

PROGRAMME SPECIFICATION

Course Record Information	
Name and level of final & intermediate Awards	BSc (Hons) Biochemistry Diploma of HE Certificate of HE
Awarding Body	University of Westminster
Location of Delivery	Cavendish Campus
Mode of Study	Full time
UW Course Code	U09FUBCM
JACS Code	
UCAS Code	C700
QAA Subject Benchmarking Group	Biosciences
Professional Body Accreditation	
Date of initial course approval/last review	1992/1997/2002/2007
Date of Programme Specification	2012

Admissions Requirements

Students are required to have CCC passes at A2 Level to include two Science subjects (Biology preferred) or equivalent qualifications. In addition English Language and Mathematics GCSE passes at Grade C or above are required. Students will need a good standard of English before starting your degree. If their first language and/or schooling is/was not in English, they will need a minimum IELTS score of 6.0, or a recognised equivalent. Entry into the programme at Level 5 is possible via the Assessment of Prior Certificated Learning or Assessment of Prior Experiential Learning procedures of the University for suitable entrants.

Aims of the course

- To provide students with a knowledge and understanding of the sciences and technologies that underpin biochemistry and to enable them to use these critically in problem solving and data handling through their core and other modules.
- To enable students to follow particular subject interests within biology in parallel with biochemistry through their option module choices.
- To enable students to function in a variety of laboratory settings, and relate these skills to the practical work undertaken in biochemistry in their potential future employment.
- Upon completion, students will have been able to gain experience in a variety of transferable skills that will enhance their employment and postgraduate education prospects.
- To produce graduates capable of carrying out scientific research.
- To promote professionalism as a fundamental attribute of academic and professional life

Employment and Further Study Opportunities

Today's organisations need graduates with both good degrees and skills relevant to the workplace, i.e., employability skills. The University of Westminster is committed to developing employable graduates by ensuring that:

- Career development skills are embedded in all courses
- Opportunities for part-time work, placements and work-related learning activities are widely available to students
- Staff continue to widen and strengthen the University's links with employers in all sectors, involving them in curriculum design and encouraging their participation in other aspects of the University's career education and guidance provision
- Staff are provided with up-to-date data on labour market trends and employers' requirements which will inform the service delivered to students.
- Professionalism is embedded throughout the curriculum.

Graduates will be equipped with a wide range of subject specific skills and knowledge that will enhance their employment prospects. Opportunities for Biochemistry graduates account for a high proportion of those advertised for science graduates and more jobs are available in related areas, such as genetics, molecular biology, immunology and biotechnology. Biochemistry graduates are employed by many organisations including those in the pharmaceutical, diagnostic and water industries and biomedical and forensic laboratories. The set of skills provided would also equip Biochemistry graduates for most jobs requiring a first degree including areas such as teaching (particularly science) and management. Additionally graduates would be able to undertake research or further study leading to an MSc, MPhil, or PhD in biochemistry or a related discipline.

Learning Outcomes

Learning outcomes are statements on what successful students have achieved as the result of learning. They threshold statements of achievement and are linked to the knowledge, understanding and skills that a student will have gained on successfully completing a course.

Knowledge and Understanding

At Level 4 students should be able to:

- demonstrate in their module assessments knowledge and understanding of the fundamental principles, concepts and terminology of human physiology, cell and molecular biology and organismal biology which underpin biochemistry;
- explain the theoretical background and demonstrate competence in a variety of laboratory procedures techniques and methods of analysis commonly encountered in the biosciences.

At Level 5 students are expected to:

- establish an understanding of physical and organic chemistry and biochemical techniques as a foundation for further study;
- demonstrate in their module assessments a detailed knowledge and understanding of structures of proteins and other biological macromolecules, enzyme action, molecular genetics and metabolic processes and of subject areas chosen as options;
- apply this knowledge to problem solving and data analysis.

At Level 6 students are expected to:

- demonstrate in their module assessments a detailed knowledge and understanding of protein chemistry and enzyme mechanisms and control, which builds and extends upon Level 5;
- gain insight into the increasing use of computers and databases in biochemistry and related disciplines;
- apply and extend their biochemical knowledge by analysis of selected areas at the cutting edge of biochemistry and molecular biology.
- to apply understanding of a subject related to biochemistry chosen from the options available and relate their knowledge of biochemistry to it; assimilate and critically evaluate a specific area within biochemistry or a related discipline as a foundation for an independent research project.

Specific Skills

At Level 4 students should be able to:

- be competent in the use of SI units, basic data analysis and scientific report writing;
- be competent in standard laboratory techniques and the collection and manipulation of experimental data;
- have enhanced their basic literacy and numeracy skills as applicable in biosciences.

At Level 5 students should be able to:

- retrieve, competently, information from the literature, including interrogation of electronic databases and in the citation of literature in a review or scientific paper format;
- produce a literature review of an area in which they may undertake research and produce a Design Study for a research project;
- select appropriate statistical methods, use relevant software packages and evaluate their application to experimental data;
- be able to devise and perform experiments and evaluate experimental methods for investigation in biochemistry and to be able to manipulate and interpret experimental data.

At Level 6 students should be able to:

- to be able to apply a sound understanding of theoretical aspects of metabolic biochemistry, carbohydrate and protein chemistry and genetics;
- be capable of competent and independent biochemical laboratory work;
- carry out independent research within a chosen area of the biochemistry, analyse and interpret results, to produce a Project.

Key Transferable skills

Learning Resources & Management of Information:

- **at Level 4** students are expected to be able to: access effectively library resources, University-wide and School Intranet facilities and the Internet as appropriate; undertake simple research tasks with guidance;
- **at Level 5** students are expected to further be able to manage their own learning strategy in the biosciences, making effective and critical use of the variety of resources available in particular disciplines and be able to access and use the scientific literature, including electronic databases;
- **at Level 6** students are expected to further be able to make use of sources of information with minimal guidance in the production of reviews and evaluative discussions of their own and others work.

Communication Skills:

- **at Level 4** students are expected to be able to: communicate effectively about the biosciences in a variety of course work and examination formats, including practical reports, using IT resources as appropriate; formulate and give a short oral or poster presentation;
- **at Level 5** students are expected to further be able to: communicate through individual oral presentation using presentation appropriate to the discipline and be able to answer questions from the audience competently; use correct scientific units in reporting practical procedures or data handling problems; cite the scientific literature according to an accepted format;
- **at Level 6** students are expected to further be able to: engage effectively in debate; produce detailed and coherent Project reports.

Intellectual Skills:

- **at Level 4** students are expected to be able to apply methods and subject knowledge accurately and carefully to a given problem as appropriate to the biosciences discipline and appreciate the complexities of the issues;
- **at Level 5** students are expected to further be able to choose techniques/methods applicable for the resolution of a problem which may necessitate the integration of knowledge from different bioscience disciplines;
- **at Level 6** students are expected to further be able to identify methods/tools appropriate in the solution of a problem, justify their choice and evaluate their success.

Independent and Team Work:

- **at Level 4** students are expected to be able to: work effectively with other members of a group in problem solving and laboratory practice; manage time effectively and prioritise tasks so as to meet deadlines;
- **at Level 5** students are expected to further be able to: interact effectively within a group in the provision and receipt of information and ideas; need minimum direction in directing their own learning;
- **at Level 6** students are expected to further be able to: work and interact effectively within a group to formulate approaches to the task in hand; recognise, support or be proactive in group members' roles, particularly leadership; take responsibility for their own work and reflect on/evaluate it.

Self Evaluation and Career Management:

- **at Level 4** students are expected to be able to evaluate their own strengths and weaknesses in the subjects studied and their practice;

- **at Level 5** students are expected to further be able to: develop confidence in their own judgement in their field of study and be prepared to support/evaluate their conclusions; be aware of information sources on postgraduate study and careers;
- **at Level 6** students are expected to further be able to: apply their own judgements confidently, reflect on their actions and be active in seeking and making use of feedback; be aware of current opportunities for postgraduate study and career development and the need for forward planning; produce a high quality Curriculum Vitae. Students should at all times approach their studies with professionalism, realising that this approach needs to be carried forward into their future professional life.

Learning, Teaching and Assessment Methods

Learning

Each module has its own combination of learning opportunities (e.g. lectures, tutorials, laboratory-based practicals, problem solving and computer-based exercises) that together with student-centred learning promote engagement with the subject material. Many modules make use of the online learning environment Blackboard to provide a learning resource, for example holding presentations, documents and web links.

Teaching

A number of different teaching styles may be expected, according to the nature of the subject matter covered in the different modules. At Level 4, the modules provide core knowledge and skills across the biosciences; much of the Level 4 programme is common across the School's undergraduate module scheme. The module Critical Thinking for Scientists enables all School of Life Sciences undergraduates to develop selected study and key skills that form a basis for continued development in higher levels of the programmes. General laboratory skills are embedded within core modules at Level 4 and the Laboratory Research module at Level 5 which prepares students for their the final year project. In general modules are delivered using combinations of lectures, tutorials, laboratory-based practicals, problem solving and computer-based exercises and student-centred learning.

Assessment

Module assessment is frequently on the basis of examination and course work ratios of 50:50 or 60:40. Several modules in the scheme are assessed by 100% course work. Assessment methods for course work are varied and include essays, practical work, group work, presentations and reports. This variety enables students to develop skills that will prove useful in employment. The 30 credit Level 6 research Project is assessed by written thesis.

Course Structure

This section shows the core and option modules available as part of the course and their credit value. Full-time Undergraduate students study 120 credits per year.

Credit Level 4

Code	Title	Status	Value
FSLs400	Biochemistry and Molecular Biology	Core	30
FSLs401	Cell Biology	Core	15
FSLs402	Critical Thinking for Scientists	Core	15
FSLs403	Human Physiology & Anatomy	Core	30
FMAB400	Applications of Molecular Biosciences	Core	15
Elective module			15
Award of Certificate of Higher Education available			

Credit Level 5

Code	Title	Status	Value
FMAB500	Biochemistry	Core	15
FMAB501	Bioinformatics	Core	15
FMAB502	Biological & Organic Chemistry	Core	15
FMAB504	Molecular Genetics	Core	15
FSLs500	Laboratory Research Methods	Core	30
<i>One from:</i>			
FMAB503	Cancer Biology	Option	15
FMAB506	Recombinant DNA Applications	Option	15
FMAB508	The Microbial World	Option	15
FHHS501	Cellular Communication	Option	15
FBMS520	Fundamentals of Disease Diagnosis	Option	15
FBMS521	Immunology	Option	15
FBMS522	Medical Genetics	Option	15
Elective module			15
Award of Diploma of Higher Education available			

Credit Level 6

Code	Title	Status	Value
FMAB603	Current Topics in Biochemistry & Molecular Biology	Core	15
FMAB605	Enzymes: Mechanisms and Control	Core	15
FMAB607	Biochemical Evolution and Molecular Engineering	Core	15
FMAB609	Protein Biochemistry	Core	15
FSLs603	Project	Core	30
<i>One from:</i>			
FMAB601	Advanced Cancer Biology	Option	15
FMAB604	DNA in Identity & Disease	Option	15
FSLs600	Enterprise for Bioscientists	Option	15
FSLs601	Work Experience & Career Management Skills	Option	15
FHHS605	Drug Development & Discovery	Option	15
FHHS612	Xenobiotic Metabolism and Toxicology	Option	15
Elective module			15
Award of BSc available			
Award of BSc (Hons) available			
NB: Not all option modules will necessarily be offered in any one year.			

Academic Regulations

The BSc(Hons) Biochemistry and its intermediate awards operate in accordance with the University's Academic Regulations and the *Framework for Higher Education Qualifications in England, Wales and Northern Ireland* published by the Quality Assurance Agency for Higher Education (QAA) in 2008.

All students should make sure that they access a copy of the current edition of the general University handbook called **Essential Westminster 2011/12** which is available at westminster.ac.uk/essential-westminster. The following regulations should be read in conjunction with the *Modular Framework for Undergraduate Courses* and relevant sections of the current *Handbook of Academic Regulations*.

A pass in a module is achieved when the overall mark is greater than or equal to 40%; with at least 30% in the final assessment and any qualifying marks and/or sets achieved as detailed in the module handbook.

Condoned Credit at Level 3 and Level 4

A student may be awarded condoned credit at Levels 3 and 4 only, where he/she has achieved:

- a) an overall module mark of greater than or equal to 30% but less than 40%;
- b) an overall mark of 40% or greater but not reached the required qualifying mark(s) and/or qualifying set(s) as detailed in the module handbook; and
- c) attempted all referred assessment as offered by the Assessment Board.

Where a student, following a referral opportunity, is awarded condoned credit, the recorded module mark will be capped at 39%. Condoned credit will count towards any credit limits for specified awards. Where a student is awarded condoned credit in a module but subsequently achieves an overall pass within a retake module, credit may contribute only once to an award.

Progression

To progress from Level 3 to Level 4 and from Level 4 to Level 5 in full time study, a student must achieve an average of 40% across 120 credits; to progress from Level 5 to Level 6 full-time study, a student must pass at least 165 credits, including 75 credits at Level 5.

Award

To qualify for the award of BSc (Hons) Biochemistry, a student must:

- a) obtained at least 360 credits including:
 - passed 75 credits at Level 4 or higher and achieved at least a condoned credit in each of the remaining modules worth 45 credits at Level 4; and
 - passed a minimum of 120 Credits at Level 5 or higher; and
 - passed a minimum of 120 credits at Level 6 or higher.
- b) attempted modules with a maximum value of 330 credits at Levels 5 and 6; and
- c) satisfied the requirements contained within any course specific regulations for the relevant course Scheme.

The class of the Honours degree awarded is decided by two criteria: the average of the best 105 credits passed at Level 6 being in the range of the class to be awarded, and the average of the next best 105 credits passed at Levels 5 and 6 provided the next best 105 credits passed are no more than one classification below this.

Support for Students

On arrival, an induction programme will introduce students to the staff responsible for the course, the campus on which they will be studying, the Library and IT facilities and to the School Registry. Students will be provided with the Course Handbook, which provides detailed information about the course. Students are allocated a personal tutor who can provide advice and guidance on academic matters.

In your first year, the Academic Tutorial Scheme will provide tutor group academic tutorial sessions where there will be the opportunity to discuss how your course is progressing, review returned course work, and consider areas we have identified as important for success. The scheme continues throughout your programme of study at the University with some tutor group meetings at longer intervals. The University offers students a great deal of support including study skills, academic support, financial, personal and career advice and the academic tutorial scheme will help you to access these if necessary. Your academic English skills will be evaluated at the start of the course and if you require additional support you will be registered on one of two English support modules as your Elective module choice at Level 4. Additional numeracy support is also available within the School.

Learning support includes the Library which, across its four sites, holds print collections of 356,000 printed books, 29,000 print and e-journals, over 45,000 electronic resources (databases, e-journals, e-books). Access to all resources is facilitated through Library Search, a new online service.

There are over 3,500 computers spread over the four University campuses available for students use. The University uses a Virtual Learning Environment called Blackboard where students can access course materials and communicate with staff and other students via message boards.

At University level, Services for Students provide advice and guidance on accommodation, financial and legal matters, personal counselling, health and disability issues, careers and the chaplaincy providing multi-faith guidance. The International Office provides particular support for international students. The University of Westminster Students' Union also provides a range of facilities to support all students during their time at the University.

Reference Points for the course

Internally

The University of Westminster's Mission Statement, Quality Assurance Handbook and Modular Framework inform the programme's establishment of quality and good practice, together with Teaching & Learning Policy statements.

A key element in this programme is the provision of both a broad subject range of modules and challenging research Projects. Delivery of such a programme is linked to the research expertise of the academic staff of the School of Life Sciences.

Externally

The QAA Bioscience Benchmark statement describes the skills and attributes that Honours graduates in the area of Biosciences should possess.

The South East England Consortium (SEEC) of 37 HE institutions has produced a set of Level descriptors, the use of which the University has adopted as good practice throughout its courses.

Quality Management and Enhancement

Course Management

Your course is managed through the Department of Molecular & Applied Biosciences within the School of Life Sciences. The Course Leader will meet you in the induction programme and can help you with module choices etc. He is responsible for development and management of the course in conjunction with the Head of Department and the Director of Undergraduate Studies for the School of Life Sciences.

Course approval, monitoring and review

The course was initially approved by a University Validation Panel in 1992. The Panel included internal peers from the University and external subject specialists from academia and industry to ensure the comparability of the course to those offered in other Universities and the relevance to employers. Periodic Course Review helps to ensure that the curriculum is up-to-date and that the skills gained on the course continue to be relevant to employers.

The course is monitored each year by the School to ensure it is running effectively and that issues which might affect the student experience have been appropriately addressed. Staff will consider evidence about the course, including the outcomes from each Course Committee, evidence of student progression and achievement and the reports from External Examiners, to evaluate the effectiveness of the course. The Annual Monitoring Sub-Committee considers the School action plans resulting from this process and the outcomes are reported to the Academic Council, which has overall responsibility for the maintenance of quality and standards in the University.

Student involvement in Quality Assurance and Enhancement

Student feedback is important to the University and student views are taken seriously. Student feedback is gathered in a variety of ways. The most formal mechanism for feedback on the course is the Course Committee. Student representatives will be elected to sit on the Committee to represent the views of their peer group in various discussions. The University and the Students' Union work together to provide a full induction to the role of the Course Committee.

All students are invited to complete a Module Feedback Questionnaire before the end of each module. The feedback from this will inform the Module Leader on the effectiveness of the module and highlight areas that could be enhanced. The University also has an annual Student Experience Survey which elicits feedback from students about their course and University experience.

Students meet with Review Panels when the periodic review of the course is conducted to provide oral feedback on their experience on the course. Student feedback from Course Committees is part of the Schools' quality assurance evidence base.

For more information about this course:

Admissions Tutor for the School of Biosciences; Jennifer Mackenzie; telephone 0207 911 5000 extension 65480; e-mail mackenj@wmin.ac.uk
The School of Life Sciences web pages, accessible through www.westminster.ac.uk.

Please note – This programme specification provides a concise summary of the main features of the course and the learning outcomes that a student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided. This specification should be read in conjunction with the Course Handbook provided to students and Module Handbooks which provide more detailed information on the specific learning outcomes, content, teaching, learning and assessment methods for each module.