

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):	BC010K23UV	Sandwich	5 Years
UCAS Code:	5C30		
Course Title:	MSci (Hons) Molecular Bioscience with Sandwich Placement		
Hierarchy of Awards:	Master in Science with Honours Molecular Bioscience, having satisfactorily completed a sandwich placement Bachelor of Science with Honours Molecular Bioscience, having satisfactorily completed a sandwich placement Bachelor of Science Molecular Bioscience, having satisfactorily completed a sandwich placement Diploma of Higher Education Molecular Bioscience, having satisfactorily completed a sandwich placement Certificate of Higher Education Molecular Bioscience, having satisfactorily completed a sandwich placement University Statement of Credit Molecular Bioscience, having satisfactorily completed a sandwich placement		
Language of Study:	English		
Date of DAG approval:	16/Sep/2013		
Last Review:	2012/3		
Course Specification valid from:	2012/3		
Course Specification valid to:	2018/9		

Academic Staff

Course Leader:	Dr Michael Whitehead
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 ABB or AAC to include Chemistry and Biology.
- BTEC Level 3 Extended Diploma in Applied Science grade DDM.
- 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.
- 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

Other Requirements

Entry to this course involves an interview process.

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

Distinctive Features of the Course:

The University of Wolverhampton has a long-standing reputation for the taught provision in Biochemistry and Molecular Genetics at undergraduate and postgraduate levels. The Integrated Master in Molecular Bioscience is a four year undergraduate degree where the final year is studied completely at Masters level. This course is ideal for giving a broad education in biochemistry, molecular biology and genetics and preparing students for a career in modern bioscience.

The course has been designed to be at the forefront in the development of molecular science. This course addresses the rapidly developing field of modern genetics and prepares them for the post- genomics era. The research-active staff who are associated with the Research Institute in Healthcare Science (research evaluated as of national and international excellence at the last Research Assessment Exercise) provide a highly research-focused environment which informs both teaching and the students' own research projects. Areas of research include cancer research, microbial polymer science and fungal genetics of stress tolerance.

The key difference between the level 6 and IM project is the IM project builds directly from the investigation outcomes of the level 6 preliminary project to allow both longer term development and depth.

A placement can be undertaken anywhere; local, national or even, in some instances, international. During a placement, you will be doing similar work to a normal employee of the organisation giving you a unique insight into your chosen profession or sector, the opportunity to acquire crucial personal skills and also the opportunity to build a network of useful contacts. Many companies that employ graduates use placement programmes as a method of recruitment so you could be fast tracked into employment or onto one of their graduate schemes if you impress them.

The team at [The Workplace](#) constantly search for new placement opportunities but if you find an opportunity that interests you or you have been successful in securing one yourself, contact them for further information

and support.

Educational Aims of the Course:

The Integrated Master in Molecular Bioscience is a four year undergraduate degree where the final year is studied completely at Masters level. This course is ideal for giving a broad education in biochemistry, molecular biology and genetics. It introduces students to the latest developments in the molecular biological sciences and develops key practical skills. This course will also introduce the rapidly developing field of bioinformatics and introductory computing skills. It particularly concentrates on how these skills can be used in disease investigation. Research projects will be coupled to active research within the University. Jobs are available in international research centres, large and small pharmaceutical and biotech companies, health industries and hospitals. This Integrated Masters course can lead to careers in research and further study at PhD level.

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

PSRB:

None

Course Structure:

September (Sandwich)

Module	Title	Credits	Period	Type
4AB008	Bioscience Skills	20	SEM1	Core
4PY013	Molecular Basis of Life	20	SEM2	Core
4BM005	Microbes and Immunity	20	SEM2	Core

Registration Group Rule: Select a minimum of 40 credits and a maximum of 40 credits from the linked (*) groups.

* Group 01 | 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
* Group 02 Min Value: 20 Max Value: 20				
4AB007	Plants and the Environment	20	SEM1	Core Option
4BM004	Human Structure and Function	20	SEM1	Core Option
Group 01 Min Value: 20 Max Value: 20				
4PY009	Principles of Drug Action	20	SEM2	Core Option
4BM006	Disease Biology and Public Health	20	SEM2	Core Option
5BC001	Molecular Biosciences	20	SEM1	Core
5BC002	Proteins	20	SEM1	Core
5BC003	Molecular Biosciences Practical Techniques	20	SEM1	Core
5BC004	Practical Molecular Bioscience and Investigative Methods	20	SEM2	Core
5AB008	Cellular and Organismal Biosciences	20	SEM2	Core
Group 06 Min Value: 20 Max Value: 20				
5BM012	Evolution and Origin of Life	20	SEM2	Core Option
5BM006	Biology and Investigation of Disease 2	20	SEM2	Core Option
5PY010	Therapeutic Pharmacology	20	SEM2	Core Option
5AB017	Sandwich Placement	40	YEAR	Core
6AB003	Honours Project in Biological and Forensic Sciences	40	YEAR	Core
6BC001	Advanced Topics in Molecular Bioscience	20	SEM1	Core
6BC002	Gene Manipulation and Bioinformatics	20	SEM1	Core

Registration Group Rule: Select a minimum of 40 credits and a maximum of 40 credits from the linked (*) groups.

*** Group 04 | Min Value: 20 | Max Value: 20**

6AB002	Plant Biotechnology	20	SEM2	Core Option
6BC003	Quality Assurance and Biomolecular Analysis	20	SEM2	Core Option

*** Group 01 | Min Value: 20 | Max Value: 20**

6BM016	Human Evolution	20	SEM2	Core Option
6PY006	Biochemical Pharmacology	20	SEM2	Core Option
6BM009	Clinical Biochemistry and Clinical Immunology	20	SEM2	Core Option
7FS014	Integrated Masters Project (40 credits)	40	YEAR	Core
7BC002	Molecular Genetics and Genomics	20	SEM1	Core
7CS001	Modern Computer Science	20	SEM1	Core
7BC003	DNA Datamining	20	SEM2	Core
7AB002	Masters' Laboratory Techniques	20	SEM2	Core

Learning, Teaching and Assessment

Academic Regulations Exemption:

Section A.2/7. Exemption to permit 1 x 40 credit Project Module at both levels 6 and 7.

Approved by Chairs Action 17/03/16. Ratified by AFRSC 05/04/2016.

Effective Date: September 2016.

Reference Points:

QAA subject benchmark - QAA subject specific points for Masters level in this subject are not published. The undergraduate Bioscience QAA has been used for guidance section5.10-5.11, as well as the published criteria for Masters provision.

Framework for Higher Education Qualifications (FHEQ) - In keeping with the FHEQ Qualification framework for HE qualifications.

Professional, Statutory & Regulatory Body requirements - The Institute of Biology accreditation may be sought.

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)

"Demonstrate a systematic understanding of key aspects of your field of study, including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of a discipline with an appreciation of the uncertainty, ambiguity and limits of knowledge"

Ordinary Degree Course Learning Outcome 2 (ORDCLO2)

"Demonstrate an ability to deploy accurately established techniques of analysis and enquiry within a discipline and apply the methods and techniques that they have learned to review, consolidate, extend and apply your knowledge and understanding, and to initiate and carry out projects."

Ordinary Degree Course Learning Outcome 3 (ORDCLO3)

"Demonstrate conceptual understanding that enables the student: (a) to devise and sustain arguments, and/or to solve problems, using ideas and techniques, some of which are at the forefront of a discipline (b) to describe and comment upon particular aspects of current research, or equivalent advanced scholarship, in the discipline"

Ordinary Degree Course Learning Outcome 4 (ORDCLO4)

"Demonstrate the ability to manage your own learning, and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to the discipline) and communicate information, ideas, problems and solutions to both specialist and non-specialist audiences."

Ordinary Degree Course Learning Outcome 5 (ORDCLO5)

"Critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgements, and to frame appropriate questions to achieve a solution - or identify a range of solutions - to a problem"

Ordinary Degree Course Learning Outcome 6 (ORDCLO6)

Demonstrate the qualities and transferable skills necessary for employment requiring: (a) the exercise of initiative and personal responsibility (b) decision-making in complex and unpredictable contexts (c) the learning ability needed to undertake appropriate further training of a professional or equivalent nature.

Honours Degree Course Learning Outcome 1 (DEGCLO1)

"Demonstrate a systematic understanding of key aspects of your field of study, including acquisition of coherent and detailed knowledge, at least some of which is at, or informed by, the forefront of defined aspects of a discipline with an appreciation of the uncertainty, ambiguity and limits of knowledge"

Honours Degree Course Learning Outcome 2 (DEGCLO2)

"Demonstrate an ability to deploy accurately established techniques of analysis and enquiry within a discipline and apply the methods and techniques that they have learned to review, consolidate, extend and apply your knowledge and understanding, and to initiate and carry out projects."

Honours Degree Course Learning Outcome 3 (DEGCLO3)

"Demonstrate conceptual understanding that enables the student: (a) to devise and sustain arguments, and/or to solve problems, using ideas and techniques, some of which are at the forefront of a discipline (b) to describe and comment upon particular aspects of current research, or equivalent advanced scholarship, in the discipline"

Honours Degree Course Learning Outcome 4 (DEGCLO4)

"Demonstrate the ability to manage your own learning, and to make use of scholarly reviews and primary sources (for example, refereed research articles and/or original materials appropriate to the discipline) and communicate information, ideas, problems and solutions to both specialist and non-specialist audiences"

Honours Degree Course Learning Outcome 5 (DEGCLO5)

"Critically evaluate arguments, assumptions, abstract concepts and data (that may be incomplete), to make judgements, and to frame appropriate questions to achieve a solution - or identify a range of solutions - to a problem"

Honours Degree Course Learning Outcome 6 (DEGCLO6)

Demonstrate the qualities and transferable skills necessary for employment requiring: 1. the exercise of initiative and personal responsibility 2. decision-making in complex and unpredictable contexts. 3. the learning ability needed to undertake appropriate further training of a professional or equivalent nature.

Integrated Masters Course Learning Outcome 1 (IMACLO1)

Demonstrate a systematic knowledge and understanding of biochemistry and molecular biology

Integrated Masters Course Learning Outcome 2 (IMACLO2)

"Demonstrate a comprehensive understanding of the practical, professional and/or research skills necessary for working as a Molecular Scientist"

Integrated Masters Course Learning Outcome 3 (IMACLO3)

Demonstrate understanding of latest developments in biochemistry and molecular biology and have a critical awareness of applications to applied fields such as biotechnology or inherited disease and diagnosis

Integrated Masters Course Learning Outcome 4 (IMACLO4)

Demonstrate the intellectual skills of handling complex issues systematically and creatively enabling originality in problem solving. To evaluate critically current research and advanced scholarship

Integrated Masters Course Learning Outcome 5 (IMACLO5)

"Exhibit postgraduate generic skills of initiative and personal responsibility, enabling independent decision making. Independent learning skills allowing continuing professional development. Effective communication and numerical skills"

Overview of Assessment:

Module	Title	Course Learning Outcomes
4AB007	Plants and the Environment	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5

Module Code	Module Title	Learning Outcomes
	Bioscience Skills	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
4BM004	Human Structure and Function	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4BM005	Microbes and Immunity	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
5AB017	Sandwich Placement	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
5BC004	Practical Molecular Bioscience and Investigative Methods	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5BM006	Biology and Investigation of Disease 2	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5BM012	Evolution and Origin of Life	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5PY010	Therapeutic Pharmacology	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
6AB002	Plant Biotechnology	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5
6AB003	Honours Project in Biological and Forensic Sciences	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5
6AB016	Sandwich Placement	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, DEGCLO6, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5, ORDCLO6
6BC001	Advanced Topics in Molecular Bioscience	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5
6BC002	Gene Manipulation and Bioinformatics	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5
6BC003	Quality Assurance and Biomolecular Analysis	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5
6BM009	Clinical Biochemistry and Clinical Immunology	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5
6BM016	Human Evolution	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5
7AB002	Masters' Laboratory Techniques	IMACLO2, IMACLO3, IMACLO4, IMACLO5
7BC002	Molecular Genetics and Genomics	IMACLO1, IMACLO3, IMACLO4, IMACLO5
7BC003	DNA Datamining	IMACLO1, IMACLO3, IMACLO4, IMACLO5
7CS001	Modern Computer Science	IMACLO3, IMACLO4, IMACLO5
7FS014	Integrated Masters Project (40 credits)	IMACLO2, IMACLO4, IMACLO5

Teaching, Learning and Assessment:

- Lectures to provide research and practice-based comprehension of the major areas of Biochemistry and Molecular Genetics to an advanced level. Introduction and development of programming and database processing.
- Tutorials initially to ensure thorough understanding of topics, and then to focus on research or case-based issues
- Practicals to develop key molecular laboratory and computational skills.
- Seminars to allow exchange of ideas and knowledge with peers and with tutors.
- Workshops to develop practical skills such as information and data-handling.
- Research project to enhance practical research skills, problem-solving abilities and competencies to analyse, evaluate and present research.

Student Support:

LIS supplied skills support activities and workshops. Tutor support is available formally through timetabled tutorials. Demonstrators are available for individual appointments to assist with generic study skills. Electronic support is available via VLE.

Academic skills are developed through feedback on assessments and through individual appointments available with tutors.

Employability in the Curriculum:

Graduates are in high demand across a range of scientific enterprises, for example, the multitude of genome projects which have generated huge potential for rational drug design, opening various doors to the pharmaceutical industry. There is a continual demand for geneticists in the Health Service, in particular to run genetic counselling and diagnostics services. Molecular methods are also used routinely in forensic science for the detection of crime, as well as in hospital diagnostics laboratories. There is also the opportunity to study for a higher degree, for example Molecular Biology with Bioinformatics or Medical Biotechnology.

The completion of a Sandwich Year will enable you to gain valuable hands on experience in a relevant work environment. This will not only provide additional practical subject skills but it will also develop personal transferable skills such as communication skills, problem solving skills and demonstrate competency in working with other people. This will increase your employability and assist you in gaining employment in the future.

