Biotechnology  | A (50)  |  |        |        | B (25)           |        |  |        | B (25) |
|                                   | <b>USSKAN-30-2</b> Human Health & Disease   | A (50)  |  |        |        | B (30)           |        |  |        | B (20) |
|                                   | <b>USSKAS-30-2</b> Physiological and Immunological Systems No component B                                   | A (50)  |  |        |        |                  |        |  |        |        |
|                                   | <b>USSK5F-30-2</b> Ecology & Ecosystem Protection   | A (50)  |  |        |        |                  | B (30) |  |        | B (20) |
|                                   | <b>USSK5H-30-2</b> Wildlife Ecology   | A (50)  |  | B (25) |        |                  |        |  |        | B (25) |
|                                   | <b>USSKCG-15-3</b> Applied Biotechnology  | A (60)  |  |        |        | B (40)           |        |  |        |        |

## Part 5: Assessment

|  |  |               |               |  |  |                   |               |               |               |               |
|--|--|---------------|---------------|--|--|-------------------|---------------|---------------|---------------|---------------|
| Optional Modules<br>Level 3                                    | <b>USSKCG-15-3</b><br>Science Communication          |               |               |  |  | <b>A (50)</b>     |               |               |               | <b>A (50)</b> |
|  | <b>USSKBH-30-3</b><br>Medical Genetics               | <b>A (60)</b> |               |  |  | <b>B (20) x 2</b> |               |               |               |               |
|  | <b>USSKBF-30-3</b><br>Genomic Technologies           | <b>A (60)</b> |               |  |  | <b>B (25)</b>     | <b>B (25)</b> |               |               |               |
|  | <b>USSKBG-30-3</b><br>Gene Control                   | <b>A (60)</b> |               |  |  | <b>B (25)</b>     | <b>B (25)</b> |               |               |               |
|  | <b>USSX57-30-3</b><br>Medical Microbiology           | <b>A (60)</b> | <b>B (10)</b> |  |  | <b>B (30)</b>     |               |               |               |               |
|  | <b>USSKCA-15-3</b><br>Neuropharmacology              | <b>A (60)</b> |               |  |  |                   | <b>B (40)</b> |               |               |               |
|  | <b>USSKBV-15-3</b><br>Human Nutrition                | <b>(A) 60</b> |               |  |  | <b>B (40)</b>     |               |               |               |               |
|  | <b>USSKBW-15-3</b><br>Pathophysiology                | <b>A (60)</b> |               |  |  | <b>B (40)</b>     |               |               |               |               |
|  | <b>USSK56-15-3</b><br>Primate Ecology & Conservation | <b>A (60)</b> |               |  |  |                   |               |               | <b>B (40)</b> |               |
|  | <b>USSK56-15-3</b><br>Primate Ecology & Conservation | <b>A (60)</b> |               |  |  |                   |               |               | <b>B (40)</b> |               |
|  | <b>USSKNB-15-3</b><br>Sustainable Food Production    | <b>A (60)</b> |               |  |  |                   |               | <b>B (40)</b> |               |               |
|  | <b>USSKN6-15-3</b><br>Global Forest Systems          | <b>A (60)</b> |               |  |  |                   | <b>B (40)</b> |               |               |               |
|  | <b>USSX45-15-3</b><br>Marine Ecosystems              | <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>USSK59-15-3</b><br>Tropical Expedition            |               |               |  |  |                   | <b>B (30)</b> |               | <b>B (70)</b> |               |
| <b>USSK57-15-3</b><br>Professional Practice in Applied Science |  |               |               |  |  |                   |               |               | <b>A (10)</b> |               |

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

## Part 6: Programme Structure

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

### ENTRY

| Year 0 | Compulsory Modules                       | Optional Modules | Interim Awards  |
|--------|--|------------------|---|
|        | <b>USSKCJ-30-0</b> Biology in Practice   | None             | 120 credits at Level 0<br><br>Successful completion of all level 0 modules required to permit progression to level 1. |
|        | <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  |
|------------------------------------|--|------------------|---|
|                                    | USSK5C-30-1 Life on Earth                  | None             | Certificate of Higher Education: Biological Sciences<br><br>Credit Requirements: 240 credits<br>At least 100 credits at level 1 or above.<br>120 credits at level 0 |
|                                    | USSKA3-30-1 Anatomy and Physiology         |                  |   |
|                                    | USSKA4-30-1 Cell Biochemistry and Genetics |                  |   |
| USSKA6-30-1 Skills for Biosciences |  |                  |   |

| Year 2                                     | Compulsory Modules          | Optional Modules; 90 credits of study must be chosen. | Interim Awards  |
|--|-----------------------------|---|---|
|  | USSKAP-30-2 Research Skills | USSKAQ-30-2 Microbial Life                            | Diploma of Higher Education: Biological Sciences<br><br>Credit requirements: 360 credits<br>At least 100 credits at level 2 or above.<br>At least 120 credits at level 1 or above.<br>120 credits at level 0. |
|  |                             | USSKAL-30-2 Molecular Biology                         |   |
|  |                             | USSKAM-30-2 Genes & Biotechnology                     |   |
|  |                             | USSKAN-30-2 Human Health & Disease                    |   |
|  |                             | USSKAS-30-2 Physiological and Immunological Systems   |   |
| USSK5F-30-2 Ecology & Ecosystem Protection |                             |   |   |

|  |   |   |  |
|--|---|---|--|
|  |   | USSK5H-30-2 Wildlife Ecology                          |  |
| <b>Year Out:</b> 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 <b>USSK57-15-3</b> Professional Practice in Applied Sciences module. |   |   |  |
| Year 3   | Compulsory Modules  | Optional Modules; 75 credits of study must be chosen. | Interim Awards   |
|  | USSK5K-30-3 Research Experimental Project <u>OR</u> USSKBC-30-3 Research Dissertation Project | USSKCG-15-3 Applied Biotechnology                     | BSc Biological Sciences<br>Credit requirements: 420 credits<br>At least 60 credits at level 3 or above.<br>At least 100 credits at level 2 or above.<br>At least 140 credits at level 1 or above.<br>120 credits at level 0.         |
|  | USSKCF-15-3 Scientific Frontiers and Enterprise   | USSKCE-15-3 Science Communication                     | BSc (Hons) Biological Sciences<br>Credit requirements: 480 credits<br>At least 100 credits at level 3 or above.<br>At least 100 credits at level 2 or above.<br>At least 140 credits at level 1 or above.<br>120 credits at level 0. |
|  |   | USSKBH-30-3 Medical Genetics                          |  |
|  |   | USSKBF-30-3 Genomic Technologies                      |  |
|  |   | USSKBG-30-3 Gene Control                              |  |
|  |   | USSKBJ-30-3 Medical Microbiology                      |  |
|  |   | USSKCA-15-3 Neuropharmacology                         |  |
|  |   | USSKBV-15-3 Human Nutrition                           |  |
|  |   | USSKBW-15-3 Pathophysiology                           |  |
|  |   | USSK56-15-3 Primate Ecology & Conservation            |  |
|  |   | USSKNB-15-3 Sustainable Food Production               |  |
|  |   | USSKN6-15-3 Global Forest Systems                     |  |
|  |   | USSKN9-15-3 Environmental Microbiology                |  |
|  |   | USSK55-15-3 Marine Ecosystems                         |  |
|  | USSKCD-15-3 Environmental Forensics   |   |  |
|  | USSK59-15-3 Tropical Expedition   |   |  |
|  | USSK57-15-3 Professional Practice in Applied Science  |   |  |
|  | USSKM6-60-M Research in Practice  |   | MSci Biological Sciences   |





|  |                                     |  |   |
|--|-------------------------------------|--|---|
|  | USSKM5-30-M<br>Research with Impact |  | Credit requirements: 600 credits<br>At least 120 credits at level M<br>At least 100 credits at level 3 or above.<br>At least 100 credits at level 2 or above.<br>At least 140 credits at level 1 or above.<br>120 credits permitted at level 0. |
|  | USSKM4-30-M<br>Contemporary Biology |  |   |

## GRADUATION

### Part 7: Entry Requirements

The University's Standard Entry Requirements apply with the following additions/exceptions: 120 UCAS Tariff Points for the year of entry (refer to the UWE website) taking as a base entry point GCSE grade C in Mathematics and in Sciences. There is an expectation that prospective students will have studied science beyond GCSE, however non-standard applicants are considered on a case by case basis by the programme Leader.

### Part 8: Reference Points and Benchmarks

#### The Framework for Higher Education Qualifications

The learning outcomes have been developed with reference to the qualification descriptors used in the QAA Framework for Higher Education Qualifications. In particular, the learning outcomes for the modules at Level 3 are considered consistent with the QAA's descriptor for a higher education qualification at level 6: Bachelor's degree with honours. The learning outcomes for the modules in the final (MSci) year are considered consistent with the QAA's descriptor for a higher education qualification at level 7: Master's degree. Graduates of the programme achieving an MSci classification will have developed a systematic understanding and critical awareness of key aspects of the biological sciences, much of which is at the forefront of the academic discipline. In addition, graduates will have developed analytical techniques, problem-solving skills and communication skills that can be applied to a range of employment opportunities.

#### Subject Benchmark Statements

There are currently no QAA benchmark statements for postgraduate study of biological sciences. Levels 1-3 of the programme map well to the QAA Biosciences benchmark statement (2007) and, in particular, to its subject specific and generic learning outcomes, as described in detail earlier in the Programme Specification. MSci Biological Sciences degree provides a coherent yet flexible programme of study for students entering tertiary education with interests in the biological sciences who wish to develop their understanding and experience of applied biology to suit their own particular interests and requirements. The programme of study encourages a synergistic viewpoint with combinations of modules throughout the programme to produce a cross-disciplinary scientist with wide employment opportunities. The academic, and practical skills acquired during the programme enable the graduate to apply a problem-solving approach to

## Part 8: Reference Points and Benchmarks

scientific work. The programme also provides for the development of the important key, transferable skills such as mathematical, IT and communication skills that are essential in today's global market (Biosciences 3.4). Furthermore, the BSc (Hons) Biological Sciences is offered on an optional one-year sandwich basis to enhance graduate employability by providing additional experience, learning opportunities and the ability to contextualise and extend their existing subject-specific knowledge and generic skills. As such, the Biosciences programme enjoys a high reputation amongst employers because graduates from these programmes possess a comprehensive balance of subject-specific knowledge and practical skills as well as essential mathematical, IT, data analysis and communication skills. The aims of this programme are fully consistent with the 2020 vision of the University of the West of England to produce "*graduates ready and able to realise their full potential, make a positive contribution to society and their chosen field of employment or further study and play their full part in the development of a sustainable global society and knowledge economy*". Thus, the BSc (Hons) Biological Sciences degree, which is concerned with equipping students with both skills and subject-specific knowledge, promotes an educational opportunity that is fully consistent with the University's mission and strategy.

The compulsory and optional modules offered within MSci Biological Sciences provide the opportunity to meet a range of generic Bioscience benchmark standards, including:

- *Be able to access and evaluate bioscience information from a variety of sources and to communicate the principles both orally and in writing (e.g. essays, laboratory reports) in a way that is well-organised, topical and recognises the limits of current hypotheses;*
  - All first and second year modules (threshold) and all final year modules (typical).
- *Have ability in a broad range of appropriate practical skills and techniques relevant to the biosciences. This will include the ability to place the work in context and to suggest lines of further investigation.*
  - Level 2 Research Skills, Microbial Life, Molecular Biology, Genes & Biotechnology, Human Health and Disease, Physiological Systems and Immunology, Ecology and Ecosystem Protection and Wildlife Ecology, Level 3 Research Project, Level M Research in Practice.
- *Be able to plan, execute and present an independent piece of work (e.g. a project), in which qualities such as time management, problem solving and independence are evident, as well interpretation and critical awareness of the quality of evidence;*
  - Level 3 Research Project, Level M Research in Practice and Research with Impact.
- *Be able to apply relevant advanced numerical skills (including statistical analysis where appropriate) to biological data.*
  - Level 1 Skills for Biosciences, Level 2 Research Skills, Level 3 Research Project, Level M Research in Practice.
- *Have well-developed strategies for updating, maintaining and enhancing their knowledge of the biosciences.*
  - Implicit in all subject-specific modules and the Level 3 and M project. Key component of Level 3 Scientific Frontiers and Enterprise and Level M Contemporary Biology.

Staff in the Department of Biological, Biomedical and Analytical Sciences are research active and consequently, programme development, formal teaching and project work is underpinned and informed by current research, as outlined in the UWE 2020 strategy for "research that meets the needs of our community, a sustainable economy and society and feeds the scholarship and enquiry that underpins our learning and teaching." Thus, all staff contributing to the Biological Sciences programme have an established record in supervising final year research-based projects.

## Part 8: Reference Points and Benchmarks

Furthermore, there is ongoing and developing research in the Bioscience, Biomedical Science, Human Biology, Forensic Science and Environmental Science which is encouraged and maintained by the Centre for Research in Biosciences (CRIB). There is active collaboration between bioscientists, physicists and chemists within the Faculty of Health and Applied Sciences, and also between these staff and those in other Faculties such the Faculty of Environment and Technology. These multidisciplinary groups reflect the developments described in Biosciences 2.3, and inform teaching within the Biosciences programme.

Overall, MSci Biological Sciences graduates will have an advanced understanding of the key aspects of a range of biological sub-disciplines and will be able effectively to deploy established analytical techniques and enquiry in support of this. Furthermore, they will be able to devise and sustain arguments, solve problems, critically evaluate current research, appreciate the uncertainty and limits of knowledge, and make use of reviews and primary sources. They will be able to apply their learning to consolidate, extend or apply their knowledge, develop new techniques and concepts, critically evaluate ideas and published material and communicate effectively to both specialist and non-specialist audiences. They will also have the qualities and transferable skills necessary for successful employment including the exercise of initiative and personal responsibility as well as the learning ability to undertake appropriate further professional training. They will have the requisite research and advanced subject specific skills to undertake postgraduate research qualifications or to seek employment within the research environment.

### UWE 2020

MSci Biological Sciences builds on the strength of the outstanding learning embedded in the BSc by further utilising digital technologies to assist in delivering a practice-focused learning experience (Workstream 1.1). The provision of a foundation year enhances inclusivity in supporting students entering the course from non-traditional routes, diversifying the student population (Workstream 2.3), raising aspirations and supporting progression into higher education (Workstream 4.1). Students will be taught by and undertake research alongside experts in their field (Workstream 2.4) with the extended research project (USSKM6-60-M; Research in Practice) providing real-world relevant experience (Workstream 2.2) to produce ready and able graduates equipped with the requisite skills and attributes to realise their potential and make a positive contribution to society. The extended research project will be undertaken alongside research active staff, further integrating teaching and research (Workstream 3.3) whilst building research capacity (Workstream 3.1) through innovative research topics. An integrated approach to research and teaching (Workstream 3.3) is adopted throughout the final year, with USSK4M-30-M (Contemporary Biology) delivered by outstanding staff (Workstream 1.1) and supported using cutting edge scientific equipment (Workstream 1.3) to further develop in students an awareness of the global context of the biological sciences and how they, as ready and able graduates, will play a part in a global society (Workstream 2.3). USSKM5-30-M (Research with Impact) will build on the Level 3 Module USSKCF-15-3 (Scientific Frontiers and Enterprise) in developing in students an awareness of the value of strategic partnerships and public engagement (Workstream 4.2) on research impact. Students will learn the skills required to undertake applied research (Workstream 2.1) including outreach and public engagement (Workstream 3.2; 4.2) developing the knowledge and experience they need to thrive in their chosen field when they complete their student journey as ready and able graduates.

### Education for Sustainable Development

By the nature of this course, sustainable development is a key tenet which runs through every aspect of the teaching and delivery. Through Level 1, 2 and 3 the programme shares modules with Environmental Science and Wildlife, Ecology and Conservation Science. The final year focuses on research training, fully promoting lifelong learning. Enterprise and Entrepreneurship are embedded into Level 3 in the compulsory module 'Scientific Frontiers and Enterprise'. Global and international themes are considered in the context of ecology and the environment and in terms of human health

## Part 8: Reference Points and Benchmarks

and disease. Interdisciplinarity is embedded in the QAA benchmark statements for the biological sciences and is reflected in the breadth of module choice within the MSci Biological Sciences programme. The QAA/HEA Education for Sustainable Development documentation specifically references **global citizenship** which is embedded into the UWE 2020 strategy (Workstream 2.3) around which the programme has been designed. The QAA/HEA ESD document references four core themes: global citizenship; environmental stewardship; social justice, ethics and wellbeing; and future-thinking. These are integrated through the compulsory modules within the programme, including: USSK5C-30-1 Life on Earth and USSKM4-30-M Contemporary Biology (environmental stewardship); USSKA6-30-1 Skills for Biosciences and USSKAP-30-2 Research Skills; USSKM5-30-M Research with Impact (social justice, ethics and wellbeing); USSKCF-15-3 Scientific Frontiers and Enterprise (global citizenship; future thinking); USSKM5-30-M (social justice, ethics and wellbeing; global citizenship). Many of the graduate outcomes referenced by the QAA/HEA ESD document are embedded throughout the core modules within the programme, some examples including: “identify the importance of drawing upon scientific evidence and scholarly research in seeking to understand the environment and the impact of human activity upon it” (USSKAP-30-2 Research Skills); “identify that natural systems have nonnegotiable limits and may become unstable or collapse if subjected to excessive pressures or changes” (USSK5C-30-1 Life on Earth and USSKM4-30-M Contemporary Biology); “the capacity for independent, evidence-based integrated thinking as the foundation for developing their personal ethical code” (USSKAP-30-2 Research Skills; USSKM5-30-M Research with Impact). The modules within the **ecology** theme of the programme further support these. Learning outcomes of particular relevance to ESD (see Part 3 for the relevant modules) include: ecosystems and human impact; impact of research; relationship between organisms and environment; appreciate knowledge and complexity of life processes; safe and ethical investigations of living systems; respect views of others; and active & independent learning.

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](#).

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|  |            |         |   |                           |
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