

MSci Biology / MSci Biology (sandwich)
Programme Specification



1. Programme title	MSci Biology
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Details of accreditation by professional/statutory/regulatory body	
5. Final qualification	MSci Biology, MSci Biology (sandwich)
6. Year of validation	2018
Year of amendment	
7. Language of study	English
8. Mode of study	FT/PT

9. Criteria for admission to the programme

Five GCSEs including English Language, Mathematics (Grade C or above under the A* to G system or grade 4 or above under the new system).

From A Level and/or BTEC Extended Diploma/Extended Certificate at least 112 points which could be made up as follows:

A2 – 112 points including Biology A Level at a minimum of 32 points as well as another science related subject.

BTEC Applied Science: National Extended Diploma from 2016 (DMM) Applied Science QCF from 2010 DMM or D*D*.

IBD (International Baccalaureate Diploma) including at least group 4 and 5 at Higher level – Minimum of 28 points.

HNC/HND Applied Biology (new award since 2010): HNC Students may be eligible to enter year 2 with a Level 5 pass – applicants should contact programme leader.

ACCESS to science course in relevant science subject (biology, chemistry, science pathway) with a minimum of a pass mark. Should include significant amount of biology.

Mature students will be interviewed by the programme leader to discuss suitability for study at level 4.

Entry to year 2 or year 3 of the programme – students are welcome to apply with appropriate prior qualifications. Year 2 is available from 2020-2021 and year 3 from 2021-2022.

Overseas students are required to demonstrate competence in English e.g. TOEFL of 550 or IELTS 6.0.

The programme is open to students with disabilities. Students with disabilities are welcome to contact the programme leader prior to applications to discuss any specific needs.

10. Aims of the programme

The programme aims to:

- provide students with a holistic understanding of biology by introducing them to the various levels of biological organisation (molecules, cells, tissues, organisms and ecosystems) and biochemical processes using highly integrative approaches;
- promote critical awareness of biology, fostering an interest in the ever-changing nature of knowledge, significance of new developments within the field and subsequent impact on society;
- introduce students to the cross disciplinary nature of the biological sciences;
- develop students' competence in scientific methods of enquiry, problem solving, critical thinking and communication;
- provide experience of current techniques and practical skills relevant for biologists;
- enable students to cultivate a life-long approach to learning;
- produce graduates who have appropriate knowledge and skills for employment and/or further study;
- introduce students to current developments and state-of-the-art research in the Biology;
- prepare students with the tools and intellectual skills to carry out postgraduate study in biology.

11. Programme outcomes*

A. Knowledge and understanding

On completion of this programme the successful student will have knowledge and understanding of:

1. Underpinning scientific principles.
2. Biological concepts and scientific principles from molecular to cellular, to whole organism, to ecosystems, biomes and planets.
3. Principles of inheritance, genome structure and function and recombinant DNA technology.
4. The diversity of life, biological interactions and mechanisms driving evolutionary change.
5. Impact and applications of biology to health and society.
6. Environmental impact of biology and sustainability.
7. Ethics and societal responsibilities,
8. Biology topics relevant to postgraduate study.

Teaching/learning methods

Students gain knowledge and understanding through attendance of either online or campus based lectures and active participation in seminars, workshops, laboratory classes or virtual laboratory classes, fieldwork and group discussions. Blended learning is utilised in modules integrating taught, self-directed and e-learning. Critical discussion during practical and dissertation work forms an important vehicle for learning. Participating in assessment will also advance knowledge. For example, formative assessment such as online learning tests, peer evaluation, in-course tests and feedback of sample work will be used to support comprehension.

Assessment methods

Students' knowledge and understanding are assessed by examinations, laboratory/fieldwork reports/journals, essays, case studies, oral and poster presentations, problem-solving analysis and case studies.

B. Skills

On completion of this programme the successful student will be able to:

1. Critically evaluate information collated by fieldwork/experiment, in literature or online sources.

Teaching/learning methods

Students learn cognitive and practical skills through participation in either online or campus based seminars, workshops, group discussions, debates, peer-review of seminar presentations, problem-solving exercises,

<ol style="list-style-type: none"> 2. Use information technology to acquire information and to review and evaluate evidence. 3. Work effectively in the laboratory and field. 4. Effectively communicate through a range of different methods. 5. Work effectively in teams. 6. Analyse data appropriately. 7. Design research projects, collect, analyse, interpret and critically evaluate data. 8. Appreciate ethical problems associated with biology research and applications. 9. Develop as a reflective and independent learner. 10. Operate successfully in a culturally diverse and globally oriented society. 	<p>laboratory classes or virtual laboratory classes and project work for dissertation.</p> <p>Assessment methods</p> <p>Students' cognitive and practical skills are summatively assessed by case studies, examinations, group work, problem-solving and data evaluation exercises, case studies, mini-project proposals, poster presentation, dissertation, field journals, laboratory and field results analysis.</p>
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12. Programme structure (levels, modules, credits and progression requirements)

12.1 Overall structure of the programme

The programme is composed of 480 credits of learning. Each year you will take 120 credits of learning and this will enable you to complete your award as a full-time student in 4 years. Part-time students normally undertake 60-90 credits of learning per year so will complete their study in 6-8 years.

Modules are worth either 30 or 15 credits. A 30 credit module would normally be studied over the whole academic year but 15 credit modules are normally studied over one semester. Some modules may be taught in blocks of learning.

Year 1 is compulsory (see section 12.2). A two-day residential field trip week 4 or 5 is compulsory during year 1.

Year 2 contains 45 credits of compulsory modules (see Section 12.2) and students must take 5 modules, each worth 15 credits, from an optional module list.

Year 3 has a compulsory dissertation and students must take a further 90 credits of optional modules.

Year 4 is comprised of an independent research project of 120 credits.

Not all modules may be available each year.

Students admitted to the MSci Biology will need to have a 2:ii grade profile or better (i.e. at least 50% of the module grades must be 2:ii or higher) in order to remain on this programme by the end of year two. If their grade profile is a third or pass, students will be required to transfer to the BSc at the end of year two. Students must attain at least a 2:ii in their year 3 dissertation module to be able to transfer into year 4.

Students can take a 120 credit placement year between year 2 and year 3 but should have full credits and a minimum of a 2:ii before they take such a year. The placement year will not be offered in 2020.21 due to the ongoing COVID-19 situation.

12.2 Levels and modules		
Level 4		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
Students must take all of the following: BIO1113 Biological Techniques (15 credits) BIO1609 Fundamentals of Biochemistry (30 credits) BIO1635 Biological Systems and Processes (30 credits) BIO1525 Cell Biology (15 credits) BIO1625 Genetics (15 credits)	N/A	Students must pass all modules at level 4 i.e. 120 credits to progress to year 2 in full-time mode. Students with credit deficit may be required to repeat modules or pass outstanding assessment before progressing.
Level 5		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS

<p>Students must take all of the following:</p> <p>BIO2005 Research Methods and Project Planning (30 credits)</p> <p>BIO2566 Phylogenetic Aspects of the Tree of Life (15 credits)</p>	<p>Students must also choose at least 75 credits from the following:</p> <p>BIO2556 Molecular Biology (15 credits)</p> <p>Bio2513 Immunology and Endocrinology (15 credits)</p> <p>BIO2811 Environmental Monitoring (15 credits)</p> <p>BIO2804 Biodiversity and Ecosystems (15 credits)</p> <p>BIO2501 Applied Microbiology (15 credits)</p> <p>BIO2607 Biochemistry (15 credits)</p> <p>BIO2116 Disease, its origins, evolution and diagnosis (15 credits)</p>	<p>Students must pass all modules at level 5 i.e. 120 credits, to progress in full-time mode.</p> <p>Students with credit deficit may be required to repeat modules or pass outstanding assessment before progressing.</p> <p>Students must achieve a pass in BIO2005 before taking the dissertation module.</p> <p>In order to remain on the MSci Biology, students must attain at least 75 credits at a grade of 2.ii and above. Students who have not achieved this will be transferred to the BSc Biology.</p> <p>Students can take the Biology Placement year module between year 2 and year 3 but should have full credits before they take such a year.</p>
<p>Level 6</p>		
<p>COMPULSORY</p>	<p>OPTIONAL</p>	<p>PROGRESSION REQUIREMENTS</p>

Students must take all of the following: BIO3888 Dissertation (30 credits)	Students must also choose at least 90 credits from the following: BIO3799 Work experience (30 credits) not available to students who have taken Biology Placement year). Students should choose at least 15 credits in term 1 – even if they are doing work experience. BIO3311 Biodiversity and Planets (15 credits) BIO3313 Urban environment (15 credits) BIO3301 Evolution (15 credits) BIO3226 Gene Technology (15 credits) BIO3232 Bioinformatics (15 credits) BIO3310 Conservation in a Changing World (15 credits) BIO3403 Sustainable Biotechnology (15 credits) BIO3556 Gene Expression and Control (15 credits) BIO3525 Pathogens and parasites (15 credits)	Students can progress to the MSci Biology stage of the award if they meet the following two conditions: i. They should have attained the equivalent of a 2.ii award across level 5 and 6 and ii. They should have attained a minimum of a 2.ii grade in BIO3888 Dissertation. Students who cannot progress to the MSci Biology will exit with an award in BSc Biology, providing they have attained 360 credits with 120 credits at each of levels 5 and 6.
LEVEL 7		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
Students must take BIO4799 Research Project (120 credits).		Students who successfully attain 480 credits with 120 at each of Level 4, 5, 6, and 7 will be awarded the MSci Biology. Students who do not pass at level 7 will be awarded a BSc Biology.

12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels)

Module level	Module code
Level 4	BIO1113, BIO1635

Level 5	BIO2005, BIO2566
Level 6	BIO3888, BIO3799
Level 7	BIO4799

13. Curriculum map

See attached.

14. Information about assessment regulations

The regulations for assessment are common to the University.

Each module has one or more pieces of assessment. A minimum of 40% is required on each piece of assessment to pass. Within modules, where there is more than one component to a module assessment, and all pieces of work are at pass grade, the marks are aggregated, and a grade given using the Middlesex University 20 point scale.

There are opportunities for re-assessment in failed components of work and specific details are given in the module handbooks. At levels 5 and 6, where a student has failed a piece of work, the mark for the resubmitted work is capped at 40%.

Students must adhere to module assessment deadlines. Where a student cannot meet the deadline for extenuating reasons (for example illness, accidents, bereavement, family problems), an extension can be formally requested. Failure to participate in assessment without permission will result in a fail grade for the piece of assessment.

Students are expected to attend all timetabled teaching sessions and field trips. If they fail to meet the attendance requirements to meet the learning outcomes of the module, they may be excluded from the assessment and be graded X (ineligible for assessment due to unsatisfactory attendance/participation). Students may retake the module without grade penalty if they obtain permission from the Director of Programmes and pay the module registration fee.

In some modules, especially those with seminars and laboratories, participation in the sessions is essential in order to achieve the module learning outcomes. Students who do not attend sufficiently may not be able to submit the relevant assessment for the module.

Where a practical session is not attended, students cannot submit a laboratory report applicable to this session. A register of all laboratory sessions will be kept.

Students will find specific information about attendance in each module handbook.

15. Placement opportunities, requirements and support

There are two opportunities to gain relevant work experience, a one year long placement of 120 credits normally taken between year 2 and year 3; and a 30 credit work experience module. Both provide excellent opportunities to gain employability skills, transferable skills and experience of working in science. These opportunities may be in an industrial, field or hospital-based environment for example. The work experience and/or placement module are available to students who have full credit from year 1 and 2 of study.

The 30 credit work experience module is taken either as a day release in year 3 or as a block during the summer months between years 2 and 3. Students can seek advice and support from the Employability Office to help secure work experience – they also support students whilst with their organisation. The module enables work of about 80 hours in a relevant organisation.

The programme can be taken as a Thick Sandwich with a one year 120 credit placement.

Students will be supported in finding a placement through the University Employability office. There are no University fees for the placement year. Students will be visited in their placement at least twice and supported by an in-placement mentor, the placement office and a member of the programme team. Both mentor and student will have a guide handbook to explain the requirements and students will keep an ongoing reflective diary of their experiences and also produce a critical appraisal of the organisation they work in.

16. Future careers (if applicable)

The Biological Sciences are very broad. This is reflected in the career options for Middlesex University Biology graduates, which are very diverse and to a large extent depend on the specialisation route taken by the student over the course of the programme. Possible public and private sector careers are, for example, found in the biotech and pharmaceutical industry, academic research institutes, (ecological/environmental) consultancies and non-government organisations. In addition, many graduates go on to work in the education sector or find a job in the growing field of communicating and popularizing science.

The MSci Biology programme will specifically train students to become confident researchers and will prepare them for further postgraduate study (PhD), often required for an independent career in scientific research.

17. Particular support for learning (if applicable)

The University has a number of points of support for students. Academic support is provided by the Learning Enhancement Team who advise students on literacy, English language, numeracy and exam technique for example. The Disability Support Service offers support to students with needs during their time at Middlesex.

There is an on-line learning platform to provide module and programme support.

Departmental Graduate Teaching Assistants support students with their coursework and subject understanding in small group tutorials or on a 1:1 basis. Student Learning Assistants provide peer-learning support and can assist students with their work in class, as well as through 1:1 or small group discussion.

All students will have a named academic adviser who will provide programme support throughout their programme.

18. JACS code (or other relevant coding system)

C100

19. Relevant QAA subject benchmark group(s)

Biosciences (2015)

20. Reference points

- Middlesex University Regulations 2019.20
- Middlesex University Learning, Quality and Enhancement Handbook, 2019.20
- QAA for Higher Education, Subject Benchmarks, Biosciences, 2015.
- Middlesex University (2006) The Learning Framework, London, MU.
- Society of Applied Biology (2012) Guidelines for Biology courses.

21. Other information

Students are provided with the following free of charge:

- A free electronic core textbook for every module.
- Printing and photocopying required for study.
- Self-service laptops available for 24 hour loan.
- Laboratory coats for all practical work.
- Laboratory support for dissertation and materials for experimental work related to dissertation.

The following course-related costs are not included in the fees:

- Travel for local field trips although the cost of these are not likely to exceed normal local travel costs to campus.
- Food costs for compulsory residential field trips - cost of providing breakfast, lunch and evening meal in self-catering facilities. Due to the ongoing COVID-19 pandemic, we may not be able to offer residential field trips this academic year.
- Students who select the optional field trip to Mauritius will have to pay an additional £450 plus self-catering and vaccination costs. These costs are for 2018-2019 but may increase each year. Due to the ongoing COVID-19 pandemic, this residential field trip may not be offered this year.

Please note programme specifications provide a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if s/he takes full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the rest of your programme handbook and the university regulations.

Curriculum map for MSci Biology programme

Programme learning outcomes

Knowledge and understanding	
A1	Underpinning scientific principles.
A2	Biological concepts and scientific principles from molecular to cellular, to whole organism, to ecosystems, biomes and planets.
A3	Principles of inheritance, genome structure and function and recombinant DNA technology.
A4	The diversity of life, biological interactions and the mechanisms driving evolutionary change.
A5	Impact and applications of biology on health and society.
A6	Environmental impact of biology and sustainability.
A7	Ethics and societal responsibilities.
A8	Biology topics relevant to postgraduate study.
Skills	
B1	Critically evaluate information collated by fieldwork/experiment, in literature or online sources.
B2	Use information technology to acquire information and to review and evaluate evidence.
B3	Work effectively in the laboratory and field.
B4	Effectively communicate through a range of different methods.
B5	Work effectively in teams.
B6	Analyse data by carrying out appropriate numerical calculations.
B7	Design research projects, collect, analyse, interpret and critically evaluate data.
B8	Appreciate ethical problems associated with biology research and applications.
B9	Develop as a reflective and independent learner engaging in effective learning.
B10	Operate successfully in a culturally diverse and globally oriented society.

Programme outcomes																	
A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Highest level achieved by all graduates																	
6	6	6	6	6	6	6	7	7	7	7	6	7	6	7	7	7	7

Module Title	Module Code																			
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	
Biological Techniques	BIO1113									X	X	X	X	X	X				X	
Cell Biology	BIO1525	X	X							X		X		X						
Fundamentals of Biochemistry	BIO1609	X								X		X			X					
Genetics	BIO1625	X	X	X	X					X		X	X	X	X					
Biological Systems and Processes	BIO1635	X	X		X					X		X		X						
Research Methods and Project Planning	BIO2005	X						X		X	X				X	X	X	X	X	
Disease, its Origins, Evolution and Diagnosis	BIO2116			X	X	X				X			X							
Immunology and Endocrinology	BIO2413		X		X	X				X		X			X					
Applied Microbiology	BIO2501		X		X	X				X		X			X					
Molecular Biology	BIO2556	X	X	X						X	X	X			X					
Phylogenetic Aspects of the Tree of Life	BIO2566	X	X		X					X	X				X					
Biochemistry	BIO2607	X								X		X			X					
Biodiversity and Ecosystems	BIO2804			X	X		X	X		X		X	X	X	X	X	X		X	
Environmental Monitoring	BIO2811					X	X			X	X	X	X		X	X				
Urban Environment	BIO3113					X	X				X	X			X		X			
Gene Technology	BIO3226		X	X		X	X	X				X	X		X		X			
Bioinformatics	BIO3232			X						X	X		X		X					
Evolution	BIO3301	X	X		X															
Conservation in a Changing World	BIO3310					X	X	X		X	X		X	X			X		X	
Biodiversity and Planets	BIO3311	X	X		X					X										
Sustainable Biotechnology	BIO3403					X	X	X							X		X			
Pathogens and Parasites	BIO3525		X		X	X						X	X		X					
Gene Expression and Control	BIO3556		X	X							X	X			X	X				
Work experience	BIO3799							X					X	X		X				
Dissertation	BIO3888							X		X	X		X		X	X	X			
Biology Placement	BIO3999							X					X	X		X		X	X	
Research project	BIO4799							X	X	X	X		X		X	X	X	X	X	