Programme Specification

UNIVERSITY OF WESTMINSTER⌗

Course record information

Name and level of final award	• Master of Science - Applied Biotechnology The award is Bologna FQ-EHEA second cycle degree or diploma compatible
Name and level of intermediate awards	• Postgraduate Diploma (Pg Dip) - Applied Biotechnology • Postgraduate Certificate (Pg Cert) - Applied Biotechnology
Awarding body/institution	University of Westminster
Teaching institution	University of Westminster
Status of awarding body/institution	Recognised Body
Location of delivery	Primary: Central London
Language of delivery and assessment	English
QAA subject benchmarking group(s)	N/A
Professional statutory or regulatory body	
Westminster course title, mode of attendance and standard length	• MSc Applied Biotechnology FT, Full-time, September start - 1 year standard length • MSc Applied Biotechnology PT, Part-time day, September start - 2 years standard length
Valid for cohorts	From 2024/5

Admissions requirements

There are standard minimum entry requirements for all postgraduate courses. Students are advised to check the standard requirements for the most up-to-date information. For most courses a decision will be made on the basis of your application form alone. However, for some courses the selection process may include an interview to demonstrate your strengths in addition to any formal entry requirements. More information can be found here: https://www.westminster.ac.uk/courses/postgraduate/how-to-apply.

Aims of the programme

The MSc Applied Biotechnology has been designed to produce graduates who have the understanding, knowledge, skills and practical experience in the field of biotechnology to enable them to become professionals capable of making important contributions as required by the biosciences sector. It also aims to enable students to understand the research process at postgraduate level and to apply this knowledge to research and problem solving in the field of biotechnology. Students will be able to explore specialist subject interests in biotechnology through their option module choices and develop the transferable qualities and skills required for employment or research in the biosciences sector.

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.

Employability is supported in various ways at both the School and University levels, for example, 1) Guest lectures from course alumni, giving students an insider view of how biotechnology is applied in practice 2) Careers Fairs, 3) Part-time work opportunities, 4) Mentoring programmes where students are allocated a mentor from industry 5) Ignite Fund which supports students' personal and professional development.

Graduates from the MSc Applied Biotechnology normally find employment in the biotechnology industry e.g. in upstream processing (USP), downstream processing (DSP), Quality Assurance, Quality Control, Microbiology, Technology Transfer, Research and Development, and Regulatory Affairs. Some may continue their academic career to PhD Degree.

What will you be expected to achieve?

Course learning outcomes

Learning outcomes are statements on what successful students have achieved as the result of learning.

These are threshold statements of achievement the learning outcomes broadly fall into four categories:

The overall knowledge and understanding you will gain from your course (KU)

Graduate attributes are characteristics that you will have developed during the duration of your course (GA)

Professional and personal practice learning outcomes are specific skills that you will be expected to have gained on successful completion of the course (PPP)

Key transferable skills that you will be expected to have gained on successful completion of the course. (KTS)

Level 7 course learning outcomes: upon completion of Level 7 you will be able to:

- 001 Critically analyse and design biotechnological processes with a focus on minimizing environmental impact and maximizing resource efficiency. (KU PPP SS)

- 002 Apply the principles of fermentation for the production of diverse bio-based products while critically evaluating strategies to optimise reactor titres, productivity and yield. (KU KTS SS)

- 003 Independently demonstrate mastery of biotechnological research at a Level 7 proficiency by successfully planning, executing, and presenting a substantial research project. (KTS SS)

- 004 Develop proficiency in analysis and interpretation of experimental data using statistical and computational tools, while also demonstrating the ability to critically review and synthesize relevant scientific literature to inform research endeavours. (KU SS)

- 005 Proficiently analyse the process of translating scientific discoveries into commercially viable products or processes, while comprehensively understanding the legal, regulatory, and ethical considerations integral to the commercialization of biotechnological innovations. (KU KTS SS)

- 006 Critically evaluate and apply advanced bioinformatics techniques, including database use, genome analysis, protein alignment, structure-function interpretation, AI in data analysis, Next Generation Sequencing, CRISPR, and protein-ligand interaction modeling. (KU KTS SS)

- 007 Critically evaluate and apply the principles of genetic engineering, protein engineering, and metabolic

engineering, and skilfully apply molecular biology techniques to manipulate and engineer biological systems for specific outcomes. (SS)

- 008 Develop competency in the effective communication of scientific concepts and research findings to diverse audiences, employing a range of formats such as written reports, oral presentations, and visual aids to convey complex scientific information to both technical and non-technical stakeholders. (KU KTS SS)

- 009 Critically analyse and apply principles of equality, diversity, and inclusion (EDI) within the context of biotechnology, demonstrating an advanced understanding of how EDI considerations influence research, innovation, and professional practice in the field. (KTS)

How will you learn?

Learning methods

The University views the student as being at the centre of the learning process and students are expected to take responsibility for their own learning, to further develop skills acquired at undergraduate or professional level and to construct knowledge through active engagement with learning resources provided, university staff and their peers.

The School of Life Sciences is committed to the University of Westminster Equality, Diversity and Inclusion (EDI) policy with a local implementation based on three central elements:

- ***Our commitment*** *is to ensure an inclusive, safe and supportive learning, working and social environment which enables scientific research and teaching to flourish and encourages our future scientists to grow and realise their true potential.*

- ***Our goal*** *is to empower all students and staff to critically reflect on their understanding and positionality with respect to the wide-ranging global scientific perspectives (past and present), encouraging the open debate of differing points of view.*

- ***Our pledge*** *is to respect and value our diverse Life Sciences community (within and beyond the University of Westminster) and foster an equitable culture as we move forward in the field.*

These three elements inform and direct all our learning, teaching and research activities and have been central to our course design process, as can be seen in the learning outcomes at course and module level. All staff and students in the School of Life Sciences are expected to embrace and respect these values.

Examples of how EDI is embedded throughout the course include:
1)   Case studies highlighting the contributions of diverse scientists and researchers in the biotechnology field are incorporated into the course.
2)   Guest lecturers and speakers from diverse backgrounds are invited to share their experiences and expertise.
3)   Students are taught by faculty members from diverse backgrounds to provide a variety of role models for students.
4)   Inclusive teaching strategies that accommodate different learning styles and preferences are implemented in the course.
5)   Group work and collaboration to promote interaction among students with diverse perspectives is encouraged.
6)   Training for faculty and staff on EDI principles and strategies for creating an inclusive learning environment is encouraged.
7)   Anonymous marking is encouraged to avoid unconscious bias when marking.
8)   Facilities, laboratories, and resources are accessible to students with different abilities.
9)   Resources in multiple formats to accommodate diverse learning needs are provided to students.
10)   Support services that cater to the needs of underrepresented groups, such as mentorship programs and counselling services, are provided.

Teaching methods

A variety of teaching methods and approaches are utilised throughout the course, including formal lectures, practical sessions, tutorials (student-centred learning activities), poster presentations and oral presentations. These combined teaching approaches aim to improve both students' knowledge of biotechnology, as well as helping to develop their critical faculties through an experiential approach. In addition, the key communication skills required by any professional scientist are developed throughout the course. Teaching methods are flexible and make use of a variety of media. Data projectors are present in all lecture and tutorial rooms attached to a fixed PC but with the option for lecturers to attach their own laptop if preferred. All rooms are also equipped with visualisers and whiteboards to allow a variety of interactive teaching styles. The University is also equipped with the Blackboard Virtual Learning Environment (VLE) which functions both at a course and modular level with every course and module having a dedicated Blackboard site, all accessible from the user's homepage. Module Blackboard sites act as a focal point for interaction between staff and students away from the classroom environment. They contain administrative and teaching content for the module, allowing students to participate in learning activities and interact with staff and their peers in open discussion. Blackboard is also used to manage the online submission of coursework, plagiarism checking and return of student marks via the grade centre, improving the flexibility of student access and learning.

Assessment methods

Each module in the programme has its own aims and teaching, learning and assessment methods that have been set up to facilitate its learning outcomes. Module assessment is typically based on 100% coursework. Assessments are designed to evaluate a student's understanding, application of knowledge, critical thinking and practical skills in biotechnology. A combination of formative and summative assessments ensures ongoing feedback and opportunities for improvement. Additionally, the diverse range of assessment formats aims to cater to different learning styles and enhance the overall learning experience in biotechnology. Assessment methods are varied and include:

1) Laboratory reports to show students how research findings are communicated.
2) Independent research projects to allow students to delve into a specific aspect of biotechnology, applying advanced research methods.
3) Case studies to help students apply theoretical knowledge in biotechnology to practical situations.
4) Group projects where students work in interdisciplinary teams to simulate real-world working environments.
5) Literature reviews to help students develop critical thinking skills.
6) Oral presentations to assess students' ability to communicate complex scientific concepts to diverse audiences.
7) Virtual simulations to assess students' knowledge and problem-solving skills.
8) Reflective portfolios so students can document and showcase the development of key professional skills, such as project management, communication, and teamwork.
9) Essays and reports assigned on specific biotechnological topics, requiring in-depth analysis and synthesis of information.

Graduate Attribute	Evident in Course Outcomes
Critical and creative thinker	001, 002, 004, 005, 006, 007
Literate and effective communicator	003, 004, 005, 007, 008
Entrepreneurial	002, 005
Global in outlook and engaged in communities	
Socially, ethically and environmentally aware	001, 003, 005, 009

Course Structure

This section shows the core and option modules available as part of the course and their credit value. Full-time Postgraduate students study 180 credits per year. Additional free text information on the choices may also be included, for example where students must choose one of two modules.. Course structures can be subject to change each academic year following feedback from a variety of sources.

Modules

Level 7

Module Code	Module Title	Status	PT Year (where applicable)	UK credit	ECTS
7BIOT004W	Science, Technology and Commercialisation	Core		20	10
7BIOM041W	Bioinformatics	Core	1	20	10
7BIOL001W	Fermentation Technology	Core	1	20	10
7BIOM039W	Molecular Bioengineering	Core	1	20	10
7BIOM033W	Postgraduate Research Methods	Core	1	20	10
7BIOM032W	Postgraduate Project	Core	2	40	20
7BIOT002W	Sustainable Biotechnology	Core	2	20	10
7BIOM037W	Systems Biology	Option	2	20	10
7PHYM013W	Analytical Techniques and Quality Processes	Option	Various	20	10
7BIOM042W	Biotherapeutics and Regenerative Medicines	Option	Various	20	10
7HMDS002W	Communicating Science	Option	Various	20	10

Please note: Not all option modules will necessarily be offered in any one year. In addition, timetabling and limited spaces may mean you cannot register for your first choice of option modules.

Professional body accreditation or other external references

Course management

Your course is one of a number of programmes in the School of Life Sciences, part of the College of Liberal Arts and Sciences within the University of Westminster, and is managed by a designated course leader. In addition to the course specific role of the course leader, the Head of School, other senior school staff and the Associate Heads of College, also provide support and management at their respective levels. We also have a school employability director and global engagement coordinators who oversee employability and international study opportunities respectively. The course leader is also collectively supported in the management and running of the course by the course teaching team through their responsibilities for individual modules and contributions to planning. You will meet your course leader, teaching team and members of the school senior management during arrivals week, a programme of events designed to help you with enrolment, registration, and orientation to the university, its processes and the culture of higher education.

The course is monitored each year by the course leader and senior members of the School and College to ensure that it is running effectively and that issues that might affect the student experience have been appropriately addressed. Each course will have Course Representative meetings throughout the year and staff will consider the outcomes from these meetings, evidence of student progression and achievement and the External Examiner's reports to evaluate the effectiveness of the course. All courses are reviewed annually as part of the School, College and University Continuous Improvement Processes, reporting finally to the Academic Council of the University which has overall responsibility for the maintenance of quality and standards in the University.

Academic regulations

The current Handbook of Academic Regulations is available at westminster.ac.uk/academic-regulations.

Course specific regulations apply to some courses.

Academic Support

Upon arrival, an induction programme will introduce you to the staff responsible for the course, the campus on which you will be studying, the Library and IT facilities, additional support available and to your Campus Registry. You will be provided with the Course Handbook, which provides detailed information about the course. Each course has a course

leader or Director of Studies. All students enrolled on a full-time course and part time students registered for more than 60 credits a year have a personal tutor, who provides advice and guidance on academic matters. The University uses a Virtual Learning Environment called Blackboard where students access their course materials, and can communicate and collaborate with staff and other students. Further information on Blackboard can be found at https://www.westminster.ac.uk/current-students/studies/your-student-journey/when-you-arrive/blackboard

The Academic Learning Development Centre supports students in developing the skills required for higher education. As well as online resources in Blackboard, students have the opportunity to attend Study Skills workshops and one to one appointments. Further information on the Academic Learning Development Centre can be found at westminster.ac.uk/academic-learning-development.

Learning support includes four libraries, each holding a collection of resources related to the subjects taught at that site. Students1 can search the entire library collection online through the Library Search service to find and reserve printed books, and access electronic resources (databases, e-journals, e-books). Students can choose to study in the libraries, which have areas for silent and group study, desktop computers, laptops for loan, photocopying and printing services. They can also choose from several computer rooms at each campus where desktop computers are available with the general and specialist software that supports the courses taught in their College. Students can also securely connect their own laptops and mobile devices to the University wireless network.

Support Services

The University of Westminster Student and Academic Services department provide advice and guidance on accommodation, financial and legal matters, personal counselling, health and disability issues, careers, specialist advice for international students and the chaplaincy providing multi-faith guidance. Further information on the advice available to students can be found at https://www.westminster.ac.uk/student-advice

The University of Westminster Students' Union also provides a range of facilities to support students during their time at the University. Further information on UWSU can be found at https://www.westminster.ac.uk/students-union

How do we ensure the quality of our courses and continuous improvement?

The course was initially approved by a University Validation Panel. University Panels normally include internal peers from the University, academic(s) from another university. a representative from industry and a Student Advisor.

The course is also monitored each year by the College 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 evidence of student surveys, student progression and achievement and reports from external examiners, in order to evaluate the effectiveness of the course and make changes where necessary.

A Course revalidation takes place periodically to ensure that the curriculum is up-to-date and that the skills gained on the course continue to be relevant to employers. Students meet with revalidation panels to provide feedback on their experiences. Student feedback from previous years is also part of the evidence used to assess how the course has been running.

How do we act on student feedback?

Student feedback is important to the University and student views are taken seriously. Student feedback is gathered in a variety of ways.

- Through student engagement activities at Course/Module level, students have the opportunity to express their voice in the running of their course. Course representatives are elected to expressly represent the views of their peers. The University and the Students' Union work together to provide a full induction to the role of the course representatives.

- There are also School Representatives appointed jointly by the University and the Students' Union who meet with senior School staff to discuss wider issues affecting student experience across the School. Student representatives are also represented on key College and University committees.;

- All students are invited to complete a 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.

- Final year Undergraduate students will be asked to complete the National Student Survey which helps to inform the national university league tables.

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 they take full advantage of the learning opportunities that are provided. This specification is supplemented by the Course Handbook, Module proforma and