PROGRAMME SPECIFICATION

Bachelor of Science with Honours (Fnd) in Biology

Awarding institution	Liverpool John Moores University
Teaching institution	LJMU
UCAS Code	7A24
JACS Code	C100
Programme Duration	Full-Time: 4 Years, Sandwich Thick: 5 Years
Language of Programme	All LJMU programmes are delivered and assessed in English
Subject benchmark statement	Biosciences October 2019
Programme accredited by	Royal Society of Biology
Description of accreditation	https://www.rsb.org.uk/education/accreditation/courses/Liverpool+John+M
Validated target and alternative exit awards	Bachelor of Science with Honours (Fnd) in Biology Bachelor of Science with Honours (SW) (Fnd) in Biology Diploma of Higher Education (Fnd) in Biology Diploma in Higher Education (SW) (Fnd) in Biology Certificate of Higher Education (Fnd) in Biology
Programme Leader	Craig Wilding

Educational aims of the programme

To provide for all students a defined academic programme with clear learning outcomes.

To provide students with a comprehensive understanding of the theoretical and practical skills required to equip them for a career in the biological sciences and related industries and professions.

To develop critical, analytical problem-based learning and transferable skills to prepare the student for graduate employment.

To enable students to acquire a high level of practical, analytical and research skills in biology.

To develop those learning, information technology, communication and reflective skills necessary to enable students to undertake independent study, and to participate in lifelong learning.

To encourage students to engage with the development of employability skills.

To provide opportunities for development of creativity and innovation with reference to aspects of biology.

In addition to the aims for the main target award, the sandwich programme aims to provide students with an extended period of work experience at an approved partner that will complement their programme of study at LJMU. This will give the students the opportunity to develop professional skills relevant to their programme of study, as well as attitude and behaviours necessary for employment in a diverse and changing environment.

Alternative Exit/ Interim Award Learning Outcomes - Certificate of Higher Education (Fnd)

A student who is eligible for this award will be able to:

Reflect on the scientific skills required for the course and their future careers.

Develop a basic, practical and relevant mathematical and biological foundation for the quantitative aspects of all Level 4 modules.

Apply the skills needed for academic study and enquiry.

Utilise problem-solving skills in biological sciences.

Collect, analyse, and interpret experimental data.

Evaluate their own academic and professional performance.

Alternative Exit/ Interim Award Learning Outcomes - Diploma in Higher Education (SW) (Fnd)

A student who is eligible for this award will be able to:

In addition to the learning outcomes for the Diploma in HE, a student who successfully completes a placement year will be eligible for the Sandwich award and will be able to demonstrate the professional and personal skills necessary for effective employment within a professional environment.

Alternative Exit/ Interim Award Learning Outcomes - Diploma of Higher Education (Fnd)

A student who is eligible for this award will be able to:

Possess a detailed knowledge and understanding of a wide-range of field and laboratory techniques.

Analyse and evaluate information relating to a range of biological areas.

Take responsibility for their own personal and professional learning and development.

Target award Learning Outcomes - Bachelor of Science with Honours (Fnd)

A student successfully completing the programme of study will have acquired the following subject knowledge and understanding as well as skills and other attributes.

A student who is eligible for this award will be able to:

1. Evaluate, utilise and present essential facts, concepts, principles and theories of biology encompassing molecular, cellular and physiological processes, microbiology, genetics, evolution, and ecology.

2. Apply theory/knowledge to new situations, including the formulation of a hypothesis, the design of experiments and interpretation of findings.

3. Analyse, critically appraise, report and explain biological information and data.

4. Determine and apply appropriate statistical tests to analyse data produced from various types of study, such as laboratory classes and fieldtrips.

5. Critically evaluate current research in the field of biology.

6. Demonstrate an understanding of and apply, a decolonial perspective to biological knowledge and research.

7. Recognise and apply biological subject specific theories, paradigms, concepts or principles.

8. Analyse, synthesise and summarise information critically, including published research or reports.

9. Obtain and integrate several lines of biological subject-specific evidence to formulate and test hypotheses.

10. Apply subject knowledge and understanding to address familiar and unfamiliar problems.

11. Recognise the moral and ethical issues of investigations and appreciate the need for ethical standards and professional codes of conduct.

12. Demonstrate competence and progressive development in the basic and core experimental skills appropriate to the study of biology.

13. Design, plan, conduct and report on investigations, which may involve primary or secondary data.

14. Obtain, record, collate and analyse data using appropriate techniques in the field and/or laboratory, working individually or in a group.

15. Undertake field and/or laboratory investigations of living systems in a responsible, safe and ethical manner.

16. Communicate scientific information effectively in written, verbal, and visual forms.

17. Cite and reference work in an appropriate manner, ensuring academic integrity and the avoidance of plagiarism.

18. Use the internet and other electronic sources critically as a means of communication and a source of information.

19. Identify individual and collective goals and responsibilities and perform in a manner appropriate to these roles.

20. Evaluate their own performance and the performance of others as an individual and a team member.

21. Develop skills necessary for independent lifelong learning (for example working independently, work as part of a team, time management, organisational skills)

22. Identify and work towards targets for personal, academic, professional and career development.

23. Use and interpret a variety of sources of information: textual, numerical, verbal, and graphical.

Alternative target awards

A student who is eligible for the following awards will be able to:

Bachelor of Science with Honours (SW) (Fnd) in Biology -

In addition to the learning outcomes for the main target award, demonstrate the professional and personal skills necessary for effective employment within a professional environment.

Teaching, Learning and Assessment

The methods used to enable outcomes to be achieved and demonstrated are as follows:

The acquisition of knowledge is fostered through a range of taught sessions, these include: lectures, practical laboratory classes, and fieldtrips. Understanding of taught material is facilitated through tutorials, problem-based learning sessions, workshops, seminars, group work and independent study. Knowledge and understanding are assessed in a variety of ways. These include: online tests, examinations, laboratory and field reports, essays, and seminars, including problem-based learning sessions, case-studies, and poster presentations.

Biology-related skills are developed in many areas of the programme. For example, the ability to synthesise and analyse information critically is developed in laboratory and field sessions from Level 4 to 6, including in the Practical Skills for Biology and the Research Project modules. Applying subject knowledge and understanding to address unfamiliar problems is developed in workshops in many modules, especially in modules that utilise interpretative examination questions. Moral and ethical issues are a key part of modern biology and developed in many taught and practical sessions. Laboratory and field reports, scientific communication, essays and examinations allow students to demonstrate the full range of these skills and attributes.

Practical and professional skills are taught during laboratory classes and fieldtrips. Core principles and minimum standards of practical work are introduced at Level 4, developed at Level 5, and at Level 6 the students apply these skills during their independent Research Project. If the student has chosen the Work-Based Learning for Credit module (WBL) then these practical skills will be developed in an applied work setting. These practical and professional skills are assessed through laboratory and field reports, including the Research Project report.

Transferable and key skills are inherent within the programme, but specifically they are taught in core modules at all Levels (Practical Skills for Biology and Fundamentals of Scientific Research at Level 4; Research Skills & Employability at Level 5; Research Project at Level 6). These transferable and key skills are assessed through coursework at all levels, in all modules.

Programme structure - programme rules and modules

Study Abroad

Students will be offered the opportunity of study abroad at Level 5. Students can choose either Option A or Option B unless they undertake the Sandwich Year, in which case Option B is not available:

Option A: replacement of 60 credits of Level 5 with appropriate study abroad.

The programme will offer the opportunity of 60 credits of study at Level 5. Students will be enrolled on a 480 credit honours with study abroad programme. A 60 credit Level 5 study abroad module (5254NATSCI) will normally replace the semester 2 modules on the standard programme. This study abroad should cover the same learning outcomes as the modules being replaced. The modules to be studied in the host institution must be agreed in advance. The Level 5 mean for the final award mark will be calculated based upon the 120 credits at Level 5.

Option B: additional study year abroad following Level 5

The programme will offer the opportunity of an additional study year abroad following Level 5. Students will be enrolled on a 600 credit honours with study abroad programme. Of those 600 credits, 120 will be taken via a Level 5 study abroad module (5250NATSCI); the modules to be studied in the host institution must be agreed in advance. The Level 5 mean for the final award mark will be calculated based upon the 240 credits at Level 5.

Sandwich Year

The placement year will follow Level 5 and students will be enrolled on a 600 credit honours sandwich programme and take the module 5219NATSCI (Sandwich Year-Biology). The Level 5 mean for the final award mark will be calculated based upon the 240 credits at Level 5.

Students wishing to select 6203NATSCI are advised to also study 5205NATSCI.

Students who started the programme in 2020 migrate to the new rules at levels 5 and 6 with the exception of 5111BMBMOL and 6111BMBMOL – for those students 5103BMBMOL and 6106BMBMOL will continue to be options.

Students who started the programme in 2019 will migrate to the new structure at level 6 with the exception of 6111BMBMOL – 6106BMBMOL will stay an option for those students.

Level 6	Potential Awards on completion	Bachelor of Science with Honours (Fnd)
Core	Option	Award Requirements
6201NATSCI RESEARCH PROJECT (40 credits) 6202NATSCI HEALTH AND DISEASE (20 credits)	6111BMBMOL Clinical immunology and medical microbiology (20 credits) 6203NATSCI APPLICATIONS OF GENETICS IN HEALTH AND DISEASE (20 credits) 6204NATSCI FRONTIERS OF ECOLOGY (20 credits) 6206NATSCI Advanced Field Skills Expedition (20 credits) 6211NATSCI NEUROBIOLOGY (20 credits) 6212NATSCI PARASITOLOGY (20 credits) 6213NATSCI APPLIED MARINE BIOLOGY (20 credits) 6214NATSCI FORENSIC BIOSCIENCE (20 credits) 6222NATSCI Neuroendocrinology (20 credits) 6300NATSCI WORK-BASED LEARNING (20 credits)	60 core credits at level 6 60 option credits at level 6

Level 5	Potential Awards on completion	
Core	Option	Award Requirements
5201NATSCI RESEARCH SKILLS AND EMPLOYABILITY (20 credits) 5204NATSCI DIVERSITY AND EVOLUTION OF LIFE (20 credits) 5212NATSCI PHYSIOLOGY OF LIFE (20 credits)	5111BMBMOL Immunology and medical microbiology (20 credits) 5202NATSCI ECOLOGY FIELD SKILLS (20 credits) 5205NATSCI GENES AND GENOMES (20 credits) 5209NATSCI MARINE AND FRESHWATER BIOLOGY (20 credits) 5214NATSCI DEVELOPMENTAL BIOLOGY (20 credits) 5405NATSCI IMPACT OF CLIMATE CHANGE ON BIOLOGICAL PROCESSES (20 credits)	60 core credits at level 5 60 option credits at level 5

Level 4	Potential Awards on completion	
Core	Option	Award Requirements
4106BMBMOL MICROBIOLOGY (20 credits) 4201NATSCI FUNDAMENTALS OF SCIENTIFIC RESEARCH (20 credits) 4202NATSCI PRACTICAL SKILLS FOR BIOLOGY (20 credits) 4206NATSCI GENETICS AND EVOLUTION (20 credits) 4209NATSCI ECOLOGY (20 credits) 4211NATSCI PHYSIOLOGY (20 credits)		120 core credits at level 4 0 option credits at level 4

Level 3	Potential Awards on completion	
Core	Option	Award Requirements
3401FNDSCI SKILLS AND PERSPECTIVES IN SCIENCE 1 (20 credits) 3403FNDSCI WILDLIFE STUDIES (20 credits) 3405FNDSCI SKILLS AND PERSPECTIVES IN SCIENCE 2 (20 credits) 3406FNDSCI ANATOMY AND PHYSIOLOGY (20 credits) 3407FNDSCI UNDERSTANDING THE ENVIRONMENT (20 credits) 3409FNDSCI BUILDING BLOCKS OF LIFE (20 credits)		120 core credits at level 3 0 option credits at level 3

Information about assessment regulations

All programmes leading to LJMU awards operate within the University's Academic Framework.
https://www.ljmu.ac.uk/about-us/public-information/academic-quality-and-regulations/academic-framework

Opportunities for work-related learning (location and nature of activities)

Graduate Skills are taught and practised within a wide range of modules and assessed within the core modules at Level 4 Fundamentals of Scientific Research and Practical Skills for Biology, Level 5 Research Skills and Employability and at Level 6 Research Project and/or Work-Based Learning. Work-related learning opportunities are also available through the routes of employer seminars, guest lectures/workshops, employer-driven assignments and modules, and contact during fieldwork. There are options for residential field work at levels 4, 5 and 6. The Work-based Learning placement (135 hrs) and the Sandwich placement (12 months) offer the opportunity for students to gain work experience with a relevant professional organisation. Students are supported by the Professional Training Tutor who is responsible for advertising placements and promoting vocational training to students. These opportunities may be in the UK or abroad.

Criteria for admission

A/AS Level
Applicants should have (or expect to obtain) at least 1 A2 Levels or equivalent, which should be normally in an appropriate science or social science subject. Our minimum points tariff is 88 points; this will depend on subjects being studied. Our offers may be grade specific e.g. we usually expect at least 24 points in an appropriate science or social science subject.

BTEC National Diploma
Applicants should be studying an appropriate Diploma and have (or expect to obtain) a pass with at least 3 merit grades at Level 3 in appropriate units.

AVCE
AVCE applicants should normally have (or expect to obtain) 88 points in an appropriate discipline (normally science).

Irish Leaving Certificate
Applicants must have passed (or expect to pass) their Irish Higher exams with at least grade BBC in 3 subjects, 2 of which must be sciences (Psychology may be considered a science).

Scottish Higher
Applicants must have passed (or expect to pass) their exams with at least grade BBC in 3 subjects, 2 of which must be sciences (Psychology may be considered a science).

International Baccalaureate
Applicants must have (or expect to obtain) the full award including grade 5 in one appropriate science.

Access
Access applicants should have (or expect to obtain) a pass in an appropriate QAA-approved Access course.

Other
Applicants must have obtained grade 4 or grade C or above in English Language and Mathematics GCSE or

• Key Skills Level 2 in English/ Maths

• NVQ Level 2 Functional skills in Maths and English Writing and or Reading Skills for Life Level 2 in Numeracy/English

• Higher Diploma in Maths/ English

• Functional skills level 2 in Maths/ English

Mature entry
We welcome applications from highly motivated mature applicants with relevant experience but without the necessary formal qualifications. To qualify as a mature student you have to be at least 21 years of age by the 31st December of the year of entry.

Overseas qualifications
Applicants should have acquired passes in appropriate examinations in their country of origin and provide evidence of English language ability equivalent to 6.0 IELTS.

External Quality Benchmarks

All programmes leading to LJMU awards have been designed and approved in accordance with the UK Quality Code for Higher Education, including the Framework for Higher Education Qualifications in the UK (FHEQ) and subject benchmark statements where applicable.

The University is subject to periodic review of its quality and standards by the Quality Assurance Agency (QAA) Published review reports are available on the QAA website at www.qaa.ac.uk

Programmes which are professionally accredited are reviewed by professional, statutory and regulatory bodies (PSRBs) and such programmes must meet the competencies/standards of those PSRBs.

Support for students and their learning

The University aims to provide students with access to appropriate and timely information, support and guidance to ensure that they are able to benefit fully from their time at LJMU. All students are assigned a Personal Tutor to provide academic support and when necessary signpost students to the appropriate University support services.

Students are able to access a range of professional services including:

- Advice on practical aspects of study and how to use these opportunities to support and enhance their personal and academic development. This includes support for placements and careers guidance.
- Student Advice and Wellbeing Services provide students with advice, support and information, particularly in the areas of: student funding and financial matters, disability, advice and support to international students, study support, accommodation, health, wellbeing and counselling.
- Students studying for an LJMU award at a partner organisation will have access to local support services

Methods for evaluating and improving the quality and standards of teaching and learning

Student Feedback and Evaluation

The University uses the results of student feedback from internal and external student surveys (such as module evaluations, the NSS and PTES), module evaluation questionnaires and meetings with student representatives to improve the quality of programmes.

Staff development

The quality of teaching is assured through staff review and staff development in learning, teaching and assessment.

Internal Review

All programmes are reviewed annually and periodically, informed by a range of data and feedback, to ensure quality and standards of programmes and to make improvements to programmes.

External Examining

External examiners are appointed to programmes to assess whether:

- the University is maintaining the threshold academic standards set for awards in accordance with the FHEQ and applicable subject benchmark statements
- the assessment process measures student achievement rigorously and fairly against the intended

outcomes of the programme(s) and is conducted in line with University policies and regulations

- the academic standards are comparable with those in other UK higher education institutions of which external examiners have experience
- the achievement of students are comparable with those in other UK higher education institutions of which the external examiners have experience

and to provide informative comment and recommendations on:

- good practice and innovation relating to learning, teaching and assessment observed by external examiners
- opportunities to enhance the quality of the learning opportunities provided to students

Please note:

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, teaching, learning and assessment methods of each module can be found in module and programme guides.