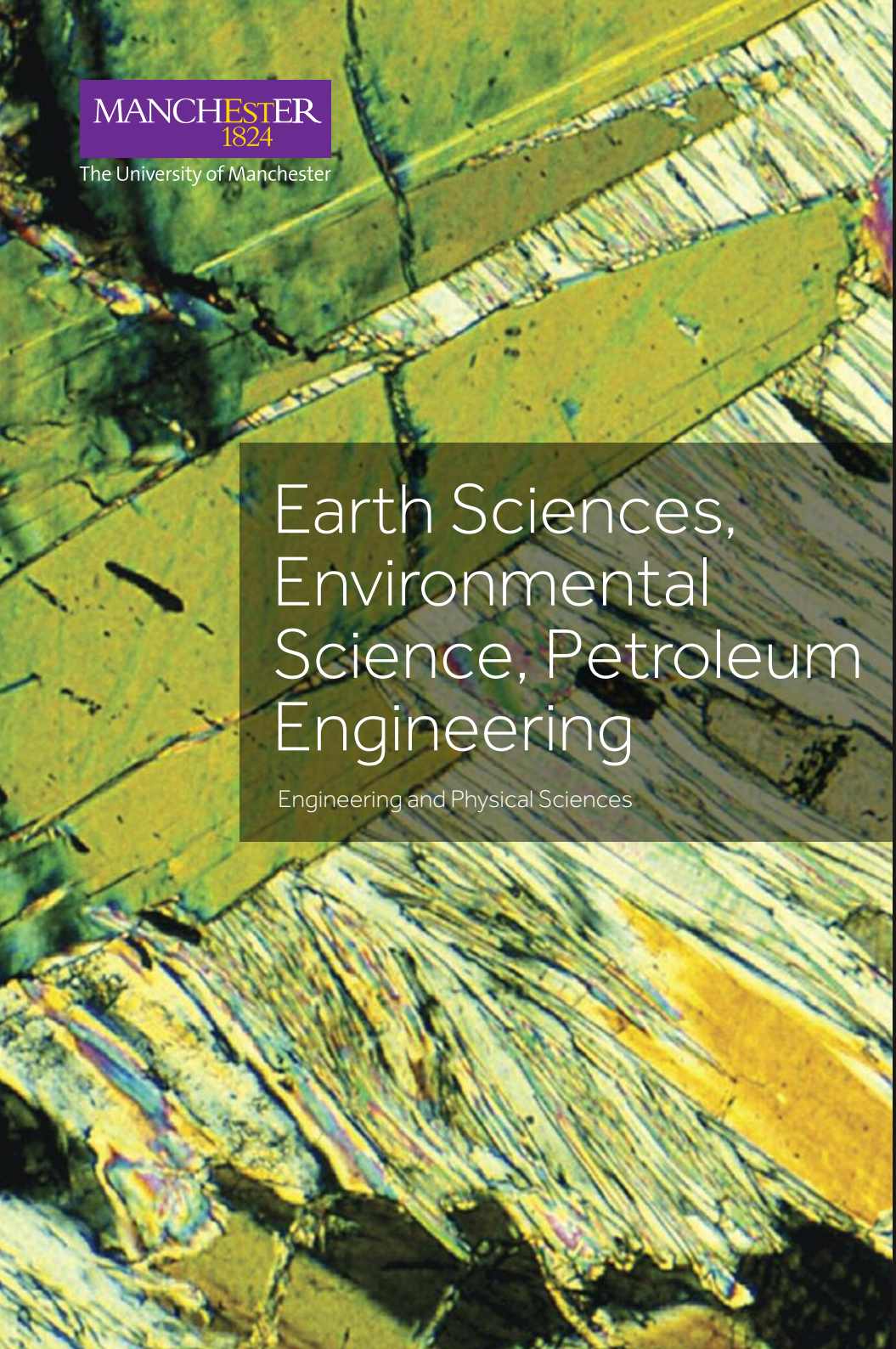


MANCHESTER 1824

The University of Manchester

Earth Sciences, Environmental Science, Petroleum Engineering

Engineering and Physical Sciences

UNDERGRADUATE BROCHURE 2014

www.manchester.ac.uk/seaes

The facts

Provision of courses accredited by the Geological Society of London

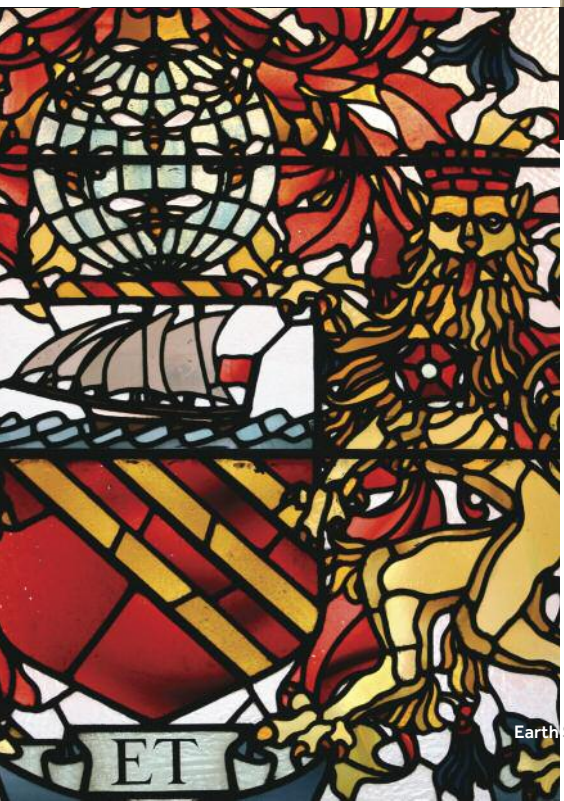
High staff-to-student ratio

Teaching inspired by the latest research

Excellent links with a wide range of industries

Diverse and exciting fieldwork opportunities

> Studying at Manchester has been a fantastic opportunity for me and has kept me in touch with up-and-coming research and technology.
>
> **Laique Rahman**
> **BEng Petroleum Engineering**



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Our University
Making things happen

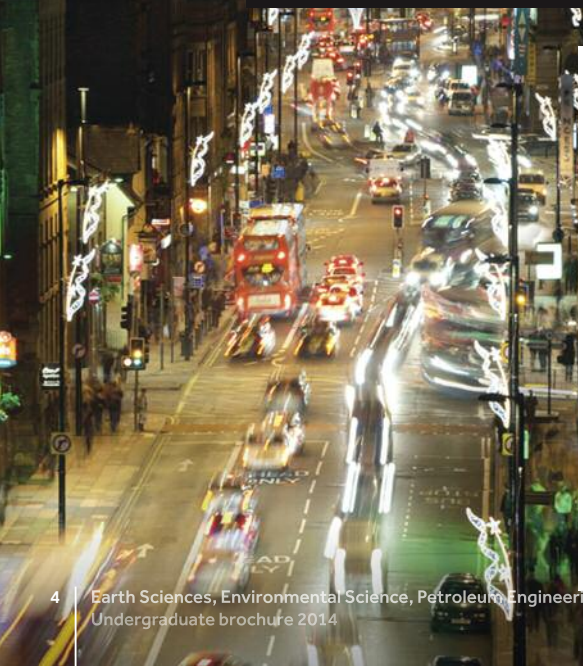
Influential, forward-thinking and down-to-earth, we'll give you an amazing university experience rooted in a rich academic heritage. We turn enthusiasm into achievement and groundbreaking theory into practice.

We accomplish feats of global significance, from splitting the atom to giving the world graphene – the two-dimensional wonder material that is one atom thick but 200 times stronger than steel. With more Nobel laureates on our staff than any other UK university, and strong links to industry and public services, we vitalise our undergraduate courses with pioneering research.

Join us at the heart of Britain's most popular student city.

Learn more about us:
www.manchester.ac.uk

Introducing Manchester



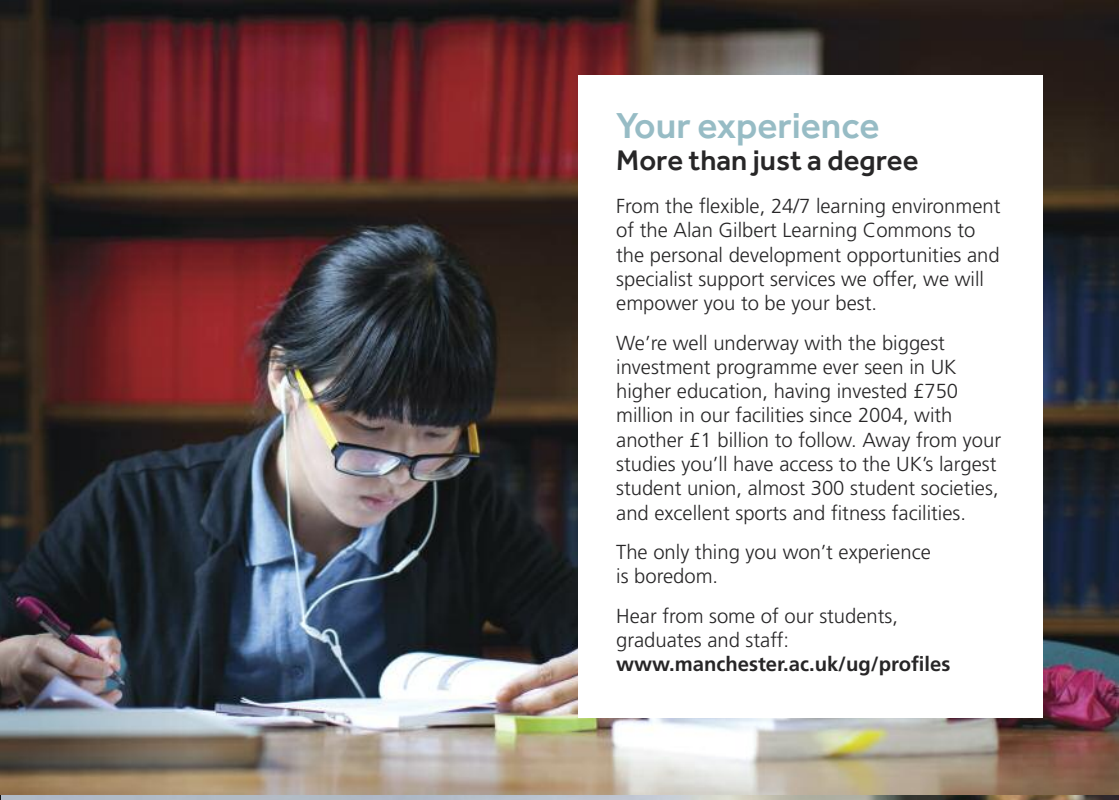
Our city
Always moving forward

Manchester lives on the edge of tomorrow, ever a step ahead in science, industry, media, sport and the arts. The Mancunian character, exemplified by the city's central role in the industrial revolution, strives for excellence in all walks of life.

This is a city of many accents, having become a cosmopolitan magnet for students and professionals eager to experience its can-do attitude, independent spirit and cultural wealth.

Never content to live on past glories, Manchester has a passion for progress.

Discover what makes Manchester unique:
www.manchester.ac.uk/cityofmanchester



Your experience
More than just a degree

From the flexible, 24/7 learning environment of the Alan Gilbert Learning Commons to the personal development opportunities and specialist support services we offer, we will empower you to be your best.

We're well underway with the biggest investment programme ever seen in UK higher education, having invested £750 million in our facilities since 2004, with another £1 billion to follow. Away from your studies you'll have access to the UK's largest student union, almost 300 student societies, and excellent sports and fitness facilities.

The only thing you won't experience is boredom.

Hear from some of our students, graduates and staff:
www.manchester.ac.uk/ug/profiles

Your career
On a course to success

We are one of the UK's most targeted universities by employers – 92% of our graduates go straight into employment or further study.

We design our courses with your employability in mind. Our problem-based approach to learning inspires you to think critically, creatively, and independently. You'll also be able to learn new skills through volunteering, personal development programmes and study abroad pathways.

We have the UK's best careers service, providing advice and mentoring services, and connecting you with employers who'll put you on a path to career success.

Take control of your career:
www.manchester.ac.uk/careers

Earth Sciences, Environmental Sciences, Petroleum Engineering at Manchester

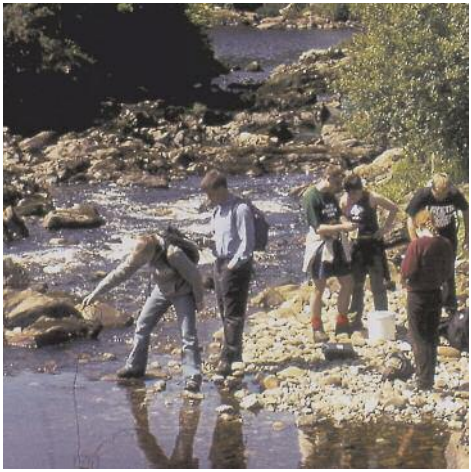
The most significant challenges facing humanity in the 21st century are the depletion of natural resources and the potential for irreversible damage to our environment. Our courses allow you to develop a deep understanding of the workings of our planet and use this understanding to identify new sources of materials, and minimise the impact of their extraction and use

The School of Earth, Atmospheric and Environmental Sciences at Manchester is one of the best-equipped schools of its kind in Britain. The academic staff in our school and our partners include experts in a wide range of earth and environmental sciences, chemical engineering and life sciences. A degree from our School will set you up well for your future – and equip you to help meet the challenges we face.

Our comprehensive and dedicated facilities include laboratories and equipment that are among the best in the country.

Highlights include:

- International research reputation
- Excellent links with a wide range of industries
- Rated excellent for teaching by government inspection
- Free field courses (we ask you to contribute to the cost of food)
- Provision of courses accredited by the Geological Society of London
- Opportunities to work with leading researchers
- School-based undergraduate resource centre
- Friendly and thriving community of undergraduates, postgraduates and staff



Why Manchester?

- One of the UK's largest centres for earth and environmental teaching
- Diverse exciting fieldwork opportunities
- Opportunities to gain industrial experience via work placements

Course details

Which course should I apply for?

Three-year courses

Geology BSc
UCAS Code F600

Environmental and Resource Geology BSc
UCAS Code F630

Geochemistry BSc
UCAS Code F670

Geography and Geology BSc
UCAS Code FF68

Geology with Planetary Science BSc
UCAS Code F6F5

Petroleum Engineering BEng
UCAS Code H850

Environmental Science BSc
UCAS Code F850

Four-year courses

Earth Sciences MEarthSci
UCAS Code F640

Geology with Planetary Science MEarthSci
UCAS Code F6FM

Petroleum Engineering MEng
UCAS Code H851

Geography and Geology with a Year Abroad
UCAS Code FF86

Environmental Science with a Year Abroad
UCAS Code F750

Environmental Science with Industrial Experience
UCAS Code F75Z

You will find brief descriptions of each of these courses on the following pages.

It is mostly possible to change between the geoscience courses at least until the end of your first year. The environmental course is science-based, with core expertise that has been selected by our leading environmental research scientists advised by our industrial liaison panel, allowing you to specialise in an area you find of particular interest.

If you can't decide which course is for you, please feel free to contact us using the contact information at the end of this brochure, to discuss your situation. Once you apply, you will also have an opportunity to visit our School and discuss your options with a member of staff, so there will be many opportunities to change if you are uncertain what to do.

Entry requirements

Typical offer

A-level: AAB-ABB
IB: 35-33

For full requirements, see:
www.manchester.ac.uk/ugcourses

All courses

Key skills

As well as taking subject-specific course units, you will also acquire important key skills, particularly through our tutorial system, field trips and independent project work.

Skills you will develop include:

- Writing scientific reports
- Developing critical arguments
- Bibliographic skills
- Enhanced computing and IT skills
- Giving oral and poster presentations
- Project design
- Numeracy and mathematical skills

Earth Sciences, Environmental Science, Petroleum Engineering

Fieldwork

Our field courses provide you with a unique learning experience and are an integral part of all our courses. Venues vary, but most Geology, Geography and Geology, and Environmental Science students will have the opportunity to take one or two field courses overseas. Fieldwork allows you to apply the skills you learn in lectures and laboratory classes to real settings. You develop skills of observation and interpretation, as well as techniques for investigating specific problems – these skills are vital for those seeking employment in these sectors.

Field courses run by our School are free. We ask you to make a contribution to food costs on courses that are fully catered.

Most field courses are residential, allowing you to socialise with fellow students and staff in an informal setting.

Some field courses are linked to options, or to your chosen degree path.

Study abroad

Some of our courses offer you opportunities to study abroad for one semester during both the three and four-year courses. Recent destinations of our students have included Hong Kong, Toronto, Sydney and Singapore. In order to gain a place on our study abroad scheme, you need to achieve good marks in your first-year exams and demonstrate a keen commitment throughout your course.

Students also often travel abroad as part of their field studies and many take the opportunity to conduct their independent mapping or project abroad.

We also offer courses that incorporate a year abroad and are developing others – please check our website for details of whether these will be available to you.

By choosing the year abroad pathway in Year 3 of our Environmental Science or Geography and Geology courses, you will broaden your perspective of environmental issues by understanding the approach adopted in a foreign country and by studying options provided by a foreign host institution.

Work placements and careers

A number of opportunities arise most years for students to gain industrial experience during their time at Manchester. Our students have previously taken advantage of placements in areas ranging from oil exploration to site investigation of contaminated land.

You also have the opportunity to participate in a variety of mentoring schemes that allow you to gain experience of a particular industry of your choice. Recently, one of our undergraduate students participated in the International Petroleum Technology Conference in Dubai, where they used the opportunity to network and gain an insight into a career as a petroleum geologist.

Each of our course areas has a dedicated careers officer, who organises regular events with potential employers and relevant professional bodies.

If you choose the year in industry pathway on our Environmental Science course, you will gain experience of working in the environmental sector, developing your discipline-specific and personal and employability skills through interaction in a commercial environment.

The School is also currently in the process of setting up a year abroad / industry for our other courses. Please contact us for further information.

Many of our students decide to study for a further degree: MSc, MA, or PhD. This is a recognised route to enter a specialist career. Because masters courses are only one year full-time, they provide you with a chance to react to changes in the job market, giving you confidence that your prospects have improved. PhDs normally require three years of full-time study; they allow you to develop your more academic interests in greater depth and to really show that you can carry out independent research that is worth publishing for all to read.

Funding

Industrial scholarships

Please contact us for further details and availability of industrial scholarships.

University scholarships and bursaries

For the most up-to-date information on our funding options, check our website:
www.manchester.ac.uk/studentfinance

Geoscience

Why study geoscience?

Geoscience is the study of the composition, behaviour and history of the Earth and other planets. It integrates and applies different scientific disciplines to studying problems such as the formation and composition of the Earth, the causes of earthquake and volcanic activity, the causes of ice ages, and the origin and evolution of life. It is central to the discovery and exploitation of new resources, such as oil, gas and metals, as well as to understanding how to exploit them sustainably.

You will find geoscience to be an immensely practical subject; geologists study many phenomena that affect our daily lives. For example, geoscientists make a major contribution to: the study of natural hazards, such as earthquakes, volcanic eruptions, landslides and floods, and how to predict their occurrence; the search for new energy and mineral resources and their safe exploitation; maintaining quality water supplies; disposal of domestic, industrial and nuclear waste; and the study of short and long-term climatic change.

Geoscientists work especially in the oil, mining, engineering, water and environmental fields.

We offer a number of different courses in geoscience. They involve a common core, which allows you to transfer between courses in your first year.

BSc (Hons) Geology

This broad course covers all the major aspects of geology and equips you to pursue a career in any area of geoscience.

Benefits include:

- Accreditation by the Geological Society of London
- Wide choice of options in Year 3
- Ideal course if you want to go on to a masters or enter general graduate employment
- Full fieldwork programme, including independent mapping

BSc (Hons) Environmental and Resource Geology

If you are particularly interested in exploration for earth resources and the environmental impact of their extraction, along with the safe disposal of any waste products, this course will suit you well.

Benefits include:

- Accreditation by the Geological Society of London
- Specialist course units include Mineral Deposits, Energy Resources, Hydrogeology and Engineering Geology
- Full fieldwork programme, including independent mapping
- Opportunity of taking course units shared with environmental scientists

Earth Sciences, Environmental Science, Petroleum Engineering

BSc (Hons) Geochemistry

Geochemistry is ideal if you have a good background in chemistry and other physical sciences, and you are particularly interested in the chemistry of natural systems and their evolution through time.

Benefits include:

- Opportunity to apply geochemical methods to such diverse problems as the origin of the solar system and polluted groundwater
- Available course units include Biogeochemical Cycles, Organic Systems, Analytical Techniques and Isotope Geochemistry
- Full fieldwork programme, including independent mapping
- Accreditation by the Geological Society of London

MEarthSci (Hons) Earth Sciences

This four-year undergraduate course is known as an integrated masters degree. It is particularly suitable for students who wish to pursue a career in research. We allow you to switch to the four-year course from any other geoscience course within your first two years of study. Remaining on the course is subject to maintaining a strong performance in assessments.

Benefits include:

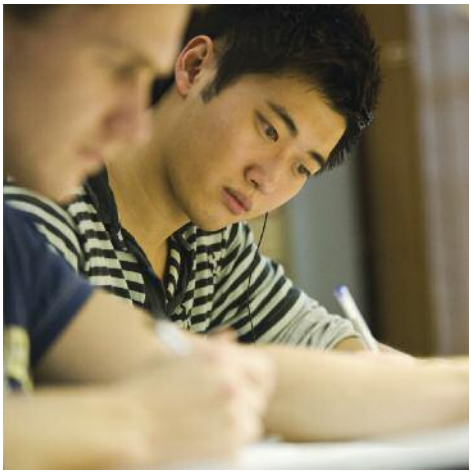
- Accreditation by the Geological Society of London
- You can follow a Geology, Environmental and Resource Geology, or Geochemistry pathway through the earlier years of the course
- You undertake a research project in Year 4, which gives you the opportunity to interact with staff at the forefront of new developments in geoscience
- You undertake a small number of specialist courses, some shared with postgraduate students
- Full fieldwork programme, including independent mapping

BSc and MEarthSci (Hons) Geology with Planetary Science

Planetary Science is an interdisciplinary subject that brings together geologists, astronomers, physicists, chemists and biologists to study the origin and evolution of the solar system.

Benefits include:

- Unique course combining geology with the study of the origin and evolution of the solar system
- Course overall approximately two-thirds geology, one-third planetary science
- Available in three or four-year format; the latter includes a mapping project and is accredited by the Geological Society of London
- Opportunity to undertake a research project in planetary science
- Specialist course units available include Comparative Planetology, Study of Moon Rocks and Meteorites, and Origin of the Solar System, as well as astronomy options from our School of Physics and Astronomy



BSc (Hons) Geography and Geology

This course is designed for students who have a strong interest in physical geography and who wish to focus their studies on natural processes at the Earth's surface.

Benefits include:

- Joint course between our School of Earth, Atmospheric and Environmental Sciences and the School of Environment and Development
- Opportunity to attend field courses run by both Schools
- Wide choice of course units in both subject areas
- Dissertation typically in the area of physical geography or geology, often field-based

BSc (Hons) Geography and Geology with a Year Abroad

Benefits include:

- A year spent studying in a university abroad
- A broad course that covers all areas of earth sciences and physical geography
- Teamwork, problem-solving and field skills play a key role in integrating all the elements of the subject and developing your transferrable skills
- Careers support and active recruitment

Environmental science

Why study environmental science?

Environmental science is the study of how physical, chemical, and biological processes maintain and interact with life, and includes the study of how humans affect nature.

Our Environmental Science course combines a strong science base selected by a panel of industrial specialists. It includes elements from our Faculty of Life Sciences, with discipline-specific skills, and so can lead to employment opportunities in the commercial, industrial, government and educational sectors. It also provides you with an excellent foundation for postgraduate study in environmental science and related disciplines.

You may interact with students from other disciplines on University-wide course units, such as Sustainability and Leadership, and take selected humanities course units in areas such as planning and economics, where environmental concerns are of increasing importance.

We offer you a stimulating learning environment, with welcoming, enthusiastic staff and strong expertise over many areas. Research in the School was termed 'world leading' or 'internationally excellent' in the most recent Research Assessment Exercise, and our staff draw on their research to ensure our courses are relevant, exciting and up to date.

Earth Sciences, Environmental Science, Petroleum Engineering

BSc (Hons) Environmental Science

A science-based understanding of our environment is vital to ensure that human needs are met, in a sustainable way, so that everyone will have access to clean water, clean air, and the earth resources required for agriculture and industrial activity.

This course sets out to produce excellent scientists with an awareness of environmental problems and solutions, and who can communicate well with others.

Our course develops three fundamental science strands, Bioscience, Geoscience and Environmental Physics, which are then woven together by integrative course units to give you perspective and allow you to apply scientific concepts to real environmental problems. This is a multi-disciplinary, research-informed course that includes units taught by active researchers across a range of areas including Biology, Geography, Planning and Earth Sciences.

Benefits include:

- Core of compulsory course units for all environmental degrees and a choice of options in each year, allowing you to specialise in areas that interest you most
- Strong science base
- Subsidised field programme, including a dedicated environmental field course in each of the three years
- Opportunity to interact with students from other disciplines on University-wide course units, such as Sustainability
- Dissertation gives opportunity to review an environmental problem of your choice in detail
- Core non-science course units in second and third year to ensure the policy side of environmental science is integrated into your course

BSc (Hons) Environmental Science with a Year Abroad

Benefits include:

- Spend a year studying in a university abroad
- A course that provides a broad but solid foundation in science that explores sustainability and environmental issues, such as clean water, clean air and the resources required for agricultural and industrial activity
- Core non-science course units in second and third year to ensure the policy side of environmental science is integrated into your course
- The opportunity to interact with students from other disciplines within University-wide courses on issues around sustainability

BSc (Hons) Environmental Science with Industrial Experience

Benefits include:

- Teamwork, problem solving, tutorial sessions and field skills play a key role in integrating all the elements of the subject and serve to develop your transferrable skills
- Careers support, including a directed set of careers tutorials, plus active recruitment
- Industrial links and partnerships with a range of industrial partners as well as two University-directed commercial companies, Intelisys Ltd and Mineral Solutions Ltd
- Course structure developed with input from our Industrial Liaison Committee to ensure key competencies are incorporated into the course
- Core non-science course units in second and third year to ensure the policy side of environmental science is integrated into your course

Petroleum engineering

Why study petroleum engineering?

The availability and exploitation of oil and gas resources underpin the world's economy and, as the petroleum industry reaches maturity, new hydrocarbon resources are becoming increasingly difficult to find. In addition, the worldwide demand for oil is increasing rapidly. The decline in new discoveries, coupled with increased demand, has resulted in rising oil prices, and so oil companies are placing more emphasis on efficient recovery to maintain production and meet increasing demands.

Petroleum engineers work at the interface between geology and engineering and play a pivotal role in the efficient exploitation and long-term recovery of hydrocarbons.

These courses, which we run in partnership with our School of Chemical Engineering and Analytical Science, are designed to equip you with the knowledge and skills required by the petroleum industry. Several of the course units are led by industry professionals and the project work is designed to simulate real petroleum engineering problems.

MEng and BEng (Hons) Petroleum Engineering

Producing oil and gas from reserves effectively and safely is of immense economic importance, and requires a broad spectrum of knowledge and skills. These Petroleum Engineering courses aim to equip you with the skills and knowledge required to manage and operate oil fields effectively.

Benefits include:

- Joint course with teaching shared between our School of Earth, Atmospheric and Environmental Sciences and School of Chemical Engineering and Analytical Sciences
- Industrial input to course design and delivery
- Dedicated laboratory space with access to industry-standard software
- Design projects in each year, enabling you to put theory into practice

For all our degree courses

For a full list of course units relating to all our courses, visit:
www.seaes.manchester.ac.uk/study/undergraduates

Student profiles

I especially feel that the annual field trips are an integral part of the course, as they have allowed me to gain valuable scientific surveying skills and put the theory I learnt in class into practice. It is rare that a university organises a compulsory field course every year, and I believe that it is a great opportunity provided by Manchester, as it has also allowed me to really get to know my course mates and work well as a team.

Sarah Perry
BSc Environmental Science

The great thing about the Environmental Science course is that the content includes topics that cover all scientific disciplines. I don't believe that any other course could cover such a wide range of topics in such detail. The range of topics covered by the course means that you're constantly learning and never doing the same thing twice.

Alexandra Cordeaux
BSc Environmental Science

Studying Petroleum Engineering at Manchester is challenging, stimulating, exciting and rewarding. The course is very dynamic, and students are exposed to a varied mix of lectures, group tutorials and fieldwork. My favourite part of being a Petroleum Engineering student at Manchester has been being a part of a close-knit group of like-minded students who support each other every step of the way. I feel that the course will equip me with the necessary technical and personal skills to go out into the real world, and I am confident that I will be successfully in my future career. I would strongly recommend coming to Manchester – it really is great!

Maria Sinakova
BEng Petroleum Engineering

The fourth year of the MEarthSci course differs from those previous in the increased amount of choice involved. You are allowed greater independence in the selection of a project and relevant course units, ideal for students perhaps considering a PhD. The fourth-year North Wales field trip also gave great insight into the industrial side of geology.

Lee Martin
MEarthSci

Manchester offers a unique experience on its earth science courses, such as Geochemistry and Geology. The University has excellent facilities, resources and lectures. Obviously there is a lot of hard work involved, but there is a lot of fun to be had too; the second-year field trips have provided me with some great memories. Finally, by the end of it all I'll have a top notch degree and a choice of career that will hopefully take me to a hot country somewhere.

Dominic Mulroy
BSc Geochemistry

The Petroleum Engineering course at The University of Manchester is a great combination of geoscience and engineering, practical-based, and theoretical work. The course units incorporated and the connections with industry are placing me in excellent stead for a graduate position in the oil a nd gas industry.

Sarah Barber
BEng Petroleum Engineering

Find out more online

Accommodation
Discover your new home:
www.manchester.ac.uk/accommodation

Admissions and applications
Everything you need to apply:
www.manchester.ac.uk/ug/howtoapply

Alan Gilbert Learning Commons
Take a look around our 24/7, independent learning space:
www.manchester.ac.uk/library/learningcommons

Careers
Take control of your career:
www.manchester.ac.uk/careers

Childcare
Balancing your studies with your caring responsibilities:
www.manchester.ac.uk/childcare

Disability support
Talk to us about any support you need:
www.manchester.ac.uk/dso

Funding and finance
Get to grips with fees, loans, scholarships and more:
www.manchester.ac.uk/studentfinance

International students
Let us help you prepare for your time here:
www.manchester.ac.uk/international

IT Services
Online learning, computer access, IT support and more:
www.manchester.ac.uk/itservices

Library
We have one of the UK's largest and best-resourced university libraries:
www.manchester.ac.uk/library

Maps
Find your way around our campus, city and accommodation:
www.manchester.ac.uk/aboutus/travel/maps

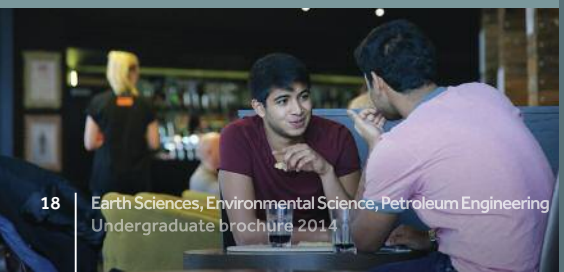
Prospectus
Download or order a copy of our prospectus:
www.manchester.ac.uk/ug/courses/prospectus

Sport
Get active with our clubs, leagues, classes and facilities:
www.manchester.ac.uk/sport

Support
Let us help with any academic, personal, financial and administrative issues:
my.manchester.ac.uk/guest

Students' Union
Immerse yourself in societies, events, campaigns and more:
manchesterstudentsunion.com

Videos
Learn more about us on our YouTube channel:
www.youtube.com/user/universitymanchester



Contact details

For further information about the courses, or about qualifications, please contact us at:

Address
School of Earth, Atmospheric and Environmental Sciences
The University of Manchester
Oxford Road
Manchester
M13 9PL
United Kingdom

tel +44 (0)161 275 0776
email ug-earth-sci@manchester.ac.uk

For the most up-to-date course information, visit our website:
www.seaes.manchester.ac.uk/study/undergraduates

Disclaimer

This brochure is prepared well in advance of the academic year to which it relates. Consequently, details of courses may vary with staff changes. The University therefore reserves the right to make such alterations to courses as are found to be necessary. If the University makes an offer of a place, it is essential that you are aware of the current terms on which the offer is based. If you are in any doubt, please feel free to ask for confirmation of the precise position for the year in question, before you accept the offer.

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