

Course Specification

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Status:	Validated

Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	Wolverhampton School of Sciences		
Course Code(s):	AB017H01UV AB017H31UV	Full-time Part-Time	3 Years 6 Years
Course Title:	BSc(Hons) Biotechnology		
Hierarchy of Awards:	Bachelor of Science with Honours Biotechnology Bachelor of Science Biotechnology Diploma of Higher Education Applied Biotechnology Certificate of Higher Education Applied Biotechnology University Statement of Credit University Statement of Credit		
Language of Study:	English		
Date of DAG approval:	03/May/2017		
Last Review:	2010/1		
Course Specification valid from:	2010/1		
Course Specification valid to:	2016/7		

Academic Staff

Course Leader:	Dr Roy Protheroe
Head of Department:	Dr Edward Mole

Course Information

Location of Delivery:	University of Wolverhampton
Category of Partnership:	Not delivered in partnership
Teaching Institution:	University of Wolverhampton
Open / Closed Course:	This course is open to all suitably qualified candidates.

Entry Requirements:

Entry requirements are subject to regular review. The entry requirements applicable to a particular academic year will be published on the University website (and externally as appropriate e.g. UCAS)

2017 Entry

- A Level minimum of BB or CDD to include a Science subject preferably Biology. 'A' Level General Studies cannot be used to satisfy this requirement.
- Access to Higher Education Diploma requires candidates to accumulate 60 credits, at least 45 of which are at Level 3, 18 level 3 credits must be in Science and achieved with a minimum of Merit.
- BTEC Level 3 Extended Diploma in Applied Science grade MMP or BTEC National Diploma grade DM.
- Applicants will normally be expected to hold GCSE English and Maths at grade C+/4 or equivalent
- If you've got other qualifications or relevant experience, please contact [The Gateway](#) for further advice before applying.
- Successful completion of the foundation year of our [BSc \(Hons\) Science and Engineering with Foundation Year](#) guarantees entry on to this course
- International entry requirements and application guidance can be found [here](#)
- Successful completion of the [International Foundation Year in Science and Engineering](#) guarantees entry on to this course

Those who do not meet the entry requirements may be offered an alternative course.

Distinctive Features of the Course:

The emphasis throughout the course will be on the applied nature of the study of biotechnology in terms of how fundamental knowledge can be applied to tangible vocational situations and problems, together with the acquisition of practical and generic skills. The intention of this approach will be to prepare students for their chosen career in any of the varied career options made available by a degree in Biotechnology.

Former students have found employment in careers involving medical, environmental and industrial biotechnology, together with careers such as teaching. To achieve this the award is structured to enable challenges to apply information effectively, to work in teams, to gain actual industrial experience, to learn from the experiences of professionals, to acquire technical competence and to develop generic and time management skills.

Educational Aims of the Course:

Biotechnology is a rapidly expanding discipline which is finding applications throughout society including medicine, agriculture and the environment. The BSc Biotechnology course will provide a grounding in the basic principles of microbiology, plant biology, cell biology, genetics and the structure and function of biomolecules necessary to underpin the study of Biotechnology and demonstrate how these principles are applied for the development of useful products and applications.

Specialist facilities will enable the investigation of the biology of the cell and the nature of genes together with the biochemical analysis of biological products. The course explores the physicochemical principles

associated with fermentation design and operations for the processing of materials by microbial, animal and plant cells (and their enzymes) including genetic modification to make useful products or purposes.

The course will also explore the social consequences of developments in biotechnology, considering the benefits and risks connected with recombinant DNA experiments and the use or release of genetically modified organisms and their products.

Intakes:

September

Major Source of Funding:

HE FUNDING COUNCIL FOR ENGLAND (HEFCE)

Tuition Fees:

Tuition fees are reviewed on an annual basis. The fees applicable to a particular academic year will be published on the University website.

Year	Status	Mode	Amount
2017/8	H	Full Time / Sandwich	£9250.00
2017/8	EU	Full Time / Sandwich	£9250.00
2017/8	Overseas	Full Time / Sandwich	£11475.00
2017/8	H	Part Time	£2835.00
2017/8	EU	Part Time	£2835.00
2017/8	Overseas	Part Time	£5738.00

PSRB:

AB017H01UV (Full-time)

Professional Accreditation Body:
Society of Biology

Accrediting Body:
Royal Society of Biology

Accreditation Statement:
Recognised by the Royal Society of Biology for the purpose of associate membership.

Approved	Start	Expected End	Renewal
20/Oct/2014	20/Oct/2014	20/Oct/2019	20/Oct/2019

AB017H31UV (Part-Time)

Professional Accreditation Body:
Society of Biology

Accrediting Body:
Royal Society of Biology

Accreditation Statement:

Recognised by the Royal Society of Biology for the purpose of associate membership.

Approved	Start	Expected End	Renewal
20/Oct/2014	20/Oct/2014	20/Oct/2019	20/Oct/2019

Course Structure:

September (Full-Time)

Module	Title	Credits	Period	Type
4AB008	Bioscience Skills	20	SEM1	Core
4AB007	Plants and the Environment	20	SEM1	Core
4AB012	Microbiology with Immunology	20	SEM2	Core
4BM006	Disease Biology and Public Health	20	SEM2	Core
4PY013	Molecular Basis of Life	20	SEM2	Core

Group 06 | Min Value: 20 | Max Value: 20

4BC001	Chemistry for Forensic and Molecular Science	20	SEM1	Core Option
4BC002	Forensic and Molecular Chemistry	20	SEM1	Core Option
4WL002	Basic Language	20	SEM1	Core Option
4WL003	Elementary Language	20	SEM1	Core Option
5BC001	Molecular Biosciences	20	SEM1	Core
5BC003	Molecular Biosciences Practical Techniques	20	SEM1	Core

Group 03 | Min Value: 20 | Max Value: 20

5PY017	Pharmaceutical Microbiology	20	SEM1	Core Option
5BC002	Proteins	20	SEM1	Core Option
5WL001	Basic Language	20	SEM1	Core Option
5WL002	Elementary Language	20	SEM1	Core Option
5AB008	Cellular and Organismal Biosciences	20	SEM2	Core
5AB012	Analytical Techniques in Biosciences	20	SEM2	Core
5AB025	Food Microbiology and Biochemistry	20	SEM2	Core
6AB003	Honours Project in Biological and Forensic Sciences	40	YEAR	Core
6AB001	Microbial Biotechnology	20	SEM1	Core
6BC002	Gene Manipulation and Bioinformatics	20	SEM1	Core
6AB002	Plant Biotechnology	20	SEM2	Core
6AB006	Contemporary Issues in Biology	20	SEM2	Core

Learning, Teaching and Assessment

Academic Regulations Exemption:

None

Reference Points:

QAA Subject Benchmark Statement – Biosciences (2007).

Learning Outcomes:

CertHE Course Learning Outcome 1 (CHECLO1)

Demonstrate knowledge of the underlying concepts and principles associated with your area(s) of study, and an ability to evaluate and interpret these within the context of that area of study

CertHE Course Learning Outcome 2 (CHECLO2)

Demonstrate an ability to present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of your subject(s) of study.

CertHE Course Learning Outcome 3 (CHECLO3)

Evaluate the appropriateness of different approaches to solving problems related to your area(s) of study and/or work

CertHE Course Learning Outcome 4 (CHECLO4)

Communicate the results of your study/work accurately and reliably, and with structured and coherent arguments

CertHE Course Learning Outcome 5 (CHECLO5)

Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility

DipHE Course Learning Outcome 1 (DHECLO1)

Demonstrate knowledge and critical understanding of the well-established principles of your area(s) of study, and of the way in which those principles have developed with an understanding of the limits of your knowledge, and how this influences analyses and interpretations based on that knowledge.

DipHE Course Learning Outcome 2 (DHECLO2)

Demonstrate the ability to apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context

DipHE Course Learning Outcome 3 (DHECLO3)

Demonstrate knowledge of the main methods of enquiry in the subject(s) relevant to the named award, and

ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study

DipHE Course Learning Outcome 4 (DHECLO4)

Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis

DipHE Course Learning Outcome 5 (DHECLO5)

Effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively

DipHE Course Learning Outcome 6 (DHECLO6)

Demonstrate the qualities and transferable skills necessary for employment, requiring the exercise of personal responsibility and decision-making and undertake further training, developing existing skills and acquire new competences that will enable them to assume significant responsibility within organisations

Ordinary Degree Course Learning Outcome 1 (ORDCLO1)

Understand and apply the basic principles of microbiology, plant biology, cell biology, genetics and the structure and function of biomolecules necessary to underpin the study of biotechnology

Ordinary Degree Course Learning Outcome 2 (ORDCLO2)

Recognise and analyse the complex relationships between form and function in microorganisms, including their growth and development of organisms and their adaptation to the environment

Ordinary Degree Course Learning Outcome 3 (ORDCLO3)

Perform laboratory analysis safely and reliably relating for the production and analysis of biological materials. Gather and formulate scientific information, reliably collate and analyse data and apply appropriate statistical tests

Ordinary Degree Course Learning Outcome 4 (ORDCLO4)

Demonstrate knowledge of the industrial processing of materials by cells and enzymes, including genetic modification, to make useful products or purposes

Ordinary Degree Course Learning Outcome 5 (ORDCLO5)

Use knowledge of physicochemical principles associated with fermentation design to enable the processing of materials

Ordinary Degree Course Learning Outcome 6 (ORDCLO6)

Recognise the social and ethical consequences of developments in biotechnology, considering the benefits and risks connected with recombinant DNA experiments and the use or release of genetically modified organisms and their products

Honours Degree Course Learning Outcome 1 (DEGCLO1)

Understand and apply the basic principles of microbiology, plant biology, cell biology, genetics and the structure and function of biomolecules necessary to underpin the study of biotechnology

Honours Degree Course Learning Outcome 2 (DEGCLO2)

Recognise and analyse the complex relationships between form and function in microorganisms, including their growth and development of organisms and their adaptation to the environment

Honours Degree Course Learning Outcome 3 (DEGCLO3)

Perform laboratory analysis safely and reliably relating for the production and analysis of biological materials. Gather and formulate scientific information, reliably collate and analyse data and apply appropriate statistical tests

Honours Degree Course Learning Outcome 4 (DEGCLO4)

Demonstrate knowledge of the industrial processing of materials by cells and enzymes, including genetic modification, to make useful products or purposes

Honours Degree Course Learning Outcome 6 (DEGCLO6)

Recognise the social and ethical consequences of developments in biotechnology, considering the benefits and risks connected with recombinant DNA experiments and the use or release of genetically modified organisms and their products

Overview of Assessment:

Module	Title	Course Learning Outcomes
4AB007	Plants and the Environment	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4AB008	Bioscience Skills	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4AB012	Microbiology with Immunology	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4BC001	Chemistry for Forensic and Molecular Science	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4BC002	Forensic and Molecular Chemistry	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4BM006	Disease Biology and Public Health	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4PY013	Molecular Basis of Life	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
5AB008	Cellular and Organismal Biosciences	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5AB012	Analytical Techniques in Biosciences	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5BC001	Molecular Biosciences	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5BC002	Proteins	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5BC003	Molecular Biosciences Practical Techniques	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5EH001	Food Microbiology and Biochemistry	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5PY017	Pharmaceutical Microbiology	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
6AB001	Microbial Biotechnology	DEGCLO3, DEGCLO4, ORDCLO3, ORDCLO4
6AB002	Plant Biotechnology	DEGCLO3, DEGCLO4, DEGCLO6, ORDCLO3, ORDCLO4, ORDCLO6
6AB003	Honours Project in Biological and Forensic Sciences	DEGCLO2, DEGCLO3, DEGCLO4, ORDCLO2, ORDCLO3, ORDCLO4
6AB006	Contemporary Issues in Biology	DEGCLO1, DEGCLO3, DEGCLO4, ORDCLO1, ORDCLO3, ORDCLO4
6BC002	Gene Manipulation and Bioinformatics	DEGCLO1, DEGCLO4, ORDCLO1, ORDCLO4

Teaching, Learning and Assessment:

The award will include a diverse range and variety of learning activities. These may include lectures, tutorials, seminars, practicals, discussion and work experiences.

Information central to a module will be principally delivered by lectures with a proportion through directed e-learning. Fundamental principles will be reinforced and given applied relevance by case studies within tutorials and seminars. Increasingly, problem based exercises will be used to enable the application of knowledge to actual situations. Group working will be encouraged both within formal sessions and on-line.

Practical skills will be undertaken and practiced to increasing levels of independence from the use of elementary equipment, to more advanced skills development and ultimately to the independent final year project as students progress through the course. Vocational experience and relevance will be promoted by the Work Experience module, Sandwich Placement and the use within modules of presentations by guest speakers with vocational specialism to emphasise the applied relevance of module content.

Digital literacy: This will be central to most activities. This will range from module organisation, familiarisation with core module content, literature searching, data analysis with interpretation and production of various forms of assessed work (including essays, posters, visual aids and practical reports) for formative and summative submission. Assessed work is increasingly submitted, marked and made available for feedback electronically.

Knowledge and Enterprising: The use of problem based teaching and application of information will enable an appreciation of fundamental knowledge and how principles can be put to use. These approaches enable the development of enterprising mechanisms for solving problems. Students will be encouraged to seek placement and to gain industrial experience which will require enterprise in job seeking.

Global Citizens: Throughout the course students will be given the opportunity to consider case studies and real life situations which will be drawn not only from UK examples but also worldwide, to give an international perspective.

Learning and Teaching Methods:

This data indicates the proportion of time in each year of study that students can expect to engage in the following activities (expressed as a percentage for each level).

Level	Teaching	Independent	Placement
4	25	75	0
5	25	75	0
6	24	77	0

Assessment Methods:

This data indicates the proportion of summative assessment in each year of study that will derive from the following: (expressed as a percentage for each level).

Level	Written Exams	Practical Exams	Coursework
4	51	24	25
5	56	13	31
6	45	13	42

Student Support:

A well established system of proven effectiveness will exist for student support throughout the course. Students will have readily accessible (made possible via the SAMS appointment system) separate personal and award tutors to give guidance and assistance with course and module related problems as necessary.

Academic skills will be introduced initially by the Biosciences Skills module which runs throughout the first year to provide a foundation in literature searching, data collection, statistical analysis and scientific presentation, including writing, referencing and oral presentation. The skills module will support both generic and practical skills which will be used on related modules during the year.

These skills will then be developed throughout modules with specific emphasis on particular skills for example group working (4AB012), practical competence (5BC003 and (5AB007/5AB012), preparation for project (5AB012/5AB007) case studies (6AB001) and oral presentation (6AB003).

Development of skills will be assisted by workshops and formative assessment exercises to prepare for summative assessment with timely and constructive feedback from assessed work to foster experiential learning.

Employability in the Curriculum:

Having studied BSc Biotechnology, a wide range of careers within the life sciences awaits you. Research and development opportunities will be open to you such as working for multinational biological, agricultural, agrochemical, medical and pharmaceutical companies, food and drink industries and specialist biotechnology companies. In addition, you could gain employment in the fields of consultancy and teaching, or become a business research scientist, or a skilled technician in industry and food research institutions. The skills you learn can also be applied to a wide range of non-scientific careers. You could pursue a wide range of other careers including retail management and public services.



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