Royal Holloway, University of London
Course specification for an undergraduate award
BSc Biology with Integrated Foundation Year (C10F)

Section 1 – Introduction to your course

This course specification is a formal document, which provides a summary of the main features of your course and the learning outcomes that you might reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities that are provided. Further information is contained in the College prospectus, and in various handbooks, all of which you will be able to access online. Alternatively, further information on the College's academic regulations and policies can be found here. Further information on the College's Admissions Policy can be found here.

Your degree course in Biology with an integrated Foundation Year is delivered in four stages, each of which comprises one year of full-time study, or two years of part-time study (years 1-3 only), during which you must follow modules to the value of 120 credits. The curriculum offers a diverse range of modules and flexibility. It is based around a core of mandatory modules running across all three years, providing essential training in systematic and quantitative techniques and offering a combination of animal and plant-based modules, together with an individual research project in Stage three. The degree offers significant flexibility, to tailor the course towards individual interests in animals or plants, organismal or molecular studies, or to retain the broad-based approach.

"Year 0", the Foundation Year, prepares you for university study by offering a rigorous introduction to university-level study methods and skills transitioning from FHEQ level 3 to FHEQ level 4. It provides progressive structures in which you can gain ever-wider knowledge and understanding of approaches to scientific study and your chosen degree subject, together with embedded practice and study skills, leading towards increasingly discipline specific activities in the practical laboratories or individual project modules which facilitate greater levels of specialisation and individual choice. The modules are assessed by a mixture of coursework, written and practical exams.

Stage one comprises 4 mandatory modules (60 credits) that seek to provide grounding for the study of biological sciences at degree level, with a foundation in the core areas of Cell Biology and Genetics, and a module on the Green Planet: Plants and Our Future. Optional modules (totalling 60 credits) can be selected from a range that includes Biomes and Ecosystems, Vertebrate Evolution and Diversity, Biology in a Changing World, Physiology, Chemistry, and Biochemistry. Stage one also includes a strong element of laboratory and field training, with practical work in all modules, as well as providing support with the skills necessary for the study of biological sciences. In **Stage two**, you take 2 mandatory modules to the value of 30 credits building on foundations laid in Stage one and choose 6 modules (90 credits) from the extensive range of 15-credit options available. Options range from organismal subjects such as Invertebrate Biology and Animal Behaviour, to molecular subjects such as Neuronal and Cellular Signalling and Natural Product Biochemistry and Sustainability. Other options include two intensive field-based modules, with Practical Field Ecology conducted locally, and Marine Biology offered as a residential field module in Scotland. The modules taken in Stage 2 provide a basis for research-led specialist options in stage three. **Stage three** requires you to take 2 mandatory modules to the value of 45 credits and choose the remaining 5 modules (75 credits) from a list of diverse 15-credit options. These include modules as diverse as Extreme Animal Physiology, Marine Ecology and Biodiversity, Medical Biochemistry and Seed Biology. Two overseas field courses are also offered. Most of the Stage 3 modules closely reflect the research interests of members of staff who are all specialists in their fields. You complete an individual research project, which provides training in a specialised research area and also in generic skills such as independent working, literature searching, report writing, use of word processing, graphics and statistics. The project is regarded as your graduate capstone experience, as it is the culmination of your training in experimental design, research techniques, data analysis and presentation.

The course provides coverage across a range of modern animal and plant, organismal and molecular topics, and involves training in a variety of practical techniques and skills relevant to research in the biological sciences. The system is also flexible and allows you to transfer to other degree streams within the Department up to the start of the second term, or indeed (depending on the options chosen) up to the start of the second year. You can also take up to 30 credits outside of the Department of Biological Sciences, but within other Science Departments during stage two or three. Options are selected in consultation with your Personal Tutor and the Director of Teaching/Department Lead in UG Education.

While Royal Holloway keeps all the information made available under review, courses and the availability of individual modules, especially optional modules are necessarily subject to change at any time, and you are therefore advised to seek confirmation of any factors which might affect your decision to follow a specific course. In turn, Royal Holloway will inform you as soon as is practicable of any significant changes which might affect your studies.

The following is brief description for some of the most important terminology for understanding the content of this document:

Degree course – May also be referred to as 'degree programme' or simply 'course', these terms refer to the qualification you will be awarded upon successful completion of your studies.
Module – May also be referred to as 'course unit', this refers to the individual units you will study each year to complete your degree course. Undergraduate degrees at Royal Holloway comprise a combination of modules in multiples of 15 credits to the value of 120 credits per year. On some degree courses a certain number of optional modules must be passed for a particular degree title.
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Section 2 – Course details			
Date of specification update	December 2022	**Location of study**	Egham Campus
Course award and title	BSc Biology with Integrated Foundation Year	**Level of study**	Undergraduate
Course code	3668	**UCAS code**	C10F
Year of entry	2022/23		
Awarding body	Royal Holloway, University of London		
Department or school	Department of Biological Sciences School of Life Sciences and the Environment	**Other departments or schools involved in teaching the course**	N/A
Mode(s) of attendance	Full-time and Part-time	**Duration of the course**	4 years or 7 years (if studying part time). Stages 1-3 are available in part time mode.
Accrediting Professional, Statutory or Regulatory Body requirement(s)	You must pass the BS3010 Individual Research Project in order to qualify for an Honours Degree in Biology; this is a requirement of the Royal Society of Biology for an accredited degree.		
Link to Coursefinder for further information:	https://www.royalholloway.ac.uk/studying-here/	**For queries on admissions:**	study@royalholloway.ac.uk.

Section 3 – Degree course structure										
3.1 Mandatory module information **The following table summarises the mandatory modules which students must take in each year of study**										
Year	**Module code**	**Module title**	**Contact hours***	**Self-study hours**	**Written exams****	**Practical assessment****	**Coursework****	**Credits****	**FHEQ level**	**Module status (see below)**
0	FY1001	Interdisciplinary Approaches to Global Perspectives 1	68	82	10%	40%	50%	15	HE Level 0	MC
0	FY1002	Interdisciplinary Approaches to Global Perspectives 2	64	86	0	0	100%	15	HE Level 0	MC
0	FY1005	Foundation Mathematics 1	55	95	70%	0	30%	15	HE Level 0	MC
0	FY1006	Foundation Mathematics 2	55	95	70%	0	30%	15	HE Level 0	MC
0	FY1009	Foundation Programming	44	106	0	60%	40%	15	HE Level 0	MC
0	FY0012	Foundation Life Sciences and the Environment	30	120	50%	20%	30%	15	HE Level 0	MC
0	BS0998	Foundation Practical Skills (Biological Sciences)	20	130	0	20%	80%	15	HE Level 0	MC
0	BS0999	Foundation Project (Biological Sciences)	6	144	0	30%	70%	15	HE Level 0	MC
1	BS1021	Becoming a Bioscientist	66	84		25%	75%	15	4	MC
1	BS1043	Green Planet: Plants and Our Future	44	106	60%		40%	15	4	MC

1	BS1071	Cell Biology and the Origin of Life	39	111	50%	20%	30%	15	4	MC
1	BS1072	Genetics	35	115	50%		50%	15	4	MC
2	BS2120	Biological Data Analysis and Interpretation	40	110	25%	45%	30%	15	5	MC
2	BS2160	Evolution	29	121	50%	20%	30%	15	5	MC
3	BS3010	Individual Research Project	183	117		35%	65%	30	6	MNC
3	BS3190	Climate Change: Plants and the Environment	25	125	60%	15%	25%	15	6	MC

This table sets out the most important information for the mandatory modules on your degree course. These modules are central to achieving your learning outcomes, so they are compulsory, and all students on your degree course will be required to take them. You will be automatically registered for these modules each year. Mandatory modules fall into two categories; 'condonable' or 'non-condonable'.

In the case of mandatory 'non-condonable' (MNC) modules, you must pass the module before you can proceed to the next year of your course, or to successfully graduate with a particular degree title. In the case of mandatory 'condonable' (MC) modules, these must be taken but you can still progress or graduate even if you do not pass them. Please note that although Royal Holloway will keep changes to a minimum, changes to your degree course may be made where reasonable and necessary due to unexpected events. For example; where requirements of relevant Professional, Statutory or Regulatory Bodies have changed and course requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of external advisors, to enhance academic provision.

*Contact hours come in various different forms, and may take the form of time spent with a member of staff in a lecture or seminar with other students. Contact hours may also be laboratory or, studio-based sessions, project supervision with a member of staff, or discussion through a virtual learning environment (VLE). These contact hours may be with a lecturer or teaching assistant, but they may also be with a technician, or specialist support staff. It is intended that these contact hours will face-to-face as far as possible, but in certain unavoidable situations, these may take place virtually.

**The way in which each module on your degree course is assessed will also vary, however, the assessments listed above are all 'summative', which means you will receive a mark for it which will count towards your overall mark for the module, and potentially your degree classification, depending on your year of study. On successful completion of the module you will gain the credits listed. 'Coursework' might typically include a written assignment, like an essay. Coursework might also include a report, dissertation or portfolio. 'Practical assessments' might include an oral assessment or presentation, or a demonstration of practical skills required for the particular module.

3.2 Optional modules

In addition to mandatory modules, there will be a number of optional modules available during the course of your degree. The following table lists a selection of optional modules that are likely to be available. However, not all may be available every year. Although Royal Holloway will keep changes to a minimum, new options may be offered or existing ones may be withdrawn. For example; where reasonable and necessary due to unexpected events, where requirements of relevant Professional, Statutory or Regulatory Bodies (PSRBs) have changed and course requirements must change accordingly, or where changes are deemed necessary on the basis of student feedback and/or the advice of External Advisors, to enhance academic provision.There may be additional requirements around option selection, so it is important that this specification is read alongside your department's Student Handbook, which you can access via their webpage.

Year 0	Year 1	Year 2	Year 3
None	BS1031: Chemistry of Life	BS2001X: Marine Biology	BS3030: Biology of Parasitic Diseases
	BS1032: Fundamental Biochemistry	BS2005: Microbiology	BS3060: Conservation Biology
	BS1041: Biology in a Changing World	BS2010: Invertebrate Biology: Structure, Behaviour and Evolution	BS3100 Tropical Rainforest Expedition
	BS1042: Vertebrate Evolution and Diversity	BS2020: Food Security, Sustainability and Green Biotechnology	BS3110: Conservation Ecology in the Field
		BS2040: Cell Dynamics: Division and Movement	BS3120: Population and Community Ecology
	BS1051: Ecology and Conservation	BS2050: Human Physiology in Health and Disease II	BS3180: Marine Ecology and Biodiversity
	BS1052: Biomes and Ecosystems	BS2060: Developmental Biology	BS3210: Evolutionary Ecology of Vertebrates
	BS1061: Introductory Animal Physiology	BS2090: Plant Biotic Interactions and Ecological Networks	BS3220: Extreme Animal Physiology
	BS1062: Introduction to Human Physiology in Health and Disease	BS2110: Practical Field Ecology	BS3230: Circadian Biology
	BS1091: Protein Biochemistry and Enzymology	BS2140: Animal Behaviour	BS3240: Evolutionary Medicine
		BS2150: Applications of Molecular Genetics in Biology	BS3410: Biotechnology in a Changing World
		BS2510: Bioenergetics and Metabolism	BS3420: Nutrition and Medical Biochemistry
		BS2520: Protein Structure and Function	BS3510: Molecular and Medical Microbiology

		BS2530: Molecular Biology	BS3520: Seed Biology: From Molecular and Conservation Biology to Industrial Applications
		BS2540: Immunology	BS3530: Applications of Genetic Engineering in Health and Disease
		BS2550: Neuronal and Cellular Signalling	BS3540: Cell and Molecular Biology of Cancer
		BS2580: Natural Product Biochemistry and Sustainability	BS3560: Functional Genomics, Proteomics and Bioinformatics
		BS2900: Dissertation	BS3570: Human Embryology
			BS3580: Cell and Molecular Neuroscience
			BS3590: Molecular Basis of Inherited Disease

3.3 Optional module requirements

Year 0 - none
During year one, you must choose options equal to the value of 60 credits from a list of stage one modules offered by the Department.
During year two, you must choose options equal to the value of 90 credits from a list of stage two modules offered by the Department.
During year three, you must choose options equal to the value of 75 credits from a list of FHEQ level 6 modules offered by the Department.

Section 4 - Progressing through each year of your degree course

For further information on the progression and award requirements for your degree, please refer to Royal Holloway's Academic Regulations.

To progress from the Foundation Year to Year One you must achieve a stage average of at least 40% and either pass 120 credits or pass modules to the value of between 90-105 credits achieve a Fail outcome of at least 30% in the remaining credits. Opportunities for resits are detailed in the Academic Regulations.

All first year undergraduate students are required to take and pass the non-credit bearing Moodle-based Academic Integrity module SS1001 in order to progress into the second year of study (unless their course includes the alternative mandatory SS1000 module). The pass mark for the module assessment is stated in the on-line Academic Integrity Moodle module. Students may attempt the assessment as often as they wish with no penalties or capping. Students who meet the requirements for progression as stipulated in the College's Undergraduate Regulations (Section: Conditions for progression to the next stage) but fail to pass the Moodle-based Academic Integrity module will not be permitted to progress into their second year of academic study at the College.

Note for part-time study you will take:

Year 0:
The Foundation Year is not available for part-time study.

Stage one (a):
BS1021 Becoming a Bioscientist
BS1071 Cell Biology and the Origin of Life
BS1072 Genetics
BS1043 Green Planet: Plants and Our Future.

Stage one (b):
Options from the Stage one modules listed above.

Stage two (a):
BS2120 Biological Data Analysis and Interpretation
BS2160 Evolution
and choose options from the stage two modules listed above.

Stage two (b):
Options from the Stage two modules listed above

Stage three (a):
BS3010 Individual Research Project
BS3190 Climate Change: Plants and the Environment
and choose options from the Stage three modules listed above.

Stage three (b):
Options from the Stage three modules listed above

For further information on the progression and award requirements for your degree, please refer to Royal Holloway's Academic Regulations.

Section 5 – Educational aims of the course

For the Foundation Year:

- to develop the mathematical and scientific skills needed for level 4 study in Biological and Earth Sciences;
- to equip you with the basic experimental, programming or practical techniques required for scientific degrees;
- to start the process of process of independent project work in science with support of expert academics;
- to put in context scientific knowledge and developments into a wider context of history, society and globalisation.

The aims of the Honours Degree course in Biology are to:

- provide a sound knowledge and understanding of the organismal and molecular principles of the subject through a core set of modules, and develop an insight into the current frontiers of knowledge, primarily through a series of specialised Stage 3 modules;
- develop, through a flexible and progressive structure, a range of subject-specific and transferable skills, including practical laboratory skills, fieldwork skills, self-management, information retrieval, communication and presentation skills, working with others, decision making and meeting deadlines, that equip you for future employment;
- provide experience of independent research through a final year project;
- produce graduates who can work safely and responsibly with biological materials, laboratory equipment and in the field.

Section 6 - Course learning outcomes

In general terms, the courses provide opportunities for students to develop and demonstrate the following learning outcomes. (*Categories – Knowledge and understanding (K), Skills and other attributes (S), and Transferable skills (*)*)

Foundation Year

- knowledge of and ability to apply mathematics to scientific and computational problems **(K,S)**;
- working knowledge of a least one programming high level programming language **(K);**
- understanding of applying fundamental computer science technologies to simple problems **(S);**
- start to take responsibility and developing the individual learning, communication and research skills **(S).**

1. elaborate on the ecological, evolutionary, cellular, molecular, biochemical and physiological principles that underlie life processes **(K)**;
2. describe the diversity and complexity of life and life processes **(K);**
3. demonstrate a familiarity with terminology, nomenclature and classification systems **(K);**
4. discuss the function of ecological systems and the interrelationships between organisms and the environment they live in, including the factors that influence survival, reproduction and health **(K);**
5. elaborate on genetics and of the evolutionary processes that give rise to the diversity and complexity of life **(K););**
6. explain biological phenomena at a variety of levels (from molecular to ecological systems), how evolutionary theory is relevant, and discuss the molecular, cellular, and chemical principles that underlie the subject (**K**)**;**
7. engage with philosophical and ethical issues arising from some of the current developments in the biosciences and their impact on society, and explain how ethical issues underpin professional integrity and standards **(K);**
8. demonstrate competence in a range of practical techniques and skills in relevant areas of biology, applying standard safety protocols and Good Laboratory Practice **(S);**
9. perform accurate data collection, analysis and interpretation including relevant numerical calculations, statistical analysis, testing of hypotheses, and show ability to place the work in context, analyse and solve problems, make decisions, and suggest lines of further study **(S*);**
10. apply well-developed strategies for accessing information from a wide range of sources to maintain, update, and enhance your knowledge of the Biosciences including the cutting edge developments in the field and cross-disciplinary awareness, and sort, filter, synthesise and abstract information to communicate the principles clearly in oral and written forms in a way that is organised, topical and recognises the limits of current hypotheses (**K,S*);**
11. critically assess the merits of contrasting subject-specific theories, paradigms, concepts and principles and develop a reasoned argument to support your position **(S);**
12. plan, design, execute and present an independent piece of research through a theoretical or practical project in biology, demonstrating time management, initiative, problem solving and independence, and critically assess the quality of evidence **(S);**
13. take personal responsibility for your own behaviour to benefit learning and wellbeing, and develop habits of reflection on that learning **(S*);**
14. creatively apply original ideas, using imaginative and/or innovative approaches to tackle problems **(S*);**
15. write and speak to effectively communicate science to peers and non-scientists **(S*);**
16. use information technology, including spreadsheets, databases and bioinformatics approaches in the analysis of large datasets **(S*);**
17. demonstrate interpersonal skills and social intelligence, including collaborating with others in groups, taking opportunities for leadership and recognising and respecting the views of others **(S*);**
18. prepare for your career and develop awareness of your graduate-level transferable skills (**S*).**

Section 7 - Teaching, learning and assessment
The overall strategy is to provide a progressive approach to biological concepts and systems of increasing complexity through teaching methods that aid learning and stimulate interest. Teaching is mostly by means of lectures, laboratory and fieldwork classes, seminars, tutorials, study/revision sessions, with knowledge and understanding further developed by guided independent study. Learning and analytical ability are developed and reinforced through problem solving, essay writing, practical classes (both laboratory and fieldwork), critical evaluation and by giving you the opportunity to design, execute and evaluate their own experiments. You are encouraged to acquire further knowledge beyond taught material, e.g. by reading topical reviews, original research literature and attending research seminars, especially in the final year. The practical assignments associated with first year and second year modules provide training in a range of subject specific laboratory techniques, including safety assessment. The culmination of these skills is demonstrated in the final year research project, and for literature skills the preparation of a literature report. Training in intellectual and key transferable skills is embodied throughout the course and forms a strong element of the tutorial and study session programmes. You are required to meet basic standards in information technology. Assessment of knowledge and understanding is typically by formal unseen written examinations, practical exams, and a range of coursework including practical assignments (both laboratory and fieldwork based), poster preparation, oral presentations, essays and the individual research project. Full details of the assessments for individual modules can be obtained from the Department.

Section 8 – Additional costs
There are no additional costs associated with this course.
These estimated costs relate to studying this particular degree course at Royal Holloway. General costs such as accommodation, food, books and other learning materials and printing etc., have not been included, but further information is available on our website.

Section 9 – Indicators of quality and standards	
QAA Framework for Higher Education Qualifications (FHEQ) Level	4-6
Your course is designed in accordance with the FHEQ to ensure your qualification is awarded on the basis of nationally established standards of achievement, for both outcomes and attainment. The qualification descriptors within the FHEQ set out the generic outcomes and attributes expected for the award of individual qualifications. The qualification descriptors contained in the FHEQ exemplify the outcomes and attributes expected of learning that results in the award of higher education qualifications. These outcomes represent the integration of various learning experiences resulting from designated and coherent courses of study.	
QAA Subject benchmark statement(s)	http://www.qaa.ac.uk/quality-code/subject-benchmark-statements
Subject benchmark statements provide a means for the academic community to describe the nature and characteristics of courses in a specific subject or subject area. They also represent general expectations about standards for the award of qualifications at a given level in terms of the attributes and capabilities that those possessing qualifications should have demonstrated.	

Section 10 – Further information
This specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate when taking full advantage of the learning opportunities that are available. More detailed information on modules, including teaching and learning methods, and methods of assessment, can be found via the online Module Catalogue. The accuracy of the information contained in this document is reviewed regularly by the university, and may also be checked routinely by external agencies, such as the Quality Assurance Agency (QAA). Your course will be reviewed regularly, both by the university as part of its cyclical quality enhancement processes, and/or by your department or school, who may wish to make improvements to the curriculum, or in response to resource planning. As such, your course may be revised during the course of your study at Royal Holloway. However, your department or school will take reasonable steps to consult with students via appropriate channels when considering changes. All continuing students will be routinely informed of any significant changes.

Section 11 – Intermediate exit awards (where available)		
You may be eligible for an intermediate exit award if you complete part of the course as detailed in this document. Any additional criteria (e.g. mandatory modules, credit requirements) for intermediate awards is outlined in the sections below.		
Award	**Criteria**	**Awarding body**
Diploma in Higher Education (DipHE)	Pass in 210 credits of which at least 90 must be at or above FHEQ Level 4 and at least 120 of which must be at or above FHEQ Level 5	Royal Holloway and Bedford New College
Certificate in Higher Education (CertHE)	Pass in 120 credits of which at least 90 must be at or above FHEQ Level 4	Royal Holloway and Bedford New College

Section 12 - Associated award(s)	
BSc Biology	BSc Biology with a Year in Industry