

BSc Environmental Science

Programme Specification



1. Programme title	Environmental Science Environmental Science (Sandwich) Environmental Science with Foundation Year Environmental Science (Sandwich) with Foundation Year
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Details of accreditation by professional/statutory/regulatory body	Institution of Environmental Sciences
5. Final qualification	BSc (Honours) Environmental Science BSc (Honours) Environmental Science (Sandwich) BSc (Honours) Environmental Science with Foundation Year BSc (Honours) Environmental Science (Sandwich) with Foundation Year
6. Year of validation	2018
Year of amendment	
7. Language of study	English
8. Mode of study	F/T or P/T

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) and one of the following:

- A Levels and/or BTEC Extended Diploma/Extended Certificate at least 112 points, including two science subjects from: geography, biology, chemistry, physics, mathematics, psychology, geology, environmental studies.
- BTEC Applied Science: National Extended Diploma from 2016 (DMM), Applied Science QCF from 2010 DMM or D*D*. Not including Health and Social Care.

- International Baccalaureate Diploma (IBD) at least group 4 and 5 at Higher level – Minimum of 28 points.
- Mature students will be interviewed by the programme leader to discuss suitability for study at level 4.
- Access to Science courses in relevant science subjects with a minimum of a pass mark.

Entry to year 2 or year 3 of the programme – students are welcome to apply with appropriate prior qualifications. Year 2 available from 2020-21 and year 3 from 2021-22

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 who have a disability 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 thorough and in-depth specialist knowledge and technical skills to become a proficient environmental science professional that responds to academic, professional and employment needs.
- facilitate students to develop critical awareness and understanding of the interactions of the environment and society; on human impacts on the environments and its biota; the risks presented by a changing environment; the role of institutions, organisations and other stakeholders in managing and regulating the human impact on the environment; and approaches to manage natural resources and environmental impacts caused by anthropogenic activities. develop students' competence in scientific methods of enquiry, problem solving and communication, in particular, the ability to monitor, model and manage natural and human-induced environmental changes and behavior.
- equip students to undertake independent research in area of environmental science.
- enhance students' employability in environmental science by participating in work experience in a professional setting.
- provide an intellectual challenge to develop skills and personal qualities to promote self confidence in their study.
- encourage autonomous learning skills and a commitment to life-long learning.

11. Programme outcomes*

A. Knowledge and understanding

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

Teaching/learning methods

Students gain knowledge and understanding through attendance and active participation in lectures, seminars, computer workshops, laboratories

<ul style="list-style-type: none"> • Earth's systems and the environmental processes that shaped the natural world from temporal and spatial scales • human impacts on the environments and its biota • scientific tools for environmental assessment. • approaches to manage natural resources and environmental impacts caused by anthropogenic activities. • core concept of sustainability and the use of sustainable approach to manage the environment • key methods for remediation of environmental impacts available to society. • ethical, political and economic factors in safeguarding the environment • the role and contribution of an environmental professional to influence behaviour and delivering positive change to environmental performance • current policies and institutions and legislation from local to the global scale that influence and respond to changing environmental agendas 	<p>sessions, field trips, excursions, group discussions, independent studies and research. There are a variety of directed and self-directed learning activities e.g. group projects, journal clubs, case study analysis, student presentations throughout the programme.</p> <p>Electronic resources will be used to enhance student learning experiences. Students will be directed to explore a diverse range of learning materials such as e-journals, e-books and useful web links.</p> <p>Assessment methods</p> <p>Students' knowledge and understanding is assessed through a combination of formative and summative methods.</p> <p>A variety of summative assessments are employed to evaluate students' performance. For example: coursework in the form of essays, laboratory/fieldwork reports/journals, unseen examinations, problem-solving exercises, projects, dissertation, case study analysis, student presentations and video diaries.</p>
<p>B. Skills</p> <p>On completion of this programme the successful student will be able to:</p> <ol style="list-style-type: none"> 1. apply knowledge and understanding of theories, paradigms, concepts and principle that are pertinent to environmental science subject area 2. plan, conduct and report field and laboratory investigation work competently, including the use of secondary data 3. analyse, synthesise, summarise and critically evaluate data and information, using appropriate qualitative and quantitative techniques and tools, such as geographic information systems 4. define complex environmental problems and challenges, devise possible solutions and critique complex decision making 	<p>Teaching/learning methods</p> <p>Students learn cognitive skills through case study analysis, seminars, essays, problem-solving worksheets, laboratory work - practical and theoretical, field work, projects - group and mini projects, workshops and journal clubs. Electronic resources will also supplement teaching and learning. Students will be directed to explore a diverse range of learning materials such as e-journals, e-books and webinars.</p> <p>Students learn practical skills through participation in laboratory and field work, and IT workshops/seminars.</p> <p>Students acquire graduate skills through participation in group work, practical work, seminars, presentations, data analysis exercises, problem-solving worksheets,</p>

<ol style="list-style-type: none"> 5. implement sustainable measures to bring about changes and practical solutions to real world cases 6. carry out appropriate risk assessment and health and safety checks 7. work effectively individually and/or as part of a team 8. communicate effectively to a variety of audiences in written, verbal, visual forms of presentation in different platforms, including internet and the social media 9. demonstrate professional practice, including consideration of ethical, societal and financial issues 10. operate successfully in a culturally diverse and globally oriented society 11. identify and work towards targets for personal, academic and career development 12. develop as a reflective and independent learner engaging in effective learning. 	<p>student led journal clubs, self-directed learning materials and the work experience module.</p> <p>Assessment methods</p> <p>Students' cognitive skills are assessed by</p> <p>Students' cognitive skills are assessed by a combination of formative and summative assignments. The electronic learning platform, Moodle, on UniHub delivers year-long self-tests to monitor progress and the programme also uses essays, laboratory reports, problem-solving assignments, case studies, examination, presentations, group and individual projects; critical review of an environmental management project as forms of assessments.</p> <p>Students' practical skills are assessed by laboratory log book, laboratory report writing, project reports, and dissertation module.</p> <p>Students' graduate skills are assessed by essays, presentations, reports, group project, data analysis assessments, time management exercise and portfolio.</p>
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12. Programme structure (levels, modules, credits and progression requirements)

12. 1 Overall structure of the programme

The total credit points required for each award are as follows:

- BSc (Honours) Environmental Science – 360 credits
- BSc (Honours) Environmental Science (Sandwich) – 480 credits
- BSc (Honours) Environmental Science with Foundation Year – 480 credits
- BSc (Honours) Environmental Science (Sandwich) with Foundation Year – 600 credits

Full-time student will take 120 credits of learning per year and part-time students normally undertake 60-90 credits of learning. 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.
- Year 2 contains 90 credits of compulsory modules and students must take 15 credits from Term 1 and 15 credits from Term 2 or a 30-credit year-long module from an optional module list.
- Year 3 includes 90 credits of compulsory module and students must take a further 30 credits of optional modules.
- 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.

Students on the programme with Foundation Year will take a total of 120 credits at level 3 and must pass all modules to progress to Level 4.

Please note that not all optional modules are available all the time.

12.2 Levels and modules

Level 4

COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
<p>Students must take all of the following:</p> <ul style="list-style-type: none"> • BIO1115 (30 credits) Integrated Scientific Skills • BIO1608 (30 credits) Fundamentals of Chemistry • BIO1701 (30 credits) Social Perspectives of Environmental Science • BIO1525 (15 credits) Cell Biology • BIO1700 (15 credits) Principles of Environmental Science 	N/A	<p>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.</p>

Level 5		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
<p>Students must take all of the following:</p> <ul style="list-style-type: none"> • BIO2005 (30 credits) Research Methods and Project Planning • BIO2516 (15 credits) Techniques for Environmental Analysis • BIO2515 (15 credits) Pollution Prevention and Control • BIO2712 (15 credits) Sustainable Decision Making • PRS2517 (15 credits) Environmental Impact Assessment 	<p>Students must also choose 30 credits optional modules (e.g. 15 credits from Term 1 and 15 credits from Term 2 or a 30-credit year-long module):</p> <ul style="list-style-type: none"> • BIO2501 (15 credits) Applied Microbiology • BIO2804 (15 credits) Biodiversity and Ecosystems • BIO2811 (15 credits) Environmental Monitoring • BIO2636 (15 credits) Health and Society • PRS2525 (30 credits) Sustainable Built Environmental Assessment 	<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>Students can take the Placement year module between year 2 and year 3 but should have full credits and a minimum of a 2:ii before they take such a year.</p>

Level 6		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
<p>Students must take all of the following:</p> <ul style="list-style-type: none"> • BIO3888 (30 credits) Dissertation • BIO3799 (30 credits) Work experience • BIO3518 (15 credits) Ecosystems Management • BIO3403 (15 credits) Sustainable Biotechnology 	<p>Students must also choose 30 credits from the following:</p> <ul style="list-style-type: none"> • BIO3113 (15 credits) Urban Environment • BIO3311 (15 credits) Biodiversity and Planets • BIO3519 (15 credits) Environmental Management Tools and Modelling • BIO3635 (15 credits) Introduction to Global Health • BIO3301 (15 credits) Evolution 	<p>Students who have gained a total of 360 credits with 120 credits at level 6 will be In awarded BSc Hons in Environmental Science Hons degree.</p>

12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels)	
Module level	Module code
4	BIO1700
5	BIO2005, BIO2516, PRS2517
6	BIO3518, BIO3799, BIO3888

<p>13. Curriculum map</p> <p>See attached.</p>

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 learning for the module. 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 will be supported by both module leader and the university's Employability Service to help secure work experience. 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)

This programme equip students with thorough and in-depth specialist knowledge and technical skills to become a proficient environmental professional. Successful graduates are well-qualified and may progress to postgraduate study in a related discipline, graduate training programme or to a research degree.

Graduates could also be employed in public and private sectors, for example, found in environmental and sustainability consultancies, environmental industries, non-government organisations (NGOs), education officer, pollution officer or find a job in the growing field of communicating and popularizing science.

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) F750

19. Relevant QAA subject benchmark group(s) Earth Sciences, Environmental Sciences and Environmental Study (2014)

20. Reference points

- Middlesex University Regulations 2017-2018.
- Middlesex University Learning, Quality and Enhancement Handbook, 2017-2018.
- QAA for Higher Education, Subject Benchmarks, Earth Sciences, Environmental Sciences and Environmental Study, 2014.
- Middlesex University (2006) The Learning Framework, London, MU.
- Institution of Environmental Sciences.

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.
- 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.

Dissertation choice:

Please be aware that the options you chose to study may affect your choice of topic for you final dissertation.

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 BSc (Hons) Environmental Science

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	Earth's systems and environmental processes that shaped the natural world from temporal and spatial scales
A2	human impacts on the environments and its biota
A3	scientific techniques in monitoring, interpreting and analyse environmental data
A4	approaches to manage natural resources and environmental impacts caused by anthropogenic activities
A5	core concept of sustainability and the use of sustainable approach to manage the environment
A6	key methods for remediation of environmental impacts available to society
A7	ethical, political and economic factors in safeguarding the environment
A8	the role and contribution of an environmental professional to influence behaviour and delivering positive change to environmental performance
A9	current policies and institutions and legislation from local to the global scale that influence and respond to changing environmental agendas
Skills	
B1	apply knowledge and understanding of theories, paradigms, concepts and principle that are pertinent to environmental science subject area

B2	plan, conduct and report field and laboratory investigation work competently, including the use of secondary data
B3	analyse, synthesise, summarise and critically evaluate data and information, using appropriate qualitative and quantitative techniques and tools, such as geographic information systems
B4	define complex environmental problems and challenges, devise possible solutions and critique complex decision making
B5	implement sustainable measures to bring about changes and practical solutions to real world cases
B6	carry out appropriate risk assessment and health and safety checks
B7	Work effectively individually and/or as part of a team
B8	communication effectively to a variety of audiences in written, verbal, visual forms of presentation in different platforms, including internet and the social media
B9	identify and work towards targets for personal, academic and career development
B10	Operate successfully in a culturally diverse and globally oriented society
B11	demonstrate professional practice, including consideration of ethical, societal and financial issues
B12	develop as a reflective and independent learner engaging in effective learning

Programme outcomes																			
A1	A2	A3	A4	A5	A6	A7	A8	A9	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
Highest level achieved by all graduates																			
6	6	6	6	6	6	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	A8	A9	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
Integrated Scientific Skills	BIO1115		✓	✓								✓	✓			✓	✓	✓				
Cell Biology	BIO1525	✓									✓							✓				
Fundamentals of Chemistry	BIO1608		✓	✓							✓	✓					✓					
Principles of Environmental Science	BIO1700	✓	✓		✓					✓	✓		✓		✓							
Social Perspectives of Environmental Science	BIO1701		✓					✓	✓	✓	✓			✓						✓		
Research Methods and Project Planning	BIO2005		✓	✓				✓			✓	✓	✓					✓				
Applied Microbiology	BIO2501	✓	✓								✓	✓										
Pollution Prevention and Control	BIO2515		✓		✓		✓	✓	✓	✓	✓			✓	✓							
Techniques for Environmental Analysis	BIO2516		✓	✓							✓	✓	✓			✓						
Health and Society	BIO2636		✓					✓	✓				✓	✓	✓		✓	✓		✓		
Sustainable Decision Making	BIO2712					✓		✓	✓	✓	✓			✓	✓							
Biodiversity and Ecosystems	BIO2804	✓	✓	✓	✓						✓	✓	✓					✓				
Environmental Monitoring	BIO2811			✓							✓	✓	✓		✓		✓	✓				
Sustainable Built Environmental Assessment	PRS2525			✓		✓			✓				✓		✓			✓				
Environmental Impact Assessment	PRS2517		✓	✓					✓		✓		✓	✓				✓				
Urban Environment	BIO3113		✓		✓	✓					✓		✓		✓					✓		
Evolution	BIO3301	✓	✓								✓		✓									
Biodiversity and Planets	BIO3311	✓	✓								✓		✓						✓			
Sustainable Biotechnology	BIO3403		✓			✓	✓				✓		✓		✓							
Ecosystems Management	BIO3518	✓	✓		✓	✓		✓		✓	✓				✓					✓		
Environmental Management Tools and Modelling	BIO3519			✓							✓		✓		✓		✓	✓		✓		
Introduction to Global Health	BIO3635					✓		✓			✓				✓			✓	✓	✓		
Work experience	BIO3799								✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
Dissertation	BIO3888			✓							✓	✓	✓	✓		✓	✓	✓				✓
Work Placement	BIO3999								✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓

