

EARTH AND ENVIRONMENTAL SCIENCES



**Undergraduate
Programme Structure
2021/22**

<https://ees.manchester.ac.uk>

Our programmes

We offer a choice of two degree courses; one in Earth and Planetary Science and one in Environmental Science.

All of our students take the same modules in a common First Year. This gives you time to explore the degree course and pathway that interests you most.

Within each degree course, there are several different pathways through the subject. You will take core and a choice of optional units directly relevant to your choice of pathway.

Both degrees can be extended to four years to give you significant research or vocational experiences that will make you more attractive to future employers in both academia and industry.

You may switch (grades permitting) between the three and four year variants of our degrees after starting your degree.

You will graduate with a degree in either Earth and Planetary Science or in Environmental Science, with your chosen pathway named in brackets after this title e.g., Earth and Planetary Science (Geology with Physical Geography).



Our programmes

Environmental Science

[BSc Environmental Science \[3 years\]](#)

[MEnvSci Environmental Science \[4 years\]](#)

[MEnvSci Environmental Science with Industrial Experience \[4 years\]](#)

[MEnvSci Environmental Science with International Study \[4 years\]](#)

[MEnvSci Environmental Science with a Research Placement \[4 years\]](#)

Earth and Planetary Science

[BSc Earth and Planetary Sciences \[3 years\]](#)

[MEarthSci Earth and Planetary Sciences \[4 years\]](#)

[MEarthSci Earth and Planetary Sciences with Industrial Experience \[4 years\]](#)

[MEarthSci Earth and Planetary Sciences with International Study \[4 years\]](#)

[MEarthSci Earth and Planetary Sciences with a Research Placement \[4 years\]](#)

The Common First Year

All new undergraduates in the Department take the same first year modules. These span the breadth of the natural sciences and allow you to change between our two degree courses up until the end of your first year. At the end of the first year, you will select your Pathway. You can read more about the content of the first year through our blog post '[Meet your lecturers](#)' and by following the links to module descriptions below. The first year modules are:

[Understanding the Earth](#)

[The Natural Scientist's Toolkit](#)

[Practical and Professional Skills Development](#)



Earth and Planetary Science Pathways

Geology / Energy and Resources, p.5

Geochemistry, p. 6

Planetary Science, p. 7

Geology with Physical Geography, p. 8

Palaeobiology, p. 9

Environmental Science Pathways

Pollution and Environmental Processes, p. 10

Atmospheric and Climate Science, p. 11

Ecology, Evolution and Conservation Biology, p. 12

MEarthSci programme structure, p. 13

MEnvSci programme structure, p. 14

A note on modules

- Some units subject to prerequisites
- The availability of options is subject to timetabling
- Options are subject to change
- Field course locations in this brochure are the places we currently go- these change from time to time, but will go to equally fantastic locations!

University College for Interdisciplinary Learning (UCIL)

Students have the opportunity to choose up to 20 credits from the UCIL portfolio in place of optional units during their course.

UCIL offers rigorous, credit-bearing units that take students beyond their disciplinary boundaries, introducing them to new ways of thinking around key questions facing the 21st century world.



GEOLOGY / ENERGY AND RESOURCES

Year 2 (all core)

EART29200 Professional Development and Project Preparation

EART22200 Igneous Minerals and Processes

EART26000 Energy and Resources

EART24200 Metamorphic Minerals and Processes

EART24001 British Stratigraphy and Geological Maps

EART26201 Principles of Geochemistry

EART27201 Sedimentary Rocks and Fossils

EART28102 Field Course: Introduction to Geological Mapping

EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface

EART25102 Advanced Geological Field Techniques

EART28202 Structural Geology

EART29102 Geospatial Techniques

Year 3

EART35000† Independent Project in Energy and Resources (30 credits)*

EART37000 Independent Project in Geological Field Mapping (40 credits)*

EART32301 Tectonics in Earth's Oceans and Continents

EART31302 Sedimentary Basins and the Source to Sink System

EART39302 Field Course (Italy)

Options (5 or 6 of the following depending on whether the project is 40 or 30 credits)

EART33001 Analytical Techniques in Earth and Environmental Sciences

EART33201 Quantitative Sedimentology: An Experimental Perspective

EART34102† Geoenergy

EART34201 Chemical Evolution of the Earth's Interior

EART35102† Hydrogeology and Geomechanics

EART33302† Chemical Fluid-Rock Interactions

EART34001 Dinosaur Palaeobiology

EART34302 Volcanology

EART36101† Geophysical Techniques

EART37002† Diagenesis of Sedimentary Systems

EART38202† Resource Projects: Life Cycles, Risk Analysis, Decision Making and Case Studies

10 credits One EART or UCIL unit

* Either/Or

† Taking EART35000, EART38202 and at least 4 of the 5 remaining highlighted options is needed for "Earth & Planetary Sciences (Energy and Resources)" pathway

Year 2

[EART29200 Professional Development and Project Preparation](#)
[EART22200 Igneous Minerals and Processes](#)
[EART24200 Metamorphic Minerals and Processes](#)
[EART26201 Principles of Geochemistry](#)
[EART27001 Environmental Chemistry 1: Water-Solid-Air Interactions](#)
[EART27201 Sedimentary Rocks and Fossils](#)
[EART28102 Field Course: Introduction to Geological Mapping](#)
[EART28002 Environmental Chemistry 2: Biogeochemical Cycles](#)
[EART28202 Structural Geology](#)

Options (3 of the following; one in Semester 1, two in Semester 2):

[EART26000 Energy and Resources](#)
[EART22001 Environmental Modelling](#)
[EART23101 Exploring the Solar System](#)
[EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface](#)
[EART25202 Meteorites and Planetary Materials](#)
[EART29002 Environmental Enterprise](#)
[EART25102 Advanced Geological Field Techniques*](#)
[EART27102 Field Course: Environmental Science*](#)

Year 3

[EART31000 Communicating Science](#)
[EART36000 Independent Project in Geochemistry](#)
[EART33001 Analytical Techniques in Earth and Environmental Sciences](#)
[EART35302 Field Course: Integration of Environmental Investigations, Tenerife*](#)
[EART39302 Field Course \(Italy\)*](#)

Options (6 of the following)

[EART31101 Environmental Challenges: Arctic Climate Warming](#)
[EART34102 Geoenergy](#)
[EART34201 Chemical Evolution of the Earth's Interior](#)
[EART35001 Atmospheric Composition](#)
[EART35202† Planetary Evolution](#)
[EART39001 Environmental Challenges: Air Pollution in Major Cities](#)
[EART32102 Environmental Challenges: Arsenic Contamination in Asia](#)
[EART32201 Origin of the Solar System](#)
[EART33102 Environmental Challenges: Waste Disposal](#)
[EART33302 Chemical Fluid-Rock Interactions](#)
[EART34302 Volcanology](#)
[EART37002 Diagenesis of Sedimentary Systems](#)

10 credits One EART or UCIL unit

* Either/Or

† If chosen, students should also choose EART32201 Origin of the Solar System

Year 2

EART29200 Professional Development and Project Preparation

EART22200 Igneous Minerals and Processes

EART24200 Metamorphic Minerals and Processes

EART23101 Exploring the Solar System

EART26201 Principles of Geochemistry

EART28102 Field Course: Introduction to Geological Mapping

EART25202 Meteorites and Planetary Materials

EART29102 Geospatial Techniques

Options (4 of the following; one or two options in Semester 1, two or three options in Semester 2):

EART22001 Environmental Modelling

EART23001 Atmospheric Physics and Weather

EART24001 British Stratigraphy and Geological Maps

EART27201 Sedimentary Rocks and Fossils

PHYS10191 Introduction to Astrophysics

EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface

EART25102 Advanced Geological Field Techniques*

EART28002 Environmental Chemistry 2: Biogeochemical Cycles

EART28202 Structural Geology

10 credits One EART or UCIL unit

*If chosen, students should also choose EART27201 Sedimentary Rocks & Fossils and EART28202 Structural Geology

Year 3

EART31000 Communicating Science

EART31100 Independent Project in Planetary Science

EART35202 Planetary Evolution

EART32201 Origin of the Solar System

EART36302 Planetary Field Course: Ries Impact Crater, Germany

Options (5 of the following) Any EART unit given prerequisites and timetabling, examples include but are not limited to:

EART33001 Analytical Techniques in Earth and Environmental Sciences

EART32301 Tectonics in Earth's Oceans and Continents

EART33201 Quantitative Sedimentology: An Experimental Perspective

EART34102 Geoenergy

EART34201 Chemical Evolution of the Earth's Interior

EART35102 Hydrogeology and Geomechanics

EART37202 Remote Sensing of Atmospheres

EART31302 Sedimentary Basins and the Source to Sink System

EART34302 Volcanology

EART36101 Geophysical Techniques

EART33302 Chemical Fluid-Rock Interactions

10 credits One EART or UCIL unit

GEOLOGY WITH PHYSICAL GEOGRAPHY

Year 2

EART29200 Professional Development and Project Preparation

EART27201 Sedimentary Rocks and Fossils

GEOG20072 Research Design and Overseas Field course

Options (4 of following; at least two in Semester 1):

EART22200 Igneous Minerals and Processes

EART24200 Metamorphic Minerals and Processes

EART22101 Evolution and Palaeobiology

EART24001 British Stratigraphy and Geological Maps

EART27001 Environmental Chemistry 1: Water-Solid-Air Interactions

EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface

EART28202 Structural Geology

Options (2 of following; one option in each semester)

GEOG21431 Quaternary Climates and Landscapes

GEOG20771 Biogeography

GEOG20402 Hydrology and Catchment Systems

GEOG20502 Spatial Thinking with GIS: Constructing and Exploring Virtual Worlds

GEOG21512 Geomorphology

Year 3

EART38000 Independent Project in Geology with Physical Geography

Options (2 or 3 of the following):

GEOG31041 Green Planet: Plant Ecology and Global Change

GEOG30231 Peatlands

GEOG30132 Mediterranean Quaternary Landscapes

GEOG30222 Our Frozen Planet

GEOG32012 Pyrogeography: Fire in the Earth System

GEOG32022 Environmental Restoration

Options (3 or 5 of the following):

EART31101 Environmental Challenges: Arctic Climate Warming

EART32301 Tectonics in Earth's Oceans and Continents

EART33201 Quantitative Sedimentology: An Experimental Perspective

EART34201 Chemical Evolution of the Earth's Interior

EART31302 Sedimentary Basins and the Source to Sink System

EART32102 Environmental Challenges: Arsenic Contamination in Asia

EART33102 Environmental Challenges: Waste Disposal

EART34302 Volcanology

EART36101 Geophysical Techniques

EART37002 Diagenesis of Sedimentary Systems

EART35302 Field Course: Integration of Environmental Investigations, Tenerife*

EART38302 Field Course: Vertebrate Palaeontology, Isle of Wight*

EART39302 Field Course (Italy)*

20 credits Two EART or UCIL unit

* Only one field course

Year 2

EART29200 Professional Development and Project Preparation

EART22101 Evolution and Palaeobiology

EART25001 Ecology and Conservation

EART27201 Sedimentary Rocks and Fossils

EART28102 Field Course: Introduction to Geological Mapping

BIOL21221 Animal Diversity

EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface

Options (5 of the following: one in Semester 1, four in Semester 2):

EART22200 Igneous Minerals and Processes

EART24001 British Stratigraphy and Geological Maps

EART26201 Principles of Geochemistry

EART21102 Environmental Microbiology

EART28002 Environmental Chemistry 2: Biogeochemical Cycles

EART28202 Structural Geology

EART29102 Geospatial Techniques

BIOL21172 Principles of Developmental Biology

10 credits Any EART, BIOL or UCIL unit if times do not clash (including those above, max 2 non-EART)

Year 3

EART31000 Communicating Science

EART39000 Independent Project in Palaeobiology

EART33001 Analytical Techniques in Earth and Environmental Sciences

EART36202 Primate Evolution and Human Origins

EART34001 Dinosaur Palaeobiology

EART38302 Field Course: Vertebrate Palaeontology, Isle of Wight

Options (4 of the following, max 3 non-EART units):

EART32001 Advanced Topics in Ecology and Evolution

BIOL31511 Biotic Interactions

BIOL31541 Living with Climate Change

BIOL31551 Human Impacts on the Biosphere

EART31302 Sedimentary Basins and the Source to Sink System

EART37002 Diagenesis of Sedimentary Systems

EART34302 Volcanology

EART36002 Climate and Energy: Past Present & Future

BIOL31482 Conservation Biology

BIOL31392 Evolution of Genes, Genomes, and Systems

10 credits One EART or UCIL unit

POLLUTION AND ENVIRONMENTAL PROCESSES

Year 2

EART29200 Professional Development and Project Preparation
EART22001 Environmental Modelling
EART23001 Atmospheric Physics and weather
EART25001 Ecology and Conservation
EART27001 Environmental Chemistry 1: Water-Solid-Air Interactions
EART21102 Environmental Microbiology
EART28002 Environmental Chemistry 2: Biogeochemical Cycles
EART29002 Environmental Enterprise
EART29102 Geospatial Techniques
EART27102 Field Course: Environmental Science

Options (2 of the following; one option in each semester):

EART26000 Energy and Resources
EART22101 Evolution and Palaeobiology
EART27201 Sedimentary Rocks and Fossils
EART21202 Global Climate Change
BIOL21202 Plants for the Future
EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface*
10 credits One UCIL unit

*If chosen, students should also choose EART27201 Sedimentary Rocks and Fossils.

Year 3

EART34000 Pollution or Environmental Processes Research Project
EART31000 Communicating Science
EART39001 Environmental Challenges: Air Pollution in Major Cities
EART31101 Environmental Challenges: Arctic Climate Warming
EART33102 Environmental Challenges: Waste Disposal
EART32102 Environmental Challenges: Arsenic Contamination in Asia
EART35302 Field Course: Integration of Environmental Investigations, Tenerife

Options (3 of the following; max 1 option in semester 2):

EART38202 Resource Projects: Life Cycles, Risk Analysis, Decision Making and Case Studies
EART33001 Analytical Techniques in Earth and Environmental Sciences
EART37202 Remote Sensing of Atmospheres
EART31201 Meteorology and Forecasting
EART35001 Atmospheric Composition
EART34102 Geoenergy
EART36002 Climate and Energy: Past, Present and Future
BIOL31551 Human Impacts on the Biosphere
BIOL31541 Living with Climate Change
10 credits One UCIL unit

ATMOSPHERIC AND CLIMATE SCIENCE

Year 2

EART29200 Professional Development and Project Preparation

EART22001 Environmental Modelling

EART23001 Atmospheric Physics and weather

EART27001 Environmental Chemistry 1: Water-Solid-Air Interactions

EART27102 Field Course: Environmental Science

EART28002 Environmental Chemistry 2: Biogeochemical Cycles

EART29102 Geospatial Techniques

EART29002 Environmental Enterprise

EART21202 Global Climate Change

Options (3 of the following; two in semester 1, one in semester 2):

EART22101 Evolution and Palaeobiology

EART23101 Exploring the Solar System

EART25001 Ecology and Conservation

EART27201 Sedimentary Rocks and Fossils

EART21102 Environmental Microbiology

EART28202 Structural Geology

BIOL21202 Plants for the Future

EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface*

10 credits One UCIL unit

*If chosen, students should also choose EART27201 Sedimentary Rocks and Fossils.

Year 3

EART31000 Communicating Science

EART35302 Field Course: Integration of Environmental Investigations, Tenerife

EART32000 Atmospheric Science Research Project

EART37202 Remote sensing of Atmospheres

EART35001 Atmospheric Composition

EART36002 Climate and Energy: Past, Present and Future

EART31201 Meteorology and Forecasting

Options (3 of the following; max 1 option in semester 2):

EART38202 Resource Projects: Life Cycles, Risk Analysis, Decision Making and Case Studies

EART33001 Analytical Techniques in Earth and Environmental Sciences

EART34102 Geoenergy

EART39001 Environmental Challenges: Air Pollution in Major Cities

EART31101 Environmental Challenges: Arctic Climate Warming

EART33102 Environmental Challenges: Waste Disposal

EART32102 Environmental Challenges: Arsenic Contamination in Asia

BIOL31551 Human Impacts on the Biosphere

BIOL31541 Living with Climate Change

EART39102 Meteorology and Atmospheric Physics**

10 credits One UCIL unit

** With suitable pre-requisites (by special discussion)

ECOLOGICAL, EVOLUTIONARY AND CONSERVATION BIOLOGY

Year 2

EART29200 Professional Development and Project Preparation

EART22001 Environmental Modelling

EART22101 Evolution and Paleobiology

EART25001 Ecology and Conservation

EART21102 Environmental Microbiology

EART27102 Field Course: Environmental Science

EART29002 Environmental Enterprise

BIOL20872 Urban Biodiversity and conservation*

BIOL21422 Alpine Biodiversity and forest ecology*

* Only one of these field courses; BIOL21422 carries a cost implication and allocation of places is dependent on overall year 1 results

Options (4 of the following; 2 in each semester; max 2 non-EART units):

EART23001 Atmospheric Physics and weather

EART27001 Environmental Chemistry 1: Water-Solid-Air Interactions

EART27201 Sedimentary Rocks and Fossils

BIOL21221 Animal Diversity

BIOL21202 Plants for the future

BIOL21281 Animal Physiology

EART29102 Geospatial Techniques

EART28002 Environmental Chemistry 2: Biogeochemical Cycles

BIOL21172 Principles of development Biology

BIOL21432 Animal behaviour

EART23202 Interpreting the Stratigraphic Record: From Surface to Subsurface*

10 credits One UCIL unit

*If taken, students must also choose EART27201 Sedimentary Rocks and Fossils.

Year 3

EART31000 Communicating Science

EART35302 Field Course: Integration of Environmental Investigations, Tenerife

EART32001 Advanced Topics in Ecology and Evolution

BIOL31482 Conservation Biology

EART33000 Ecology, evolution or conservation research project

Options (5 of the following; max 2 options in semester 2; Max 2 non-EART units):

EART33001 Analytical Techniques in Earth and Environmental Sciences

BIOL31551 Human Impacts on the Biosphere

BIOL31541 Living with Climate Change

EART39001 Environmental Challenges: Air Pollution in Major Cities

EART31101 Environmental Challenges: Arctic Climate Warming

EART33102 Environmental Challenges: Waste Disposal

EART32102 Environmental Challenges: Arsenic Contamination in Asia

EART36002 Climate and Energy: Past, Present and Future

EART36202 Primate Evolution and Human Origins

BIOL31511 Biotic interactions

BIOL31392 Evolution of Genes, Genomes, and Systems

BIOL31471 Advanced Behavioural and Evolutionary Ecology

10 credits One UCIL unit

Integrated Master's in Earth and Planetary Science

MEarthSci (All pathways)

2nd and 3rd year: Same as regular BSc programmes

MEarthSci 4th year:

Research Project

Student-led Field Course

Communicating Earth and Environmental Sciences

Topics in Applied Earth Science

MEarthSci with Industrial Experience*

2nd year: Same as regular BSc programmes

3rd year:

Core Earth and Planetary Science

Placement in industry

4th year: Same as regular MEarthSci programme

MEarthSci with International Study#

2nd year: Same as regular BSc programmes

3rd year:

Study at University Abroad

4th year: Same as regular MEarthSci programme

MEarthSci with a Research Placement#

2nd year: Same as regular BSc programmes

3rd Year:

Core Earth and Planetary Science

Year in Research

4th year: Same as regular MEarthSci programme

*Available to all except those taking EART37000 Independent Project in Geological Field Mapping (on Geology pathway) and those on Planetary Science or Palaeobiology pathways;

Available to all except those taking EART37000 Independent Project in Geological Field Mapping (on Geology pathway)



Integrated Master's in Environmental Science

MEnvSci (All pathways)

2nd and 3rd year: Same as regular BSc programmes

MEnvSci 4th year:

Research Project
Student-led Field Course
Communicating Earth and Environmental Sciences
Topics in Environmental Science

MEnvSci (All pathways) with Industrial Experience

2nd year: Same as regular BSc programmes

3rd year
Core Environmental Science
Placement in industry

4th year: Same as regular MEarthSci programme

MEnvSci (All pathways) with International Study

2nd year: Same as regular BSc programmes

3rd year:
Study at University Abroad

4th year: Same as regular MEnvSci programme

MEnvSci (All pathways) with a Research Placement

2nd year: Same as regular BSc programmes

3rd year:
Core Environmental Science
Year in Research

4th year: Same as regular MEnvSci programme

Keep in touch

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