

Course Information Form (CIF)

The CIF provides core information to students, staff teams and others on a particular course of study.

Section 1 - General Course Information	
Course Title	Biological Science
Qualification	BSc (Hons)
Intermediate Qualification(s)	BSc
Awarding Institution	University of Bedfordshire
Location of Delivery	AA
Mode(s) of Study and Duration	Full-time over 3 years Part-time pathway typically over 6 years
Core Teaching Pattern	Core Teaching Pattern 1 and 2
FHEQ Level	Level 6
Professional, Statutory or Regulatory Body (PSRB) accreditation or endorsement	Not applicable
PSRB Renewal Date	Not applicable
University of Bedfordshire Employability accreditation	N/A
Route Code (SITS)	BSBLS-S
Subject Community	Life Sciences
UCAS Course Code	C100
Relevant External Benchmarking	<p>The benchmarking standards are provided by the Level Descriptors in the UK Quality Code for Higher Education (2014). These can be found at:</p> <p>http://www.qaa.ac.uk/en/Publications/Documents/qualifications-frameworks.pdf</p> <p>and the QAA's Subject benchmark statement for Biosciences (2007), which can be found at:</p> <p>http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Biosciences.pdf</p>

Section 2 - Published Information

Material in this section will be used on the course web site to promote the course to potential students. The text should be written with this potential audience in mind.

Course Structure

The Units which make up the course are:

Unit Code	Level	Credits	Unit Name	Core or option
BHS008-1	4	30	Essential Skills in Biological Sciences	Core
BHS002-1	4	30	Microbiology and Biochemistry	Core
BHS004-1	4	30	Human Anatomy and Physiology	Core
BHS006-1	4	30	Chemistry and Molecular Genetics	Core
BHS003-2	5	30	Medical Physiology and Human Nutrition	Core
BHS004-2	5	30	Pharmacology and Skills	Core
BHS009-2	5	30	Biochemistry and Biotechnology	Core
BHS010-2	5	30	Ecology and the Environment	Core
BHS003-3	6	30	Immunology and Clinical Nutrition	Core
BHS010-3	6	30	Cellular and Molecular Biology	Core
BHS007-3	6	30	Pathophysiology and Pharmacology	Core
BHS012-3	6	30	Biological Science Research Project	Core

Why study this course

The BSc (Hons) Biological Science course provides high-quality, broad-based, training in biological sciences. Based upon a wide knowledgebase and the development of key transferable skills, the programme will not restrict successful graduates in their eventual choice of career. You will develop a sound base of biology and biochemistry that will allow you to appreciate the functioning of living organisms and their interactions and relationship with the environment. You will understand to be aware of the latest advances in the various biological science disciplines you study and recognise the ethical and social implications of human impact upon the planet.

Course Summary – Educational Aims

The course provides high-quality, broad-based, training in Biological Science. By providing a wide knowledgebase and key transferable skills, the programme will give graduates a wide range of opportunities in their eventual choice of career.

In line with the QAA statements for the Biological Sciences subject area, the degree will give you a sound base of biology and biochemistry that will allow you to appreciate the functioning of living organisms. You will understand how the human body functions in health and disease and be aware of the latest advances in the various disciplines you study. It will also provide a grasp of the socio-economic impact of advances in areas such as biotechnology and medicine. The course will also develop your understanding and ability to discuss the ethical issues surrounding technical advances such as cloning and the human genome project, and the biological impact of climate change.

Practical laboratory skills are an essential part of this degree course and you will develop a range of practical techniques relevant to employment within the biological sciences. Through the Level 4 and Level 5 Skills units (BHS008-1 and BHS004-2) and the Biological Science Research Project (BHS012-3) you will demonstrate knowledge and application of research design, data interpretation and the appropriate use of statistical techniques.

You will develop a range of transferable skills, such as team-working through group laboratory work, group discussions, and various learning activities throughout the course. You should also demonstrate effective time-management and organisational skills in meeting deadlines and guiding your own study. You will develop your confidence in tackling novel tasks and in presenting clear summaries of your understanding in both oral and written form.

You will also be expected to understand and present your findings in the broader context of published work within this field, showing an ongoing commitment to learning. You will be given the opportunity to consider your knowledge and skills in the context of employability, not only through the scientific proposal in Level 5 Skills (BHS004-2) and the Level 6 research project (BHS012-3), but also through guest lectures from

relevant employers and from the University's careers service.

Entry requirements

Biological Science applicants should possess:

200 UCAS tariff points (with 160 of these points coming from two A2 qualifications).

GCSE Maths at C or above.

A2 science subject is preferred.

Further details about applying can be found at:

Students from the UK – <http://www.beds.ac.uk/howtoapply/ukugentryreqs>

Students from the European Union - <http://www.beds.ac.uk/howtoapply/eu/guides>

International students - <http://www.beds.ac.uk/howtoapply/international/apply>

PSRB details

Not applicable.

Graduate Impact Statements

The course has been designed to develop you as a graduate able to:

- Apply a thorough understanding of biology and a range of laboratory practical skills to address novel research hypotheses.
- Demonstrate independence and initiative in your research activities whilst working effectively within a collaborative environment.
- Review developments within the scientific literature and incorporate these ideas or technologies into your working practice.

Higher Education Achievement Report - Additional Information

None

Learning and Teaching

The course is delivered by a Blended Learning approach in line with other courses in this Field.

- For the majority of units the classical techniques of lectures, tutorials, laboratory practicals, assessments and student-centred (independent) learning are applied. Specific units will also utilise additional teaching and learning techniques, such as computer-aided learning, case studies, problem-based learning and project work
- You will attend lectures for the primary explanation of theoretical concepts. Tutor-supported tutorials and practical activities to reinforce and apply understanding will accompany lectures. Attendance at laboratory practicals will develop a range of subject specific skills, with many having an associated assessment to ensure you gain good scientific skills in data analysis, reflection of methodology, and report writing.
- For the scientific proposal assignment (Level 5 Skills – BHS004-2) and the Biological Research Project (Level 6 – BHS012-3) you will be further supported through scheduled individual and/or small-group tutorials to aid in your development of your own novel hypotheses and proposals,

An essential component of BSc (Hons) degrees highly valued by employers is the development of independence. This course therefore involves a considerable emphasis on Guided and Independent Learning which develops across the course.

- Guided Learning involves you being provided with directed reading or research activities to consolidate your learning; formative assessment which is marked to provide feedback but is not graded; and guided assessment where you will be graded on the work you produce based upon detailed guidance provided by your lecturer. You will also be supported by peer-assisted learning from Level 5 students during your first year.

- Independent Learning requires that you read around the topics of your study using the essential and recommended reading resources (or through finding your own learning materials – Autonomous Learning) to consolidate your understanding. You must also demonstrate independent research and learning in your scientific proposal assignment (Level 5 Skills – BHS004-2) and Level 6 Research Project (BHS012-3).

Developing your employability

The majority of lecturing staff are actively engaged in scientific research, and have previous experience in academic, government, charity or industry research laboratories. Our teaching and the course are therefore directly informed by our research knowledge and activities. Some key aspects of the course that emphasise employability of our graduates include:

- Training in key laboratory techniques relevant to employment within the Biological Sciences, including awareness of relevant health and safety, legal and ethical considerations.
- Training and practice in the scientific method that underpins all scientific research (developing novel hypotheses, testing these by experiment, accurately interpreting data and understanding error, and drawing valid conclusions).
- Practice in professional standards of reporting including laboratory reports using the standards of professional research publications, preparation of scientific conference posters, and written and oral presentations.
- Maintenance of laboratory diaries and research diaries following standard practice within the field.
- Guest lectures from employers and from the University's careers service.
- Graduates from our BSc (Hons) Biological Science course may seek employment within academic or government research laboratories, or within the pharmaceutical or biotechnology industries. Relevant science jobs outside of laboratory work include teaching, scientific equipment sales reps, scientific journalism or media, and public awareness of science. Furthermore, the training our students receive in information sourcing, data analysis, and presentation skills are relevant and important to a broad range of non-science careers from managerial posts to politics.
- Graduates from our BSc (Hons) Biological Science course may also pursue further scientific training through a variety of Masters programmes or PhDs related to biosciences, or through graduate entry medicine or dentistry programmes.

Department (s)

Department of Life Sciences

Assessment

The assessment philosophy of the Biological Science Award conforms to the recommendations of the QAA Benchmarking statement for Biosciences. It includes a range of assessment methods such as:

- unseen examinations
- essays
- laboratory reports
- project reports
- analytical exercises
- oral presentations
- diaries and personal development plans
- abstract writing
- journal article reviews.

The Field's commitment to practical skills and the ability to communicate and interpret data through scientific report writing is emphasised at all levels of the Programme. As such, practical (laboratory) reports form a

significant proportion of your assessment.

Assessment throughout the later units, most notably in the Level 6 research project, will call upon you to develop abstract writing and journal review skills to promote critical thinking and integration of knowledge across the course units. The importance of oral communication skills is also acknowledged, as some units in Level 5 of the award require all students to undertake oral presentations as a part of the unit assessments. This is then continued in Level 6 units.

After Graduation

On completing this course you are likely to progress into one of the following areas:

Career:

Research & development in government or non-governmental laboratories.

Scientific writing, publishing or biological or medical sales.

Further training, e.g. medicine, health service, environmental services.

Teaching professions

Other allied bioscience professions.

Skills developed in information sourcing, data analysis, and presentation also allow graduates to seek employment within a broad range of non-scientific careers, from financial and managerial posts to politics.

Further study:

MSc by research – a practical, research based masters' degree.

MSc – a taught master's degree in a related area. Within the Department of Life Sciences we run MSc courses in Biotechnology, Pharmacology, Biomedical Engineering and Environmental Management.

PhD research in biological science. Within the Department of Life Sciences we have recent PhD students working in cancer research, autoimmune disease, protein biochemistry and neurobiology.

Student Support during the course

You will be given a full induction week programme in the week prior to starting your course, during which you will be introduced to the Department of Life Sciences' academic, technical and administrative staff. You will be given information about how the department operates, and you will undertake some formative laboratory work and receive health and safety training. You will also be given specific information relating to the delivery of your course, and will be shown how to access your timetable. Other presentations during the induction week will be given by representatives from the Student Information Desk (SID), the Learning Resources Centre (LRC), the Professional and Academic Development (PAD) team, and the Student Union.

You will continue to receive transferable skills training relevant to the biosciences through the Essential Skills units at level 4 (BHS008-1) and level 5 (BHS004-2), and the research project unit at level 6 (BHS012-3). This training will include further guidance from representatives of the Learning Resources Centre (LRC) and Professional and Academic Development (PAD) team to help improve information literacy, referencing and report writing skills. We also provide PAL (Peer Assisted Learning) to you in your first year of undergraduate study. Peer advisers are current level 5 or 6 students who will be working with you on a 1:1 and/or small group basis. Providing you with additional support to enhance your communication/interpersonal skills, problem solving, confidence and organisational skills.

BREO (the University's Blackboard based Virtual Learning Environment - VLE) provides a great deal of help and back-up material such as lecture notes, additional background information on all units, revision material and formative assessments, as well as containing all the administrative material you need such as the Unit Information Forms and regular announcements. For some units, BREO may also contain discussion boards or other e-learning activities.

Another key form of support is feedback provided on your assessments (both formative and summative).

You will always receive feedback in the form of a grade and 2Q comments, but, where appropriate, may also

receive additional feedback through class tutorials, annotation of your submitted work or meetings with lecturers. The 2Q feedback comments inform you about the strengths and the areas for improvement within your work and provide constructive advice for improving your skills and your assignments. It is expected that you read carefully and reflect upon the feedback you receive to enable you to incorporate this into future work and professional practice. Reflection on performance and developing your skills is an essential employability skill and is highly desired by employers.

The University has implemented a Personal Academic Tutor (PAT) scheme to provide pastoral support for students. At the start of your first year you will be assigned to an academic member of staff who will act as your tutor throughout your undergraduate degree. The PAT scheme has been devised to provide advice on varied matters – both general academic and non-academic – although specific issues relating to the teaching content of your units remains the domain of the academic lecturers. As part of the PAT scheme several meetings are scheduled during the year. In devising such a timetable of meetings the University hopes that individual problems will be spotted early and formal assistance can be provided. The meetings provide you with individual or small group contact with academic staff and should complement the activities of the StAR Board within the field.

All units will have specialised tutorial sessions when you can further explore subjects or issues related to assessment or other content of the unit. The Department also puts on extra tutorials when groups of students request them. In addition, all Unit Coordinators/Lecturers have at least two “office hours” sessions a week when you can book a time, through the Faculty Office to discuss unit-related issue(s). Each course also has two student representatives for each level that can convey any specific or general student issues that are not resolved through any of the above support mechanism or you wish to bring to the attention of staff through a third party. Lastly, if you have not managed to find the support necessary through any of the above Departmental or University processes (as detailed in the Course Handbook, Department of Life Sciences Community on BREO) then you can arrange to see the Course Coordinator and/or Portfolio Leader by booking a time directly or through the Faculty Office.

Students who require English Language Support:

It is recognised that some students entering the course, despite having the requisite English language entry qualification may require some extra support in their academic use of the English language. Students may be asked, at the discretion of the Course Coordinator, to undergo diagnostic testing for academic English language abilities, and may further be required, at the Course Coordinator’s discretion, to participate in academic English support workshops or classes laid on by the University. Such support can be obtained through the Professional and Academic Development (PAD) team, who run a number of workshops including language skills, writing practice and exam preparation. Further information on these services can be found at <http://lrweb.beds.ac.uk/studyhub>.

Students with disabilities

Students with a wide range of disabilities or health conditions can achieve the required standards of knowledge and skills to enable them to gain this Bachelor Degree in Bioscience, but it needs to be recognised that each case is different and has to be viewed on its merits. The safety of students, staff, the public and other colleagues must always take priority.

Appropriate individual arrangements will be made for students with disabilities to enable their full participation in practical activities, field trips and laboratory work and other activities associated with the course wherever possible. However, learners with certain specific disabilities may be excluded from studying this course.

Some examples of support structures available at the University for various types of disability are shown below – though the specifics of the support provided will vary for each individual. Students with disabilities who are interested in the BSc (Hons) Bioscience course may like to contact the Course Co-ordinator to discuss this further.

Dyslexia:

Staff at the University have experience of supporting learners with dyslexia and many students cope well with the amount of reading / writing required for Bachelor Degrees. Additional time can be given, for example, in written examinations.

Sensory Impairments:

Impaired vision: although students with colour blindness and monocular vision should be able to cope with the demands of the course, those with severe visual impairment may find difficulty in utilising specialist and laboratory equipment, and are unlikely to be able to access this degree programme.

Hearing Impairments: as long as the individual has developed appropriate coping strategies and makes use of appropriate aids they should be able to study on this programme. However, Admissions staff will need to consider the individual's ability to communicate with others, as well as their ability to cope in a range of contexts so as not to be a danger to themselves or colleagues.

Physical Disabilities:

Absence or partial loss of a limb: On its own, this would not necessarily stop an individual from joining this course. However, the individual's ability to handle equipment and chemicals safely will need to be considered by Admissions staff.

Wheelchair users: An individual who is permanently based in a wheelchair would have considerable difficulty in safely handling chemicals, reagents and equipment in the laboratory, for this practically-based course and whilst every reasonable accommodation will be made, access to the course will need to be considered by Admissions staff.

Further guidance is available from the University's current Disability policy at

<http://www.beds.ac.uk/student-experience2/studying-at-bedfordshire/student-support/disabilities2>.

Section 3 - Academic Information

This section will be used as part of the approval and review process and **peer academics** are the target audience.

Course Learning Outcomes

Upon successful completion of this course, BSc Honours graduates should be able to demonstrate all the following course learning outcomes, and ordinary BSc graduates should be able to demonstrate CLOs 1-6, 8 and 10:-

1. Understand the biology and biochemistry that will allow appreciation of the functioning of living organisms.
2. Demonstrate acquired knowledge in the following subject areas: human anatomy and physiology; biochemistry and biotechnology; pathopharmacology; immunology; microbiology; health & environment and cell and molecular biology.
3. Understand how humans and other organisms function in health and disease, and be aware of the latest advances in the various disciplines of study.
4. Be able to integrate the knowledge across the base of the various disciplines covered to be able to understand current developments in research in the biosciences, ranging from the treatment of human diseases to the biological adaptation to environmental change.
5. Understand the socio-economic impact of advances in biosciences and their application in areas from medicine and biotechnology through to environmental science upon human life and well-being.
6. Develop an ethical view of the application of scientific knowledge; including awareness of how recent advances impact on society and the debates surrounding issues such as cloning and the human genome project.
7. Demonstrate knowledge of research design and the appropriate use of statistical techniques to enable a valid interpretation of experimental results.
8. Be able to critically review biological information and data supporting conclusions and assess and evaluate information from a variety of sources.
9. Undertake a research project, with minimum guidance, transforming abstract data and concepts into a clear hypothesis that can be tested experimentally and reported in the form of a dissertation.
10. Demonstrate ability in a range of appropriate practical techniques and skills relevant to work in the biological sciences.

Course-specific regulations

None

Teaching, Learning and Assessment

The BSc (Hons) Biological Science course is designed to introduce students to fundamental principles of anatomy, chemistry, genetics, cell biology and microbiology at Level 4, that underpin the biosciences. Assessments at Level 4 therefore focus on knowledge retention and understanding (end of year computer based exams) and the ability to produce an effective lab report to present data from laboratory practical sessions. These practical reports use a structure that is the professional standard for publishing scientific research, and encourage students to employ an effective scientific method in considering the background and aim of an experiment, the appropriateness of the method employed, the reliability of the results obtained, and the meaning of the data in a broader scientific context.

Complexity of assessments develops progressively through the three levels of the programme, so that at Level 4 course work assessments develop scientific writing and underpinning skills in generating practical reports. These skills are developed further in longer and more-in depth practical reports and, along with other skills such as essay writing. This development continues at Level 5, where you are expected to exercise greater ability to assimilate and critically review information. These skills are practically assessed in the ability to review and interpret subject matter (practical & theoretical) in essay style writing. In order to ensure that all students are familiar with the final Level 6- exams format, practice essays are present in units in Level 5 and 6 of the award. This provides you with an early feedback mechanism regarding your strengths and weaknesses in examinations, which enables appropriate action to be taken before the final examinations.

A similar development occurs in the unit final assessments. It is recognised that you require training in examination technique and to this end examinations in Level 4 are relatively short computerised exams. Over the subsequent two years this progresses from Level 5 where a 2 hr short-answer papers are used to

the final examinations at Level 6, which are then set in a traditional style of long essay questions in 3 hr papers.

Specific units covering key transferable skills are present at both Level 4 (BHS008-1) and Level 5 (BHS004-2). Units in Level 4 conform to the overall strategy of the field, with oral presentations being absent from the units. Units developing such skills are introduced at Level 5 and higher. Level 5 students will complete a Scientific Proposal assignment in their BHS004-2 Skills unit that requires that they assess the published literature to identify a research need that they can address through proposal of a novel experiment/product/service. This requires students to develop and practice the scientific method to generate hypotheses, and to consider the commercialisation and broader applicability of the science.

Outside these core skills units, the other units support the further development of this array of transferable skills and allow you to enhance your development of skills and rectify any perceived weaknesses. The degree course offers units that cover all the skills pertaining to Information Retrieval & Handling, and Communication & Presentation, present in the QAA benchmarks for Biosciences. The skill areas regarding Planning & Problem Solving and Social Development & Interaction, are less obviously defined in the individual units of the course, but are generally developed in practical work within all the units, which is often group-orientated. You will therefore experience these skills throughout the course, even if they are not specifically defined or assessed within the unit descriptions.

Teaching at all levels employs laboratory practicals to teach subject specific technical skills and to enable students to apply and practice relevant learning from their units. The final year Research Project involves an extended research practical experience in addition to a dissertation. This experience closely mimics that of graduates working in research laboratories. Through the maintenance of laboratory diaries and reflective evaluation of you will use your research and experimental results to develop key employability skills.

Additional Academic Information

Peer-assisted learning (PAL)

PAL sessions for Level 4 students are linked to the Essential Skills in Biological Sciences unit (BHS008-1)

Initial Assessment

Level 4 students carry out a laboratory practical and produce a formative laboratory report in the first few weeks of term, which is marked and feedback provided both through Turnitin, and through small group tutorials. This allows tutors to assess and special learning needs of individual students, and enables all students to gain feedback on the expectations of practical report writing and the process of Turnitin submission. Feedback is returned to students prior to the submission of their first summative assessment. This formative assessment forms part of the BHS008-1 Essential Skills in Biological Sciences unit.

Improving students' learning

A fundamental aspect to University study is independent learning. Students will attend lectures for the primary explanation of theoretical concepts, and are expected to make their own comprehensive notes and to further read around the subject from the recommended textbooks in their independent learning. They are recommended to apply active learning techniques by applying their learning to such activities as answering practice exam questions, preparing summary diagrams or bullet point lists, or explaining concepts to someone else.

They will receive Tutor-supported seminars and practical activities to reinforce and apply their subject understanding. Under a Blended Learning approach lectures and seminars may include the use of videos or web sites, practice assessments, or interactive sessions designed to support student learning. Students should also search for and identify their own learning resources as appropriate.

It is expected that students identify their own areas of weakness and are proactive in seeking support and training to improve these. This may take the form of further independent learning, requesting tutorials or revision of the topic with their lecturers, or attending workshops and training with the Professional and Academic Development (PAD) Team.

Students should also maintain a laboratory diary of their practical work, and should reflect on the development of their skills throughout their course.

Academic Integrity

Guidance about academic integrity including plagiarism will be given during the induction week, and written guidance will be available through the Virtual Learning Environment. Further support about assessment requirements will be provided in the BHS001-1 Skills units and in the assignment briefings for each assessment. Where required additional training can be sought through the Professional and Academic Development (PAD) Team.

HEAR implementation

N/A

Internationalisation

Biological Science laboratory techniques and the scientific method approach to research is identical in countries across the globe. Thus the fundamental basis of this degree course is inherently internationalised. Key employers, such as academic research laboratories, or the pharmaceutical or biotechnology industries are international, and employ the same practices of reporting, research skills, and critical evaluation that we develop through the course. Teaching also encourages awareness of internationalisation by considering such things as ethnic differences in predisposition to disease, and differential access to current treatments and novel therapy development in different countries around the world.

Sustainability

N/A

Section 4 - Administrative Information

This section will be used as part of the approval and review process and peer academics are the target audience.

Faculty	Creative Arts, Technologies and Sciences
Portfolio	Undergraduate Life Sciences
Department/School/Division	Life Sciences
Course Coordinator	Dr Robin Maytum
Version Number	1/15
Approved by (cf Quality Handbook ch.2)	TQSC (transition review)
Date of approval (dd/mm/yyyy)	10/02/2015
Implementation start-date of this version (plus any identified end-date)	2015/16

Form completed by:

Name:Dr Robin Maytum..... Date:12th Jan 2014.....

Authorisation on behalf of the Faculty Teaching Quality and Standards Committee (FTQSC)

Chair: Date:

Course Updates		
Date (dd/mm/yyyy)	Nature of Update	FTQSC Minute Ref:
23/09/2015	Assessment mapping grid revised to reflect changes to UIFs. Level 4 skills unit code and title changed to reflect the new course specific unit.	
01/07/16	Assessment map updated to reflect revised UIFs.	