

## Course Information Form (CIF)

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

<b>Section 1 - General Course Information</b>	
<b>Course Title</b>	Biochemistry Biochemistry (with Professional Practice Year)
<b>Qualification</b>	BSc (Hons)
<b>Intermediate Qualification(s)</b>	BSc
<b>Awarding Institution</b>	University of Bedfordshire
<b>Location of Delivery</b>	AA
<b>Mode(s) of Study and Duration</b>	Full-time over 3 years Part-time pathway typically over 6 years Full-time with Professional Practice Year over 4 years
<b>Core Teaching Pattern</b>	Core Teaching Pattern 1 and 2
<b>FHEQ Level</b>	Level 6
<b>Professional, Statutory or Regulatory Body (PSRB) accreditation or endorsement</b>	Not applicable
<b>PSRB Renewal Date</b>	Not applicable
<b>University of Bedfordshire Employability accreditation</b>	N/A
<b>Route Code (SITS)</b>	BSBICAAF/BSBCPAAF
<b>Subject Community</b>	Life Sciences
<b>UCAS Course Code</b>	C700
<b>Relevant External Benchmarking</b>	<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><a href="http://www.qaa.ac.uk/en/Publications/Documents/qualifications-frameworks.pdf">http://www.qaa.ac.uk/en/Publications/Documents/qualifications-frameworks.pdf</a></p> <p>and the QAA's Subject benchmark statement for Biosciences (2007). Currently available from:</p> <p><a href="http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Biosciences.pdf">http://www.qaa.ac.uk/en/Publications/Documents/Subject-benchmark-statement-Biosciences.pdf</a></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
BHS007-1	4	30	Essential Skills in Biochemistry	Core
BHS006-1	4	30	Chemistry and Molecular Genetics	Core
BHS004-1	4	30	Human Anatomy and Physiology	Core
BHS002-1	4	30	Microbiology and Biochemistry	Core
BHS012-2	5	30	Biochemical Techniques and Skills	Core
BHS013-2	5	30	Protein Structure and Function and Pharmacology	Core
BHS014-2	5	30	Metabolism and Immunology	Core
BHS015-2	5	30	Biochemistry for Applications in Biotechnology	Core
BHSxxx-2	-	0	Professional Practice Year	Option
BHS019-3	6	30	Biochemistry Research Project	Core
BHS020-3	6	30	Molecular Biology and Genetic Engineering	Core
BHS021-3	6	30	Cell Biology and Pathophysiology	Core
BHS022-3	6	30	Systems Biology for Pharmaceutical and Biotechnology Innovations	Core

### Why study this course

BSc (Hons) Biochemistry provides a broad educational training in biochemistry specifically targeted towards employability within the pharmaceutical and biotechnology industries, or for employment or further education within academic research. Our approach within this degree programme is to ensure that the training is contextualised so that our students learn about biochemical processes not as abstract pathways, but as processes that are relevant to industry and to a broad range of graduate career paths. Embedded within this academic programme throughout all three years is a strong development of laboratory practical skills, and an awareness of their application, as well as development of core transferable and general subject skills expected by employers.

The BSc (Hons) Biochemistry course is delivered by highly experienced and research active staff from a range of bioscience backgrounds. The Department of Life Sciences, within which this course is based, has grown rapidly over the last five years both in staff and student numbers, and we have three newly refurbished laboratories for the provision of our practical training. Students joining the BSc (Hons) Biochemistry course will benefit from close interaction with students on our related courses of Biomedical Science, Biological Science and Forensic Science. We also offer MSc courses including Pharmacology, Biotechnology and Biomedical Engineering, providing clear progression routes for BSc (Hons) Biochemistry graduates interested in further related education.

### Course Summary – Educational Aims

BSc (Hons) Biochemistry provides you with a broad education in biochemistry and its application to pharmacology and biotechnology, and with a strong emphasis on practical skills. The course is divided into four key themes (Fundamental skills in biochemistry; Molecular structure and function; Physiology and disease; and Industrial applications of biochemistry) which develop over the three years of the course.

Theme 1 - Fundamental skills in biochemistry:

At level 4 you will develop basic skills in laboratory techniques, report writing, literature research and statistical analysis (Essential Skills in Biosciences). At level 5 you will learn key biochemical techniques including chromatography, electrophoresis and spectroscopy (Biochemical Techniques and Skills). You will also conduct a literature review and independently develop a novel proposal which considers the commercialisation of biochemical science. At level 6 you will conduct an independent research project relating to your course, involving critical evaluation of data and published studies, and self-reflection of your

personal and professional development (Biochemistry Research Project).

#### Theme 2 - Molecular structure and function:

At level 4 you will learn the fundamentals of biological chemistry and its application to molecular biology. You will gain an appreciation for how chemical structures (including the DNA double helix) influence and underpin their functions (Chemistry and Molecular Genetics). At level 5 you will further explore how protein structure relates to function through specific examples. You will also examine the molecular interaction of proteins with pharmacological drugs (Protein Structure and Function and Pharmacology). At level 6 you will examine how the complexity of structural and functional information in biological pathways can be integrated and analysed through systems biology, with a focus towards the pharmaceutical and biotechnology industry application of these studies (Systems Biology for Pharmaceutical and Biotechnology Innovations).

#### Theme 3 - Physiology and disease:

At level 4 you will learn the structures and functions of fundamental human organ systems (Human Anatomy and Physiology). At level 5 you will investigate the biochemical pathways that regulate these organ systems, including mechanisms of enzymology, synthesis and degradation of key biochemical molecules, energy generation, and immune responses (Metabolism and Immunology). At level 6 you will examine key cell signalling pathways and apply these to an understanding of the molecular basis of disease and its treatment (Cell Biology and Pathophysiology).

#### Theme 4 - Industrial application of biochemistry:

At level 4 you will study the basics of microbial biology and cellular biochemistry (Microbiology and Biochemistry). You will then at level 5 explore the application of microbiology, plants and animal systems to the biotechnology industry (Biochemistry for Applications in Biotechnology). At level 6 you will investigate the role of genetic manipulation of organisms in biotechnology (Molecular Biology and Genetic Engineering).

Throughout these themes you will be expected to develop a comprehensive understanding of biochemistry and its applications, with the ability to identify and critically review relevant biological information.

Practical laboratory skills are an essential part of this degree course and you will also develop a range of practical techniques relevant to employment within the biosciences. Through the Level 4 and Level 5 Skills units and the Biochemistry Research Project you will demonstrate knowledge of research design, data interpretation and appropriate use of statistical analysis.

You should develop essential 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 to meet deadlines, and 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 present your findings in the broader context of published work within this field. You will be given the opportunity to consider your learning in the context of employability, not only through the scientific proposal in Level 5 Skills and the Level 6 Research Project units, but also through guest lectures from relevant employers and from the University's careers service.

### **Entry requirements**

#### **Standard:**

Standard entry requirements for UK students – <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>

<p>Standard entry requirements for Life Sciences courses:</p> <p>In addition to the University standard entry requirements for undergraduate courses, a level 3 qualification in science is preferred. GCSE Maths at C or above, or equivalent.</p>
<p><b>PSRB details</b></p> <p>Not applicable.</p>
<p><b>Graduate Impact Statements</b></p> <p>The course has been designed to develop you as a graduate able to:</p> <ul style="list-style-type: none"> <li>• Apply a thorough understanding of biochemistry, including its application to the pharmacology and biotechnology industries, and a range of laboratory practical skills to address novel research hypotheses.</li> <li>• Demonstrate independence and initiative in your research activities whilst working effectively within a collaborative environment.</li> <li>• Review developments within the scientific literature and incorporate these ideas or technologies into your working practice.</li> </ul>
<p><b>Higher Education Achievement Report - Additional Information</b></p> <ul style="list-style-type: none"> <li>• You will complete a broad range of relevant laboratory classes to develop fundamental practical skills and awareness of health and safety and professional practice in the laboratory.</li> <li>• You will undertake a commercial scientific proposal assignment at Level 5 that will foster your awareness of the commercialisation and industrial application of science, and enhance the employability context of your learning.</li> <li>• During the scientific proposal assignment (Level 5 Skills) and Biochemistry Research Project (Level 6) you will maintain reflective diaries of your research activities and will be required to self-reflect upon your professional and skill development, producing an evidence base of employability skills.</li> </ul>
<p><b>Learning and Teaching</b></p> <p>The course is delivered through a combination of scheduled, guided and independent learning by a Blended Learning approach in line with other courses in this Field.</p> <ul style="list-style-type: none"> <li>• Scheduled teaching combines lectures to deliver new ideas and subject material; seminars that typically involve student-led discussions and activities to support your learning; discussion of case studies and worked examples to provide contextual awareness; and laboratory practicals in which you apply your learning to experimental science and develop technical skills relevant to biochemistry.</li> <li>• For the scientific proposal assignment (Level 5 Skills) and the Biochemistry Research Project (Level 6) where you will develop your own novel hypotheses and proposals, you will be further supported through scheduled individual and/or small-group tutorials.</li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>• 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. The types of guided learning provided will vary from unit to unit to best support the delivery of that unit, but typically you will be provided with electronic copies of the lecture slides and will be directed towards the relevant sections of the core textbooks so that you can review and expand upon the topics covered in each lecture, and can begin preparing for your next lecture. Lecturers will often provide suggested learning activities to help you</li> </ul>

to actively engage with your learning at home (for example to summarise lecture material into comparison tables or flow diagrams). More unit specific examples include:

- In level 4 molecular genetics, you will be required to annotate a gene sequence to indicate the regulatory elements for transcription, RNA splicing and translation. This will be marked as a formative exercise and feedback provided.
- In level 5 skills, and in the level 6 research project, you will have regular meetings with an academic supervisor. You will be expected to submit regular summaries of your work and to discuss these with your supervisor to obtain formative feedback. You will also be required to maintain reflective diaries to summarise the work you have independently undertaken and to detail how you have used your learning and your formative feedback to further develop your work.
- In level 6 pathophysiology, you will be provided with relevant scientific journal articles and textbook chapters and be expected to read these in advance of each lecture and be able to discuss their content with your lecturer and course group at the lecture.

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) and Level 6 Research Project, and in the pathophysiology Problem Based Learning assignment.

### **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 Biosciences, 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 including employer-facing representatives from academia, industry and practice-based organisations, PSRBs, and from the University's careers service
- These opportunities will be provided at every level from year 1 through to year 3, with presentations and the opportunities to engage with a wide range of career specialists to gradually develop your skills and capabilities applicable in different career fields as well as perspective of wider career opportunities open to graduates in bioscience subjects including biochemistry. Planned developments in this context include curricular and co-curricular activities such as visits to and/or placements in external locations as well as career fairs and networking events particularly during years 2 and 3 working in partnership with the University's careers service and the department's liaison board.
- Graduates from our BSc (Hons) Biochemistry 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) Biochemistry course may also pursue further scientific training

through a variety of Masters programmes or PhDs related to biosciences, or through graduate entry to medicine or dentistry programmes.

Students who register for the degree with professional practice year will additionally attend a series of workshops and activities related to securing a suitable placement and compulsory briefings at the end of year 2 to ensure that all legal requirements for health and safety, safeguarding etc. training have been met. This will be explained more fully in your professional practice handbook once you have registered with the Careers and Employability Service's Student Development and Awards Team in your first year. If you will be working with children and/or vulnerable people you will be required to have a DBS check and undertake Safeguarding and Prevent training.

#### **Department (s)**

Department of Life Sciences

#### **Assessment**

A range of assessment types is used across this course.

- Practical reports are a key assessment type used throughout the course as they reinforce professional standards of presenting scientific reports, practice your ability to interpret data and to place experimental results within a broader scientific context, develop your ability to relate experimental results to theory, and teach you to apply the scientific method.
- End of year exams are also included in most units with an emphasis on knowledge retention at Level 4; short essay questions demonstrating understanding and application at Level 5; and long essay questions focussed on integration and evaluation of understanding at Level 6.
- As you become practiced in these core skills we begin to introduce other assessment methods including oral presentation to small groups or to examiners in a viva voce setting; scientific research/business proposal (reflecting research development or commercialisation of science); poster presentation (a standard style of scientific conference presentation); and a research dissertation (to develop and evaluate your own novel hypotheses).
- Case studies are used within assessments where appropriate to provide real-world and employment-centred context to the assignments.

#### **After Graduation**

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

##### **Career:**

Research and development in the pharmaceutical or biotechnology industries.

Research and development in government or academic laboratories.

Scientific writing, publishing or sales.

Further training, e.g. medicine, dentistry, pharmacy.

Teaching of science.

Skills developed in information sourcing, data analysis, and presentation also allow graduates to seek employment within a broad range of non-scientific careers, from 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 the biosciences. Within the Department of Life Sciences we have recent PhD students working in cancer research, autoimmune disease, protein biochemistry, neurobiology, and environmental bioscience and biotechnology.

## **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 and level 5, and the research project unit at level 6. 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, typically this will involve a small group tutorial with other personal tutees from the same level of study in term 1 and in term 2, as well as an individual tutorial in term 3. 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://rweb.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 Biochemistry, 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) Biochemistry course may like to contact the Course Co-ordinator to discuss this further.

### **Dyslexia:**

Members of 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 the BSc (Hons) Biochemistry course, students should be able to:-

1. Demonstrate acquired knowledge in a range of biochemistry related subjects relevant to this course.
2. Perform a range of practical biochemical techniques, and be able to record data accurately and carry out basic manipulation of the data, including the use of statistical techniques where appropriate.
3. Produce formal scientific reports, following specified conventions of structure and referencing, that present and interpret data meaningfully, and places the work within the broader scientific context.
4. Demonstrate understanding of the principles of biochemistry and its application to industry, including the ability to apply that understanding in a novel context.
5. Show awareness of relevant ethical, legal and/or health and safety implications of advances in the biosciences, and an understanding of the limits of our current knowledge of physiology, disease mechanisms and treatment, and biotechnologies.
6. Independently identify and review, with a degree of critical judgement, biological information and data regarding the biochemical processes of cells and organisms and their application to the pharmaceutical or biotechnology industries from a variety of sources in order to support their conclusions.
7. Undertake a biochemistry-related research project, with appropriate guidance, transforming abstract data and concepts into a clear hypothesis that can be tested experimentally and reported in the form of a dissertation.

In order to qualify for the award of BSc (Hons) Biochemistry (with Professional Practice year) students will need to meet all of the outcomes above and:

8. Demonstrate knowledge and analytical understanding of professional practice by successfully completing an approved period of approved work place practice.

#### Course-specific regulations

None

#### Teaching, Learning and Assessment

The BSc (Hons) Biochemistry 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.

As students progress through Level 5 they are expected to apply their basic understanding to novel situations and the analysis of more complex biological phenomena. Although practical reports are still a key assessment method, the assessment criteria weighting changes from an emphasis on subject understanding and written structure at Level 4, to an emphasis on accurate analysis of the results, critical evaluation of the method and data, and effective use of literature at Level 5. Similarly, end of year exams involve short essay answers allowing students to demonstrate broader understanding of the subject material and an ability to apply their knowledge in different contexts. Additionally, Level 5 students will complete a Scientific Proposal assignment in their 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.

At Level 6 students are expected to demonstrate an ability to integrate varied knowledge and to critically evaluate their understanding. Problem based learning through case studies and student-led group discussion is used in their pathophysiology and pharmacology unit and is assessed by in-class test. Teaching throughout this year is more student focussed and students are expected to lead discussion topics in pathophysiology, and to devise their own research dissertation topic and assess literature to present a novel hypothesis in their dissertations which they defend in a viva voce. End of year exams are long essay based to enable students to demonstrate knowledge synthesis and critical evaluation.

Teaching at all levels employs laboratory practicals to teach technical skills and to enable students to apply their learning from lectures in a employment related setting. The final year Research Project involves an extended research practical experience in addition to the dissertation. This experience closely mimics that of graduates working in research laboratories, and students use laboratory diaries and reflective evaluation of their 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 Biochemistry unit (BHS00X-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 any 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 BHS00X-1 Essential Skills in Biochemistry unit.

The first summative assessment relates to an understanding of anatomical structure and function as part of BHS004-1 Human Anatomy and Physiology unit, and will be submitted in teaching week 7.

**Improving students' learning**

A fundamental aspect to University study is independent learning. Students must 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.

Students will receive Tutor-supported seminars and practical activities to reinforce and apply their subject understanding. Lectures and seminars may include the use of videos or web sites, practice assessments, or interactive sessions designed to support their learning. They 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 a lecturer, 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 your 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 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**

Biochemistry laboratory techniques and the scientific method to research follow standard approaches 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.

<b>Faculty</b>	Creative Arts, Technologies and Sciences
<b>Portfolio</b>	Undergraduate Life Sciences
<b>Department/School/Division</b>	Life Sciences
<b>Course Coordinator</b>	Dr Lindsay McDermott
<b>Version Number</b>	1/16
<b>Approved by (cf Quality Handbook ch.2)</b>	TQSC (new course)
<b>Date of approval (dd/mm/yyyy)</b>	TBC
<b>Implementation start-date of this version (plus any identified end-date)</b>	2016/17

Form completed by:

Name: .....Dr Adam Paige.....

Date: .....1<sup>st</sup> March 2015.....

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.	
23/05/16	Inclusion of professional practice, adjustments to employability section, and addition of CLO 8	
01/07/16	Assessment map updated to reflect revised UIFs.	