

BSc Biological Sciences, BSc Biological Sciences with foundation year

Programme Specification

1.	Programme title	BSc (Hons) Biological Sciences, BSc (Hons) Biological Sciences with foundation year
2.	Awarding institution	Middlesex University
3a	Teaching institution	Middlesex University (Hendon campus)
3b	Language of study	English
4a	Valid intake dates	September
4b	Mode of study	FT/PT/TKSW
4c	Delivery method	<input checked="" type="checkbox"/> On-campus/Blended <input type="checkbox"/> Distance Education
5.	Professional/Statutory/Regulatory body	Not applicable
6.	Apprenticeship Standard	Not applicable
7.	Final qualification(s) available	BSc (Hons) Biological Sciences BSc (Hons) Biological Sciences with FY BSc (Hons) Biological Sciences (Molecular Biology) BSc (Hons) Biological Sciences (Molecular Biology) with FY BSc (Hons) Biological Sciences (Environmental Biology) BSc (Hons) Biological Sciences (Environmental Biology) with FY BSc Biological Sciences CertHE Biological Sciences DipHE Biological Sciences Diploma in Industrial Studies Diploma in Employability Studies
8.	Academic year effective from	2024-2025

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 tariff 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 2024-2025 and year 3 from 2025-2026.

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

Please refer to the programme specification for the Foundation Year for criteria for admission to the [BSc Biological Sciences with Foundation Year](#) programme.

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 biological organisation (molecules, cells, tissues, organisms and ecosystems) and biochemical processes using highly integrative approaches;
- promote critical awareness of biological processes, 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 hands-on experience of state-of-the-art equipment and laboratories for developing practical skills relevant to biosciences and appropriate employment
- enable students to cultivate a life-long approach to learning;
- produce graduates able to carry out research within an ethical framework; and
- prepare students for work at postgraduate level and/or for employment in relevant fields.

11. Programme outcomes*

A. Knowledge and understanding

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

1. Key scientific principles of biology and biochemistry.
2. Bioscience concepts and processes, from molecular to cellular, to whole organism, to ecosystems and biomes.
3. The diversity of life, biological interactions and the mechanisms driving evolutionary change.
4. Biochemical concepts including metabolism, molecular biology, immunology, bioinformatics and biochemistry in human health and disease.
5. Impact and applications of biosciences on (human) health, society and industry.
6. Biological techniques and their applications in research and technology.
7. Environmental impact, ethical responsibilities and local and global sustainability goals in relation to the biosciences and wider society

Teaching/learning methods

Students gain knowledge and understanding through attendance and participation in seminars, workshops, laboratory classes, online learning activities, excursions and group work. Blended learning is utilised in modules integrating taught, self-directed and e-learning. Critical discussion during practical and seminar work forms an important vehicle for learning. Participating in different formats of formative assessment such as online learning exercises, peer evaluation, in-class worksheets and group activities and feedback of sample work will also advance knowledge. Short videos will introduce students to underpinning knowledge and threshold concepts.

Assessment methods

Students' knowledge and understanding are assessed by viva voces, 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 laboratory experiments, from literature, informatics methods or online sources and apply information technology to review and evaluate evidence. (1, 4, 8)
2. Work effectively in the laboratory and the field, apply good laboratory practice and competently operate equipment. (2, 4, 8)
3. Effectively communicate through a range of methods. (6)
4. Design research projects; collect, analyse, present, interpret and critically evaluate data. (1, 2, 5, 7)
5. Recognise and consider ethical problems associated with bioscience research and applications. (6)
6. Develop as a reflective and independent learner to work effectively individually and in interdisciplinary teams. (1, 3)
7. Operate successfully in a culturally diverse and globally oriented society. (3, 5, 7)

Teaching/learning methods

Students learn skills through participation in seminars, workshops, group discussions, peer review of oral presentations and written documents, problem solving exercises and engaging in assessment activities. Students learn practical skills through participation in laboratory classes, virtual labs and video demonstrations and project work for the dissertation. Graduate skills are taught and embedded throughout the programme. Students are introduced to skills in BIO1120 Skills for Scientists and these skills are utilised and developed within modules at each level. Students learn graduate skills through participation in the programme, group work, practical exercises and engagement with e-learning. Emphasis is placed on ICT and numeracy skills in particular. Career tutorials and employability workshops will support students to enhance their personal and career development.

Assessment methods

Students' skills are assessed by problem solving exercises and case studies, laboratory reports and portfolios, proposals and a dissertation. Practical skills are assessed by presentation and laboratory practical exams.

The above learning, teaching and assessment will be designed to develop and assess these graduate competencies:

1. Curiosity and learning,
2. collaborative innovation,
3. resilience and adaptability,
4. technological agility,
5. entrepreneurship,
6. communication, empathy, and inclusion,
7. leadership and influence,
8. problem solving and delivery.

12. Programme structure (levels, modules, credits and progression requirements)

12.1 Structure of the programme

Please refer to the programme specification for the Foundation Year for the modules to be taken during the foundation year of the [BSc Biological Sciences with Foundation Year](#) programme.

The Honours programme is composed of 360 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 3 years. Part-time students normally undertake 60-90 credits of learning per year so will complete their study in 4-6 years.

The learning units are comprised of 30 credit modules. In the first year full-time students will undertake a core programme of study of 120 credits. In subsequent years they will have some core and some optional modules. Each module will be studied in one semester of 12 learning weeks, including assessment. Full-time students will be studying two modules in the Autumn/Winter semester and two modules in the Winter/Spring semester.

Students may specialise in year 2 and 3 and choose to study BSc Biological Sciences or BSc Biological Sciences with a specialist pathway of either Environmental Biology or Molecular Biology. Students will choose their exit award by selecting modules belonging to that title and will do a specialist dissertation to reflect their field. Briefing about module selection for titled awards will begin towards the end of year 1 so students can make appropriate module selections going forward. Students will remain on the entry award title until the final awards board but will be exited at awards board with the generic or specialist title depending on modules taken.

BSc Biological Sciences

- Year 1 is comprised of 120 credits of core modules (see section 12.2). Depending on travel conditions we offer field days and residential field trips.
- Year 2 contains 90 credits of compulsory modules (see Section 12.2) and students must take 1 module worth 30 credits, from an optional module list.
- Year 3 has a compulsory dissertation (30 credits) and informatics module (30 credits). Students must take a further 60 credits of optional modules.
- Not all modules may be available each year.
- Students can take a 120-credit placement year between year 2 and year 3 but should have full credits before they take such a year.

For students who wish to exit with the specialist award BSc Biological Sciences (Molecular Biology)

- Year 1 is comprised of 120 credits of core modules (see section 12.2). Depending on travel conditions we offer field days and residential field trips.
- Year 2 contains 90 credits of compulsory modules (see Section 12.2) and students must take the Applied Microbiology and Immunology module worth 30 credits.

- Year 3 has a compulsory dissertation (30 credits), informatics (30 credits) and biotechnology (30 credits) module. Students must take a further 30 credit optional module.
- Not all modules may be available each year.
- Students can take a 120-credit placement year between year 2 and year 3 but should have full credits before they take such a year.

For students who wish to exit with the specialist award BSc Biological Sciences (Environmental Biology)

- Year 1 is comprised of 120 credits of core modules (see section 12.2). Depending on travel conditions we offer field days and residential field trips. These trips are compulsory.
- Year 2 contains 90 credits of compulsory modules (see Section 12.2) and students must take Environmental Protection worth 30 credits.
- Year 3 has a compulsory dissertation (30 credits), informatics (30 credits) and Conservation, restoration and reconciliation (30 credits) module. Students must take a further 30 credit optional module.
- Not all modules may be available each year.
- Students can take a 120 credit placement year between year 2 and year 3 but should have full credits before they take such a year.

Full time mode:

BSc Biological Sciences – Year 1

- Semester 1 – Fundamentals of Biochemistry BIO1609 (30 credits), Skills for Scientists BIO1120 (30 credits)
- Semester 2 – Cell Sciences and Genetics BIO1557 (30 credits), Form and Function BIO1640 (30 credits)

BSc Biological Sciences, BSc Biological Sciences (Molecular biology), BSc Biological Sciences (Environmental Biology) - Year 2

- Semester 1 – Biodiversity and the Tree of Life BIO2106 (30 credits), Molecular Biology and Gene Control BIO2557 (30 credits)
- Semester 2 – Research Methods and Science Innovation CHE2105 (30 credits), Environmental Protection BIO2050 (30 credits) [Core for Environmental Biology specialisation; optional], Applied Microbiology and Immunology BIO2632 (30 credits) [Core for Molecular Biology specialisation; optional]
- Sandwich Year in Industry or Research BIO3003 (120 credits) [optional]

BSc Biological Sciences, BSc Biological Sciences (Molecular biology), BSc Biological Sciences (Environmental Biology) - Year 3

- Semester 1 – Work Experience BIO3799 (30 credits) [optional], Biotechnology BIO3215 (30 credits) [Core for Molecular Biology specialisation; optional], Conservation, restoration and reconciliation BIO3804 (30 credits) [Core for Environmental Biology specialisation; optional], Clinical Nutrition BMS3446 (30 credits) [optional]
- Semester 2 – Dissertation BIO3888 (30 credits), Informatics for Bioscientists BIO3111 (30 credits)

Example part time mode:

BSc Biological Sciences - Year 1

- Semester 1 – Skills for Scientists BIO1120 (30 credits)
- Semester 2 – Cell Sciences and Genetics BIO1557 (30 credits)

BSc Biological Sciences, BSc Biological Sciences (Molecular biology), BSc Biological Sciences (Environmental Biology) - Year 2

- Semester 1 – Fundamentals of Biochemistry BIO1120 (30 credits)
- Semester 2 - Form and Function BIO1640 (30 credits)

BSc Biological Sciences, BSc Biological Sciences (Molecular biology), BSc Biological Sciences (Environmental Biology) - Year 3

- Semester 1 – Biodiversity and the Tree of Life BIO2106 (30 credits)
- Semester 2 – Research Methods and Science Innovation CHE2105 (30 credits)

BSc Biological Sciences, BSc Biological Sciences (Molecular biology), BSc Biological Sciences (Environmental Biology) - Year 4

- Semester 1 – Molecular Biology and Gene Control BIO2557 (30 credits)
- Semester 2 – Environmental Protection BIO2050 (30 credits) [Core for Environmental Biology specialisation; optional], Applied Microbiology and Immunology BIO2632 (30 credits) [Core for Molecular Biology specialisation; optional]
- Sandwich Year in Industry or Research BIO3003 (120 credits) [optional]

BSc Biological Sciences, BSc Biological Sciences (Molecular biology), BSc Biological Sciences (Environmental Biology) - Year 5

- Semester 1 – Work Experience BIO3799 (30 credits) [optional]
- Semester 2 – Informatics for Bioscientists BIO3111 (30 credits)

BSc Biological Sciences, BSc Biological Sciences (Molecular biology), BSc Biological Sciences (Environmental Biology) – Year 6

- Semester 1 – Biotechnology BIO3215 (30 credits) [optional], Conservation, restoration and reconciliation BIO3804 (30 credits) [Core for Environmental Biology specialisation; optional], Clinical Nutrition BMS3446 (30 credits) [optional]
- Semester 2 – Dissertation BIO3888 (30 credits)

12.2 Levels and modules

Level 4

Compulsory:

- Students must take all of the following: BIO1609 (30 credits) Fundamentals of Biochemistry, BIO1557 (30 credits) Cell Biology and Genetics, BIO1120 (30 credits) Skills for Scientists, FIO1640 (30 credits) Form and Function

Optional: NA

Progression Requirements:

- Successful students who have passed 120 credits can progress to level 5
- Students with credit deficit may be able to progress trailing some credits or may be required to repeat modules or pass outstanding assessment before they can progress, depending on the number of credits and module(s) concerned

Level 5

Compulsory:

- Students must take all of the following: CHE2105 (30 credits) Research Methods and Science Innovation, BIO2557 (30 credits) Molecular Biology and Gene Control, BIO2106 (30 credits) Biodiversity and the Tree of Life

Optional:

- Students must also choose from the following modules for a total of 120 level 5 credits: BIO2050 (30 credits) Environmental Protection, BIO2632 (30 credits) Applied Microbiology and Immunology
- Students wanting to study towards the Molecular Biology specialisation must choose BIO2632
- Students wanting to study towards the Environmental Biology specialisation must choose BIO2050

Progression requirements:

- Successful students who have passed 120 credits can progress to level 6
- Students with credit deficit may be able to progress trailing some credits or may be required to repeat modules or pass outstanding assessment before they can progress, depending on the number of credits and module(s) concerned
- To graduate with a named specialisation in Molecular Biology, students need to pass BIO2557 and BIO2632
- To graduate with a named specialisation in Environmental Biology, students need to pass BIO2106 and BIO2050
- Students can take the Sandwich Year in Industry or Research module (BIO3003) between year 2 and year 3, but should have a minimum of 120 credits awarded at 50% or above before they take such a year

Level 6

Compulsory:

- Students must take all of the following: BIO3888 (30 credits) Dissertation, BIO3111 (30 credits) Informatics for Bioscientists
- Depending on specialisation they also need to take the following:
 1. BSc Biological Sciences (Environmental Biology) - BIO3804 (30 credits) Conservation, restoration and reconciliation
 2. BSc Biological Sciences (Molecular Biology) - BIO3215 (30 credits) Biotechnology

Optional:

- Students must also choose from the following modules for a total of 120 level 6 credits: BIO3799 (30 credits) Work Experience, BMS3446 (30 credits) Clinical Nutrition

Progression requirements:

- In order to be awarded BSc Hons in Biology students must pass 120 credits at level 6 and 360 in total
- To graduate with a named specialisation, students need to do their dissertation within the specialist field. The topic of the dissertation needs to be ratified by the Programme Leader

*Please refer to your programme page on the website re availability of option modules

12.3 Non-compensatable modules

BSc Biological Sciences

- Level 4 – None
- Level 5 – None
- Level 6 – BIO3888

BSc Biological Sciences (Molecular Biology)

- Level 4 – None
- Level 5 – BIO2557, BIO2632
- Level 6 – BIO3888, BIO3215

BSc Biological Sciences (Environmental Biology)

- Level 4 – None
- Level 5 – BIO2050, BIO2106
- Level 6 – BIO3888, BIO3804

13. Information about assessment regulations

This programme will run in line with general University Regulations.

https://www.mdx.ac.uk/data/assets/pdf_file/0034/759256/FINAL-Regulations-2023-24.pdf

14. Placement opportunities, requirements and support (if applicable)

There are two opportunities to gain relevant work experience, a one year long placement of 120 credits (Sandwich year) 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 Support team to help secure work experience – they also support students whilst with their organisation. The module enables work of about 120-150 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.

Students who successfully complete the Sandwich Year will be provided with a Diploma in Industrial Studies or Diploma in Employability Studies depending on the nature of the placement.

15. Future careers / progression

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. Some students may choose to take their studies even further and to progress to postgraduate study.

16. Particular support for learning

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 Academic 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 personal tutor who will provide programme support throughout their programme.

17. HECos code(s)

100346

18. Relevant QAA subject benchmark(s)

Biosciences (2023)

19. Reference points

- Middlesex University Regulations 2023/24
- Middlesex University Learning, Quality and Enhancement Handbook
- QAA for Higher Education, Subject Benchmark Statement Biosciences, 2023
- RSB Accreditation Handbook (2019)

20. 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. Students who select the optional field trip to Lundy will have to pay an additional fee. This is estimated to be around £500 (includes boarding and catering). These costs may increase each 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.

21. Curriculum map for BSc Biological Sciences, BSc Biological Sciences (Molecular Biology), BSc Biological Sciences (Environmental Biology)

This section shows the highest level at which programme outcomes are to be achieved by all graduates, and maps programme learning outcomes against the modules in which they are assessed.

Programme learning outcomes

Knowledge and understanding	
A1	Underpinning scientific principles from the fields of biology and biochemistry.
A2	Bioscience concepts and processes, from molecular to cellular, to whole organism, to ecosystems and biomes.
A3	The diversity of life, biological interactions and the mechanisms driving evolutionary change
A4	Biochemical concepts including metabolism, molecular biology, immunology, bioinformatics and biochemistry in human health and disease.
A5	Impact and applications of biosciences on (human) health, society and industry.
A6	Biological techniques and their applications in research and technology.
A7	Environmental impact, ethical responsibilities and local and global sustainability goals in relation to the biosciences and wider society
Skills	
B1	Critically evaluate information collated by laboratory experiments, from literature, informatics methods or online sources and apply information technology to review and evaluate evidence.
B2	Work effectively in the laboratory, apply good laboratory practice and competently operate equipment.
B3	Effectively communicate through a range of methods.
B4	Design research projects; collect, analyse, present, interpret and critically evaluate data.
B5	Appreciate ethical problems associated with biochemistry research and applications.
B6	Develop as a reflective and independent learner to work effectively as an individual and in interdisciplinary teams.
B7	Operate successfully in a culturally diverse and globally oriented society.

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

Module Title	Module Code by Level	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	B6	B7
Professional Skills	BIO1119								x		x			x	x
Cell Sciences and Genetics	BIO1557	x	x						x		x				
Fundamentals of Biochemistry	BIO1609	x	x		x				x	x				x	
Form and Function	BIO1640	x	x							x				x	
Biodiversity and Tree of Life	BIO2106	x	x	x	x				x		x	x	x		
Environmental Protection	BIO2050				x	x	x		x	x	x				
Molecular Biology and Gene Control	BIO2557			x	x				x	x					
Applied Microbiology and Immunology	BIO2632		x		x	x		x	x						
Research Methods and Science Innovation	CHE2105	x						x	x		x	x	x	x	
Sandwich Year in Industry or Research	BIO3003					x		x		x				x	x
Informatics for Bioscientists	BIO3111	x	x	x	x				x			x		x	
Biotechnology	BIO3215		x			x	x	x		x			x	x	
Conservation, restoration and recon	BIO3804	x	x	x		x	x	x							
Work Experience	BIO3799							x			x			x	x
Dissertation	BIO3888	x						x	x	x	x	x	x	x	x
Clinical Nutrition	BMS3446				x	x				x		x			x