

Programme Specification: Undergraduate

For students starting in Academic Year 2018/2019

1. Course Summary

Names of programme(s) and award title(s)	Master in Geology (Abbreviation M.Geol.) M.Geology – Single Honours Route M.Geology – Single Honours Route with International Year (see Annex A for details) M.Geology – Single Honours Route with Work Placement Year (see Annex B for details)
Award type	Integrated Masters
Mode of study	Full time
Framework of Higher Education Qualification (FHEQ) level of final award	Level 7
Duration	4 years 5 years with either the International Year or Work Placement Year between years 2 and 3
Location of study	Keele University – main campus
Accreditation (if applicable)	Our courses are accredited by the Geological Society of London. This revised course with a new degree title is due for accreditation in 2019. For further details see section 12
Regulator	Office for Students (OfS)
Tuition Fees	UK/EU students: Fee for 2018/19 is £9,250* International students: Fee for 2018/19 is £15,480** The fee for the international year abroad is calculated at 15% of the standard year fee
Additional Costs	Refer to section 18

How this information might change: Please read the important information at <http://www.keele.ac.uk/student-agreement/>. This explains how and why we may need to make changes to the information provided in this document and to help you understand how we will communicate with you if this happens.

* These fees are regulated by Government. We reserve the right to increase fees in subsequent years of study in response to changes in government policy and/or changes to the law. If permitted by such change in policy or law, we may increase your fees by an inflationary amount or such other measure as required by government policy or the law. Please refer to the accompanying Student Terms & Conditions. Further information on fees can be found at <http://www.keele.ac.uk/studentfunding/tuitionfees/>

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2. What is an Integrated Masters Programme?

Integrated master's awards - which are common in science, mathematics and engineering - are delivered through a programme that combines study at the level of a bachelor's degree with honours with study at master's level. As such, a student graduates with a master's degree after a single four-year programme of study. The integrated master's programme described in this document builds upon the first two years of the Single Honours Geology by adding third and fourth years in which students study modules in Geology at an advanced level. This will result in a degree title of *Master in Geology (Geology)*.

3. Overview of the Programme

M.Geology is a four-year undergraduate Integrated Masters course primarily designed for those considering a career in Earth Science. The course aims to provide an in-depth experience of many important geoscience topics along with training in research techniques, laboratory methods, computing techniques and other transferable skills. In particular, modules studied in the third and fourth years prepare students for work in industry, commerce or academia. The M.Geology degree programme may be taken by students studying Geology with any natural sciences subject at Levels 4 & 5, or by those students taking Single Honours Geology (See separate programme specifications). Discipline-specific modules at Levels 6 & 7 are complemented by research-driven modules, and enhanced subject-specific skills.

4. Aims of the Programme

The broad aims of the programme are to:

- enable students to specialise in geology via a four-year Integrated Masters programme to obtain a more in-depth experience of the subject, as well as gaining additional experience in independent research project work and key skills
- provide a broad-based introduction to geology at Level 4 that does not require previous knowledge of geology topics, and to utilise the material covered at Level 4 to lay the foundations for detailed study of geological concepts at Levels 5, 6 & 7
- provide an understanding of the structure and composition of the Earth and other planets
- provide an integrated approach to understanding the present and past interactions between the physical, chemical and biological processes operating in the Earth's core, mantle, crust, and surface
- provide an appreciation of the history of the Earth over geological time scales
- promote an awareness of the dual context of the subject in society, as well as providing knowledge and understanding of both the exploitation and the conservation of the Earth's resources
- provide an appreciation of the scientific fundamentals in geology and an adequate knowledge base for a career in research or industry
- provide Masters-level training in research, laboratory and computing techniques and to instil a comprehensive understanding of techniques applicable to their own research and advanced scholarship
- emphasise the development of field, laboratory, presentational, writing and information technology skills to prepare graduates for independent work in their professional careers
- provide a fully integrated fieldwork programme, including overseas field courses and a Masters level investigative- and equipment-based field course
- provide appropriate monitoring schemes and feedback for students on their progress
- provide a wide choice of subject options and all-round education

5. What you will learn

The intended learning outcomes of the programme (what students should know, understand and be able to do at the end of the programme), can be described under the following headings:

- Subject knowledge and understanding

- Subject specific skills
- Intellectual skills
- Key or transferable skills (including employability skills)

Subject knowledge and understanding

Successful students will be able to demonstrate knowledge and understanding of:

- the terminology, nomenclature and classification of rocks, minerals, fossils and geological structures
- geological processes and how they integrate to shape the natural world at different temporal and spatial scales
- the structure and composition of the Earth and other planets
- geological time, including the principles of stratigraphy, the stratigraphic column, dating techniques, rates of Earth processes and major events in Earth history
- the evolution of life on Earth as revealed by the fossil record
- major geoscience paradigms, including uniformitarianism, the extent of geological time and plate tectonics
- the need for both a multi-disciplinary and interdisciplinary approach to the development of knowledge in the geosciences
- the different components of the Earth system and how they interact to change the physical world and their impact on society
- different methods used in the observation, analysis, interpretation and representation of geological and geophysical information
- how the geology of a field study area can be used to illustrate and deepen understanding of the geological evolution of a wider region
- modern environments and processes, and use of this knowledge to interpret aspects of the geological record
- issues concerning the exploration, availability and sustainability of natural resources
- geological aspects of human impacts on the physical environment
- natural hazards and their impacts on society
- applications of geology to the development of knowledge, wealth creation and improving quality of life

Subject specific skills

Successful students will be able to:

- identify a wide range of igneous, sedimentary and metamorphic rocks, as well as a wide range of minerals, fossils and geological structures
- implement three-dimensional analysis with particular reference to the subsurface distribution and relationships of rocks observed at the surface
- collect and record geological and geophysical information in the field, including the production and interpretation of geological maps
- plan, design and execute an independent piece of project work in the geological sciences, including acquisition and recording of geological data in the field, followed by the processing, interpretation and presentation of this data, and the production of a final report
- make safe and effective use of a range of field equipment commonly used by the geoscience profession and develop an understanding of the scope and limitations of such equipment
- undertake effective fieldwork with due regard for safety, risk assessment, rights of access, relevant health and safety regulations and sensitivity to the impact of investigations on the environment
- work safely in a scientific laboratory, with awareness of standard methods and procedures and with due regard for risk assessment and relevant health and safety regulations
- prepare effective maps and diagrams using a range of appropriate technologies
- employ a variety of technical and laboratory-based methods for the collection and analysis of geological and geophysical information

- combine and interpret different types of geological and geophysical evidence using quantitative and qualitative approaches
- appreciate the issues of sample selection, accuracy, precision and uncertainty during collection, recording and analysis of geoscience data in the field and laboratory
- use powers of observation, analysis and imagination to make decisions in the light of uncertainty

Intellectual skills

Successful students will be able to:

- recognise and use subject-specific theories, concepts and principles to make reasoned decisions and solve problems
- analyse, synthesise and summarise data and information critically, including prior research
- collect and integrate several lines of evidence to formulate and test hypotheses, and make critical judgements
- apply knowledge and understanding to address familiar and unfamiliar problems
- assess the merits of contrasting theories, explanations and policies
- recognise the moral and ethical issues of investigations and appreciate the need for professional codes of conduct
- develop an adaptable and flexible approach to study and work
- identify and work towards targets for personal, academic and career development
- take responsibility for their own learning and develop a habit of reflection upon that learning

Key or transferable skills (including employability skills)

Successful students will be able to:

- develop and sustain effective approaches to learning and study, including time management, flexibility, creativity and intellectual integrity
- communicate effectively to a variety of audiences in written, verbal and graphical forms
- work with numerical data using appropriate qualitative and quantitative techniques, as well as computer software packages
- work effectively with a variety of types of information technology to analyse and present information and data, as well as solve numerical problems
- use the internet as a means of communication and a source of information
- demonstrate competence in spatial awareness and observation
- conduct field and laboratory studies
- reference work in an appropriate manner
- work with information handling and retrieval systems using data from a wide range of sources
- work effectively both as an individual and as part of a group or team, recognising and respecting the viewpoints of others
- sustain motivation to work towards a goal over an extended period of time
- recognise responsibilities as a local, national and international citizen

Keele Graduate attributes

Engagement with this programme will enable you to develop your intellectual, personal and professional capabilities. At Keele, we call these our ten Graduate Attributes and they include independent thinking, synthesizing information, creative problem solving, communicating clearly, and appreciating the social, environmental and global implications of your studies and activities. Our educational programme and learning environment is designed to help you to become a well-rounded graduate who is capable of making a positive and valued contribution in a complex and rapidly changing world, whichever spheres of life you engage in after your studies are completed.

Further information about the Keele Graduate Attributes can be found here: <http://www.keele.ac.uk/journey/>

6. How is the Programme taught?

Learning and teaching methods used on the programme vary according to the subject matter and level of the module. They include the following:

- Lectures
- Workshops
- Practical classes
- Field courses
- Individual progress interviews
- Directed reading
- Group presentations and linked discussion
- Independent study and project work
- Use of e-learning/the Keele Learning Environment (KLE)

The directed reading and lecture slides available in advance on the KLE help you prepare for lectures and the practical classes reinforce concepts learned in lectures through problem solving and practical application of geological techniques. Some classes are taught in workshop format integrating both lecture and practical material. Fieldwork provides a deep, immersive learning experience that puts geological processes and their products into their four dimensional context. The independent mapping project provides the opportunity to bring together and demonstrate proficiency in all areas of geology.

Apart from these formal activities, students are also provided with regular opportunities to talk through particular areas of difficulty, and any special learning needs they may have, with their Personal Tutors or module lecturers on a one-to-one basis.

These learning and teaching methods enable students to achieve the learning outcomes of the programme in a variety of ways.

7. Teaching Staff

Currently our core teaching staff members comprises of a number of Senior Lecturers, Lecturers and Postdoctoral Teaching Fellows, who between them have expertise and interests in all major areas of earth sciences as well as complementary vocational disciplines such as computing and forensic science. In addition, members of the Geography and Environmental lecturing staff also contribute to the Geology degree programmes.

All current academic members of staff are active researchers and many have a distinguished track record in publication, the generation of grant income, industrial collaboration and journal editorship. Several staff have particular interests in the development of geoscience education and/or have played an active role in the promotion of UK geoscience activities (e.g. via membership of Geological Society committees). Members of staff are Fellows of the Higher Education Academy and many have professional qualifications such as Fellow of the Geological Society (F.G.S.), Chartered Geologist (C.Geol), European Geologist (EurGeol), Fellow of the Royal Astronomical Society (F.R.A.S.), as well as others. Members of staff have also won both group and individual Keele Teaching and Learning Excellence Awards.

The University will attempt to minimise changes to our core teaching teams, however, delivery of the programme depends on having a sufficient number of staff with the relevant expertise to ensure that the programme is taught to the appropriate academic standard.

Staff turnover, for example where key members of staff leave, fall ill or go on research leave, may result in changes to the programme's content. The University will endeavour to ensure that any impact on students is limited if such changes occur.

8. What is the Structure of the Programme?

The academic year runs from September to June and is divided into two semesters. The number of weeks of teaching will vary from course to course, but you can generally expect to attend scheduled teaching sessions between the end of September and mid-December, and from mid-January to early May. Field courses and independent mapping can take place outside of these dates.

Our degree courses are organised into modules. Each module is usually a self-contained unit of study and each is usually assessed separately with the award of credits on the basis of 1 credit = 10 hours of student effort. An outline of the structure of the programme is provided in the tables below.

There are three types of module delivered as part of this programme. They are:

- Compulsory modules – a module that you are required to study on this course;
- Optional modules – these allow you some limited choice of what to study from a list of modules;
- Elective modules – a free choice of modules that count towards the overall credit requirement but not the number of subject-related credits.

M. Geology is a four-year undergraduate integrated master's course. Single Honours Geology taken in Levels 4 and 5 or Combined Honours Geology is taken in Levels 4 and 5 in combination with a Natural Sciences subject. Only Geology modules are taken at Levels 6 and 7.

A summary of the total credit requirements per year is as follows, with a minimum of 90 subject credits (compulsory plus optional) required for each year across both of your Principal Subjects in years 1 and 2. This document has information about Geology modules only; please also see the document for your other subject.

Year	Compulsory	Optional		Electives	
		Min	Max	Min	Max
1	105	0	0	15	15
2	120	0	0	0	0
3	75	45	45	0	0
4	90	30	30	0	0

Module lists

Year 1 (Level 4)

It is assumed that students have no previous geological knowledge and therefore the Programme starts from basics. The programme provides a broad-based introduction to geological topics at Levels 4 & 5 with emphasis on the characteristics of rocks, minerals and fossils, together with the processes that govern their formation and development.

You have a free choice of one of the Free-Standing Elective modules offered by all Faculties within the University, including a modern language. An elective module is offered at Level 4 in order to enhance the interdisciplinary nature of the Geology degree course and to provide compatibility with part of the University's philosophy for undergraduate education, which is broadly based rather than over specialised.

Compulsory modules	Credits	Optional modules	Credits
Minerals, Rocks and Fossils †	30		
Earth Structure and History †	30		
Geology Data Visualisation, Analysis and Interpretation	30		
The Earth System	15		

† Module contains fieldwork

Year 2 (Level 5)

During Level 5 particular attention is paid to first hand observation, recording and interpretation of geological, geophysical and geochemical phenomena in the field and laboratory. By the end of the level you will have been given a complete grounding in geology that will allow you to carry out your own independent studies.

Compulsory modules	Credits	Optional modules	Credits
Petrology †	30		
Field Techniques †	30		
Geology & Society †	30		
Geochemistry	15		
Palaeoclimatology and Quaternary Studies †	15		

† Module contains fieldwork

International Year

Information relevant to students taking the International Year is available in Annex A.

Work Placement Year

Information relevant to students taking the Work Placement Year is available in Annex B.

Year 3 (Level 6)

This year starts during the summer vacation when students carry out an independent field project, which normally takes 5 weeks. During the autumn semester students prepare a dissertation based upon this field project. In addition, there is a choice of option modules/ programme approved electives from a wide range of geological subject areas. In addition, Geology students can select some Physical Geography option modules. The method and approach to teaching changes emphasis from staff-centred instruction at Levels 4 & 5 to more student- oriented activities, with components of several modules based upon independent or team-based project work.

There is also a change from modules based upon pure aspects of geological study to more applied aspects. It is intended that students should select their option modules according to their interests and career aspirations. Much of the content of these Level 6 option modules is based on research at the forefront of the discipline and helps to strengthen links between teaching and research.

Compulsory modules	Credits	Optional modules (Choose 60 Credits)	Credits
Geology: Independent Field Project †	30	Structure and Geodynamics †	15
Economic Geology †	15	Natural Hazards	15
Advanced Petrology and Structural Geology Field Course †	15	Hydrological and Engineering Geology	15
Advanced Topics in Sedimentology †	15	Exploration Geophysics for Hydrocarbons	15
		Micropalaeontology: Principles and Applications †	15
		Glaciers and Glacial Geomorphology *	15
		Global Environmental Change *	15
		Water Resources *	15
		Coastal Environments *	15

* No more than two of these Physical Geography modules may be taken across Level 6 and Level 7

† Module contains fieldwork

Year 4 (Level 7)

The emphasis at level 7 is upon the development of research and vocational skills. All students are expected to undertake an extended (M.Geology-specific) research project in an area related to the geosciences, compulsory data analysis and literature synthesis modules, and a selection of more specialised options. All modules are at Level 7 standard.

Compulsory modules	Credits	Optional modules (Choose 30 Credits)	Credits
Literature Synthesis	15	MGeology: Structure and Geodynamics †	
Research Project	15	MGeology: Natural Hazards	15
Research in Context	15	MGeology: Hydrological and Engineering Geology	
Research Report	15	MGeology: Economic Geology †	15
Spatial Geoscience Data Analysis †	15	MGeology: Exploration Geophysics for the Hydrocarbon Industry	15
Petroleum Geology	15	MGeology: Micropalaeontology: Principles and Applications †	15
		MGeology: Glaciers and Glacial Geomorphology *	15
		MGeology: Global Environmental Change *	15
		MGeology: Water Resources *	15
		MGeology: Coastal Environments *	15

* No more than two of these Physical Geography modules may be taken across Level 6 and Level 7

† Module contains fieldwork

For further information on the content of modules currently offered please visit:

www.keele.ac.uk/recordsandexams/az

Learning Outcomes

The table below sets out what students learn in each year of the Programme, the modules in which that learning takes place, and the main ways in which students are assessed on their learning. In Year 1 (Level 4) and Year 2 (Level 5) these learning outcomes are achieved in the compulsory modules which all students are required to take. Some of these outcomes may also be achieved or reinforced in elective modules together with other outcomes not stated here. In Year 3 (Level 6) the stated outcomes are achieved by taking any of the modules offered in each semester.

Year 1 (Level 4)

Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
Successful students will be able to: Describe underlying concepts and principles in Geology, and be able to evaluate and interpret these. Present, evaluate, and interpret Geological information. Use basic geological theories and concepts to develop arguments, make judgements, and evaluate different approaches to solving problems. Communicate results accurately and reliably, with structured and coherent arguments.	All Level 4 modules	Laboratory notebooks; maps, exercises and reports from field courses; class tests; unseen two hour exams.

Year 2 (Level 5)

Learning Outcome Successful students will be able to:	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
Describe and critically evaluate well-established geological principles, their development, limits of knowledge, influence on analyses and interpretations. Describe in detail the main methods of geological enquiry. Apply underlying geological concepts and principles beyond first context. Critically evaluate different approaches to solving geological problems. Use range of key and established geological techniques for critical analysis.	All Level 5 modules	Practical class worksheets and practical class tests; Data acquisition and interpretation, and completion of technical reports based on field excursions; Two-hour unseen examinations
Communicate effectively to specialist and non-specialist audiences.	Field Techniques	Data acquisition and interpretation (e.g. production of maps), and technical reports based on field excursions; Poster/teamwork exercise on the geology of the field course study area
Demonstrate skills to exercise personal responsibility and decision-making.	Field Techniques	Field notebook; Data acquisition and interpretation, and report based on field excursions
Use literature searching and literature synthesis skills	Field Techniques	Literature review
Develop enhanced awareness of procedures for personal career development.	Field Techniques	Assignment on applying for a job as a geoscientist.

Year 3 (Level 6)

Learning Outcome Successful students will be able to:	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
Describe coherently and systematically key aspects of Geology informed by ideas at the forefront of the subject. Devise and sustain arguments, solve problems, using ideas and techniques, some of which are at the forefront of the subject. Describe and comment upon particular aspects of current geological research and advanced	All Level 6 modules	Practical class based exercises; Practical tests; Production of reports, including supporting materials (e.g. maps, sedimentary logs, etc.); Two hour unseen examination; Field-course related assignments.

<p>scholarship.</p> <p>Critically evaluate geological arguments, assumptions, abstract concepts and data (may be incomplete), to make judgements, to frame questions to achieve a solution or identify a range of solutions to a problem.</p> <p>Undertake further professional (or equivalent) training.</p>		
<p>Communicate information, ideas, problems, and solutions to both specialist and non-specialist audiences.</p>	All Level 6 modules	Production of reports, including supporting materials (e.g. maps, sedimentary logs, etc.); Poster Presentation; Individual and group-based oral presentations
<p>Exercise initiative and decision-making in complex and unpredictable contexts.</p>	Independent Field Project	Production of report, including supporting materials (e.g. maps, sedimentary logs, etc.)
<p>Deploy established techniques of geological analysis and enquiry to review, consolidate, extend and apply own knowledge and understanding, and to initiate and carry out projects.</p>	All Level 6 modules	Production of reports, including supporting materials (e.g. maps, sedimentary logs, etc.); Field-course related assignments; Field notebook

Year 4 (Level 7)

Learning Outcome	Module in which this is delivered	Principal forms of assessment (of the Level Outcome) used
<p>Successful students will be able to:</p> <p>Develop a systematic understanding of knowledge, and a critical awareness of current problems and/or new insights in Geoscience, much of which is at, or informed by, the forefront of the subject or area of professional practice.</p>	All Level 7 modules	Examinations, reports, oral and poster presentations, practical class assignments, development of web site.
<p>Articulate and evaluate critically a comprehensive understanding of techniques applicable to own research / advanced scholarship, and a conceptual understanding of current research and advanced scholarship in the discipline.</p>	<p>Research Project</p> <p>Research in Context</p> <p>Research Report</p>	Production of report in the format of a published article; poster presentation
<p>Show self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.</p>	All Level 7 modules	Reports, oral and poster presentations, practical class assignments, development of web site, field course assignments.

9. Final and intermediate awards

Credits required for each level of academic award are as follows:

Integrated Master's Degree	480 credits	You will require at least 120 credits at levels 4, 5, 6 and 7
Honours Degree	360 credits	You will require at least 120 credits at levels 4, 5 and 6. You must accumulate at least 270 credits in Geology (out of 360 credits overall), with at least 90 credits in each of the three years of study, to graduate with a named single honours degree in Geology.
Diploma in Higher Education	240 credits	You will require at least 120 credits at level 4 or higher and at least 120 credits at level 5 or higher
Certificate in Higher Education	120 credits	You will require at least 120 credits at level 4 or higher

M.Geology with International Year: in addition to the above students must pass a module covering the international year in order to graduate with a named degree in M.Geology with International Year. Students who do not complete, or fail the international year, will be transferred to the four-year Geology programme.

M.Geology with Work Placement Year: in addition to the above students must pass a non-credit bearing module covering the placement year in order to graduate with a named degree in M.Geology with Work Placement Year. Students who do not complete, or fail the placement year, will be transferred to the four-year Geology programme.

10. How is the Programme assessed?

The wide variety of assessment methods used within Geology at Keele reflects the broad range of knowledge and skills that are developed as you progress through the degree programme. Teaching staff pay particular attention to specifying clear assessment criteria and providing timely, regular and constructive feedback that helps to clarify things you did not understand and helps you to improve your performance. The following list is representative of the variety of assessment methods used within Geology:

- **Unseen closed and open book examinations** in different formats test your knowledge and understanding of the subject. Examinations may consist of essay, short answer and/or multiple choice questions
- **Technical reports** allow you to demonstrate your ability to articulate ideas clearly and concisely in a format used in the geological industry. Technical reports also develop and demonstrate research and presentation skills (including appropriate scholarly referencing)
- **Laboratory reports** – structured proformas and full laboratory reports are formal summaries of work carried out in the geological laboratory and test your understanding of the practical aspects of the programme and develop the skills necessary to enable you to present and analyse your results
- **Class tests** taken either in the geological laboratory or online via the Keele Learning Environment (KLE) assess your subject knowledge and your ability to apply it in a more structured and focused way
- **Dissertations** enable you to explore in depth an area of particular interest through a substantial piece of focused research and writing, and demonstrate a deeper understanding of geological issues
- **Field course exercises** allow you to demonstrate your understanding of geological features encountered in the field. This might include the contents of your field notebook, field sketches, geological logs and maps
- **Oral and poster presentations and reports** assess your subject knowledge and understanding and your ability to articulate this orally and graphically. Group work also tests your ability to work effectively as members of a team, and to reflect on these processes as part of your own personal development

- **Literature Syntheses** of other scholars' work test your ability to identify and summarise the key points of a text and to evaluate the quality of arguments and the evidence used to support them. They also help you provide a background context for your research project work
- **Portfolios** may consist of a range of different pieces of work but on a common theme to allow you to demonstrate your knowledge and understanding via a number of different formats

Marks are awarded for summative assessments designed to assess your achievement of learning outcomes. You will also be assessed formatively to enable you to monitor your own progress and to assist staff in identifying and addressing any specific learning needs. Feedback, including guidance on how you can improve the quality of your work, is also provided on all summative assessments within three working weeks of submission, unless there are compelling circumstances that make this impossible, and more informally in the course of tutorial and practical/workshop discussions.

11. Contact Time and Expected Workload

This contact time measure is intended to provide you with an indication of the type of activity you are likely to undertake during this programme. The data is compiled based on module choices and learning patterns of students on similar programmes in previous years. Every effort is made to ensure this data is a realistic representation of what you are likely to experience, but changes to programmes, teaching methods and assessment methods mean this data is representative and not specific.

Undergraduate courses at Keele contain an element of module choice; therefore, individual students will experience a different mix of contact time and assessment types dependent upon their own individual choice of modules. The figures below are an example of activities that a student may expect on your chosen course by year/stage of study. Contact time includes scheduled activities such as: lecture, seminar, tutorial, project supervision, demonstration, practical classes and labs, supervised time in labs/workshop, fieldwork and external visits. The figures are based on 1,200 hours of student effort each year for full-time students.

Activity	Year 1 (Level 4)	Year 2 (Level 5)	Year 3 (Level 6)	Year 4 (Level 7)
Scheduled learning and teaching activities	40%	44%	29%	23%
Guided independent Study	60%	56%	71%	77%
Placements	0%	0%	0%	0%

12. Accreditation

The course equivalent to M.Geology has been accredited by the Geological Society of London www.geolsoc.org.uk, which is the world's oldest geological society that was founded in 1807 by Royal Charter and is the UK national society for geoscience. It exists to promote the geosciences and the professional interests of UK geoscientists. The main aim of the accreditation scheme is to ensure that geology degree courses are underpinned by well-maintained internal standards that satisfy the academic requirements of Fellowship of the Society and Chartered Geologist status.

If you successfully complete an accredited degree course will normally qualify for admission to Fellowship of the Society and for the award of Chartered Geologist status after a specified period of professional development and relevant experience.

Accreditation status was awarded in 2007, followed by successful applications for reaccreditation in 2014. The courses are due for reaccreditation in 2019 which will cover the name change of the degree and revised structure.

13. Regulations

The University Regulations form the framework for learning, teaching and assessment and other aspects of the student experience. Further information about the University Regulations can be found at:
<http://www.keele.ac.uk/student-agreement/>

Levels 6 and 7 of integrated master’s programmes are governed by Regulation 1F
<https://www.keele.ac.uk/regulations/regulation1f/>

It is not possible to take both the Work Placement Year and the International Year option.

For additional regulations for students taking the International Year please refer to Annex A.
 For additional regulations for students taking the Work Placement Year please refer to Annex B.

At this time there are no additional course regulations relating to accreditation. However, should these be required by the regulating body in the future, we might have to add programme regulations to maintain our accreditation. Should this be required we will inform you of any changes at the earliest opportunity.

14. What are the typical admission requirements for the programme?

Subject	A-level	Subjects not included	International Baccalaureate	BTEC	Access to Higher Education Diploma	GCSE requirements
M.Geology (MGeol.)	ABC / BBB A level Biology, Chemistry, Environmental Science, Geography, Geology, Maths, Physics or related science discipline at grade B or above A Pass in Science Practical will be required if taking A level Biology, Chemistry or Physics (England) ** ** Science practical only required from applicants taking reformed A level Biology, Chemistry or Physics in England.	None	32 points to include Higher Level Biology, Chemistry, Physics or Geography at 6 or above.	DDM You must have taken sufficient Science units, please contact us for advice.	Obtain Access to Higher Education Diploma with 30 Level 3 credits at Distinction and 15 Level 3 credits at Merit. You must also have taken sufficient Science credits, please contact us for advice.	Maths @ C (or 4) English Lang @ C (or 4)

Applicants who are not currently undertaking any formal study or who have been out of formal education for more than 3 years and are not qualified to A-level or BTEC standard may be offered entry to the University’s Foundation Year Programme.

Applicants for whom English is not a first language must provide evidence of a recognised qualification in English language. The minimum score for entry to the Programme is Academic IELTS 6.0 or equivalent.

Please note: All non-native English speaking students are required to undertake a diagnostic English language assessment on arrival at Keele, to determine whether English language support may help them succeed with their studies. An English language module may be compulsory for some students during their first year at Keele.

Accreditation of Prior Learning (APL) is considered on a case-by-case basis and those interested should contact the Programme Director. The University’s guidelines on this can be found here:
<http://www.keele.ac.uk/qa/accreditationofpriorlearning/>

15. How are students supported on the programme?

Open Door Policy: Geology members of staff operate an 'Open Door Policy' where if we are free our office door will be open. If you want to have a chat about anything related to our courses, just knock and come in.

Personal /Geology Tutors: All Geology students are allocated a Personal Tutor for the duration of their studies as part of the University's Personal Tutor system. Those Geology students who are allocated a Personal Tutor from another subject are also assigned a Subject Tutor from the Geology teaching staff so that they have a contact person within the subject. The role of the Personal/Geology Tutor is to meet formally with their tutees several times a year to discuss progress and performance and to offer support and advice. Students can make arrangements to see their Personal/Geology Tutor at any time.

Assessment & Feedback: On-going formative feedback on work is provided in practical classes and on fieldwork by discussion with members of staff or postgraduate demonstrators. Feedback on formative and summative assessments is provided in many formats, as electronic or written comments (as appropriate to the type of work submitted), or verbally either as general comments to a group or individual. You can consult your Personal Tutor about feedback on your exams or consult module leaders regarding course content.

Use of e-learning/the Keele Learning Environment (KLE): All modules belonging to the Geology programmes are supported by learning materials that are accessible to students via the KLE.

Option Module Choice: General advice is given at the end of Level 5 (Year 2) on your choice of Level 6 and Level 7 option modules. You can then talk to either your Personal Tutor and/or the Course Director about how your choice of modules would match your career aspirations.

Work Placement Tutor: All students undertaking the work placement degree programme will be provided with an academic tutor, based at Keele. Students will be expected to find their own work placements however, support will be provided throughout the placement process. This will involve support ensuring the appropriateness of the placement prior to starting the Placement Year, and email/telephone/face-to-face contact with the academic tutor throughout the placement at regular intervals.

Health and Safety: All students admitted to the course are expected to read the Geography, Geology and the Environment (GGE) Safety Handbook. Students are required to sign an agreement that they have read this Handbook, and that they will abide by the rules and regulations governing the efficient working, safety and welfare of all members both within the University and in the field. The GGE Safety handbook can be accessed from: www.keele.ac.uk/gge/handbooks/

Career Choice: The Course Director is the designated careers tutor. You can consult them at any time regarding questions you might have regarding future careers. Career development skills such as CV writing and applying for jobs are embedded within one of the Level 5 modules.

Students with disabilities: Students with disabilities or medical problems, who are admitted onto the Geology degree programme, will meet with a member of the University's Disability Services department, the Geology Course Director and the GGE Disability Officer at the very start of the course in order to discuss any special requirements. Procedures will then be implemented according to the nature of the student's disability or medical problem. These procedures can range, for example, from allowing extra examination time for students diagnosed as dyslexic, to allocating additional staff or demonstrators to field classes to help students with mobility problems.

Further information: It is essential that students consult the course web site at regular intervals for definitive versions of the Geology handbooks, on-line course materials, and programme and module specifications. This resource can be accessed at www.keele.ac.uk/gge/students/geoscience/

On-line learning and teaching materials related to individual modules are available on the Keele Learning Environment, which can be accessed from students.keele.ac.uk/ (Keele access only).

16. Learning Resources

The Geography, Geology and the Environment section of the School has its own building (the William Smith Building) that contains well-equipped laboratories and lecture theatres to cater for all geology/geoscience teaching. This concentration of teaching into one building enables students to identify with a specific base within the University.

M.Geology students have access to the master's laboratory to work in during their Level 7 studies, including a dedicated personal computer. The foyer provides pleasant surroundings for students to meet and socialise with their peers. The Office is open continuously during the week from 9 am to 5 pm to answer student queries and deal with administrative tasks.

17. Other learning opportunities

Study Abroad (International Year)

A summary of the International Year, which is a potential option for students after completion of year 2 (Level 5), is provided at Annex A.

Work Experience (Work Placement Year)

A summary of the Work Placement Year, which is a potential option for students after completion of year 2 (Level 5), is provided at Annex B.

Fieldwork

Fieldwork is an essential part of a geologist's training and is intended to supplement and complement formal class teaching and develop the skills of observing and recording. It also establishes professional, social and cultural links outside the institution and develops an external dimension to the School's courses. The Geology programme includes field excursions to classic geological areas within the British Isles, as well as overseas field courses to enable students to study the evolution of fundamentally different geological regimes. Due to the combined honours structure of Keele, field courses typically have to take place at weekends or during vacation time.

18. Additional costs

M.Geology Programme Costs

Field Course Costs

We offer a degree pathway where there are no charges to students for travel and accommodation taking field courses as a core part of their programme. The University pays for these costs. At Level 5 (second year), you have the option of attending the Almeria field course for free, or paying the extra cost of going to Utah above the level to which the Almeria field course is subsidised (approximately £850 in 2016/17). The potential additional cost is indicated at the start of the year, with details posted on student notice boards to enable you to make an informed decision on the choices available. In order to help you manage their field course costs, the payments are also spread over the course of the academic year, normally January, March and May. The first instalment is non-refundable due to the need to pre-book accommodation, flights, etc. in advance.

Students are expected to have adequate clothing for field trips including waterproofs and stout shoes. Some field courses are fully or partly catered for, others are self-catered and students are expected to purchase their own food.

All Geology students undertake an independent field project with five-weeks fieldwork carried out during the summer vacation between Levels 5 and 6 (years 2 and 3). Students are responsible for organising their own transport and accommodation as well as paying any costs incurred. These costs are extremely variable and not forecastable as they are dependent on where the student carries out their project. Costs are minimal if the project work is undertaken in the student's local home area.

At Level 7, receipted costs incurred of up to £300 on your Master's project will be reimbursed.

International Year Costs

Information relevant to students taking the International Year is available in Annex A.

Work Placement Year Costs

Information relevant to students taking the Work Placement Year is available in Annex B.

IMPORTANT: Costs are only for indicative purposes and correct at the time of printing. Costs are dependent on the options chosen by students and susceptible to changes in the number of students taking field courses and changes in external factors such as flight and accommodation costs outside the University's control. In addition, we reserve the right to change the venues of field courses due to both cost and academic considerations.

These costs have been forecast by the University as accurately as possible but may be subject to change as a result of factors outside of our control (for example, increase in costs for external services). Forecast costs are reviewed on an annual basis to ensure they remain representative. Where additional costs are in direct control of the University we will ensure increases do not exceed 5%.

As to be expected there will be additional costs for inter-library loans and potential overdue library fines, print and graduation.

Activity	Estimated cost
Field courses including 1 week in South Wales, 1 week in North Wales, 1 week in Mull and 1 week in Lake District.	£0
Either: One-week residential field course to Almeria, Spain	£0
Or: Twelve-day residential field course to Western USA	£850
Equipment: Hard hat, high visibility tabard, safety glasses provided at no cost. Stout outdoor shoes / walking boots and waterproof clothing essential.	Up to £150 if require outdoor clothing
Total estimated additional costs: Depends on field course chosen and if have to purchase outdoor clothing.	Up to £150 or £1000

19. Quality management and enhancement

The quality and standards of learning in Geology are subject to a continuous process of monitoring, review and enhancement.

- The Learning and Teaching Committee of the School of Geography, Geology and the Environment is responsible for reviewing and monitoring quality management and enhancement procedures and activities across the School.
- Individual modules and the M.Geology Programme as a whole are reviewed and enhanced every year in the annual programme review which takes place at the end of the academic year and as part of the University's Curriculum Annual Review and Development (CARD) process.
- The programmes are run in accordance with the University's Quality Assurance procedures and are subject to periodic reviews under the Internal Quality Audit (IQA) process.

Student evaluation of, and feedback on, the quality of learning on every M.Geology module takes place every year using a variety of different methods:

- The results of student evaluations of all modules are reported to module leaders and reviewed by the Programme Committee as part of the Curriculum Annual Review and Development (CARD) process.
- Findings related to the M.Geology Programmes from the annual National Student Survey (NSS), and from regular surveys of the student experience conducted by the University, are subjected to careful analysis and a planned response at programme and School level.
- Feedback received from representatives of students in all three years of the M.Geology Programme is considered and acted on at regular meetings of the Programme's Student Staff Voice Committee.

The University appoints senior members of academic staff from other universities to act as external examiners on all programmes. They are responsible for:

- Approving examination questions
- Confirming all marks which contribute to a student's degree
- Reviewing and giving advice on the structure and content of the programme and assessment procedures

Information about current external examiner(s) can be found here:

<http://www.keele.ac.uk/ga/externalexaminers/currentexternalexaminers/>

20. The principles of programme design

The Geology Programmes described in this document have been drawn up with reference to, and in accordance with the guidance set out in, the following documents:

- UK Quality Code for Higher Education, Quality Assurance Agency for Higher Education:
<http://www.qaa.ac.uk/quality-code>
- QAA Subject Benchmark Statement: Earth Sciences, Environmental Sciences and Environmental Studies (2014) http://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-earth-sciences-14.pdf?sfvrsn=b0e3f781_10
- The Geological Society Accreditation Scheme for First Degree Courses in Geology
<https://www.geolsoc.org.uk/Education-and-Careers/Universities/Degree-Accreditation/>
- Keele University Regulations and Guidance for Students and Staff: <http://www.keele.ac.uk/regulations>

21. Document Version History

Date of first approved version (v1.0): 22nd September 2017

Revision history

Version number ¹	Author	Date	Summary of and rationale for changes
2.0	Ian Stimpson	16.04.18	Addition of International Year option (annex A) [Major change: reissued]
3.0	Ian Stimpson	06.07.18	Addition of Work Placement Year option (annex B) [Major change: reissued]

¹ 1.1, 1.2 etc. are used for minor changes and 2.0, 3.0 etc. for major changes (as defined in the University's Guidance on processes supporting curriculum changes)

Annex A

M.Geology with International Year

International Year Programme

Students registered for M.Geology may either be admitted for or apply to transfer during their period of study at Level 5 to the 'M.Geology with International Year'. Students accepted onto this programme will have an extra year of study (the International Year) at an international partner institution after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the International Year will be permitted to progress to Level 6. Students who fail to satisfy the examiners in respect of the International Year will normally revert to the M.Geology programme without the International Year and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5 and Level 6 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'M.Geology with International Year'.

International Year Programme Aims

In addition to the programme aims specified in the main body of this document, the international year programme of study aims to provide students with:

- Personal development as a student and a researcher with an appreciation of the international dimension of their subject
- Experience of a different culture, academically, professionally and socially

Entry Requirements for the International Year

Students may apply during Level 5. Admission to the International Year is subject to successful application, interview and references from appropriate staff.

The criteria to be applied are:

- Academic Performance (an average of 60% across all modules at Level 5 is normally required)
- General Aptitude (to be demonstrated by application for study abroad, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's personal tutor and programme director)

Student Support

Students will be supported whilst on the International Year via the following methods:

- Phone or Skype conversations with Study Abroad tutor, in line with recommended Personal Tutoring meeting points.
- Support from the University's Global Education Team

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete a Keele undergraduate programme with International Year will be able to:

- Describe, discuss and reflect upon the cultural and international differences and similarities of different learning environments
- Discuss the benefits and challenges of global citizenship and internationalisation
- Explain how their perspective on their academic discipline has been influenced by locating it within an international setting.

In addition, students who complete 'M.Geology with International Year' will be able to:

- Design, plan and critically evaluate a practical investigation within the geology, record relevant information accurately and systematically and be able to reflect upon the data in a critical manner.
- Integrate, apply and develop fundamental geology principles to describe and explain phenomena and solve problems in the context of selected topics within geology.

These learning outcomes will all be assessed by the submission of a satisfactory individual learning agreement, the successful completion of assessments at the partner institution and the submission of the reflective portfolio element of the international year module.

Course Regulations

Students registered for the 'M.Geology with International Year' are subject to the course specific regulations (if any) and the University regulations. In addition, during the International Year, the following regulations will apply:

Students undertaking the International Year must complete 120 credits, which must comprise at least 40% in the student's discipline area.

This may impact on your choice of modules to study, for example you will have to choose certain modules to ensure you have the discipline specific credits required.

Students are barred from studying any Geology module with significant overlap to Level 6 modules to be studied on their return. Significant overlap with Level 5 modules previously studied should also be avoided.

Additional costs for the International Year

Tuition fees for students on the International Year will be charged at 15% of the annual tuition fees for that year of study, as set out in Section 1. The International Year can be included in your Student Finance allocation, to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their destination university, accommodation, food and personal costs. Depending on the destination they are studying at additional costs may include visas, study permits, residence permits, and compulsory health checks. Students should expect the total costs of studying abroad be greater than if they study in the UK, information is made available from the Global Education Team throughout the process, as costs will vary depending on destination.

Students studying in Erasmus+ destinations may be eligible for grants as part of this programme. Students studying outside of this programme may be eligible income dependent bursaries at Keele.

Students travel on a comprehensive Keele University insurance plan, for which there are currently no additional charges. Some Governments and/or universities require additional compulsory health coverage plans; costs for this will be advised during the application process.

Annex B

M.Geology with Work Placement Year

Work Placement Year summary

Students registered for M.Geology may either be admitted for or apply to transfer during their studies to the 'M.Geology with Work Placement Year'. Students accepted onto this programme will have an extra year of study (the Work Placement Year) with a relevant placement provider after they have completed Year 2 (Level 5) at Keele.

Students who successfully complete both the second year (Level 5) and the Work Placement Year will be permitted to progress to Level 6. Students who fail to satisfactorily complete the Work Placement Year will normally revert to the 3-year M.Geology programme and progress to Level 6 on that basis. The failure will be recorded on the student's final transcript.

Study at Level 4, Level 5, Level 6 and Level 7 will be as per the main body of this document. The additional detail contained in this annex will pertain solely to students registered for 'M.Geology with Work Placement Year'.

Work Placement Year Programme Aims

In addition to the programme aims specified in the main body of this document, the Work Placement Year aims to provide students with:

1. the opportunity to carry out a long-term work-based learning experience in the geological sector
2. enhanced employability skills training

Entry Requirements for the Work Placement Year

Admission to the Work Placement Year is subject to successful application, interview and references from appropriate staff. Students have the opportunity to apply directly for the 5-year 'with work placement year' degree programme, or to transfer onto the 5-year programme at the end of Year-1 and in Year-2 at the end of Semester 1. Students who are initially registered for the 5-year degree programme may transfer onto the 3-year degree programme at any point in time, prior to undertaking the year-long work placement. Students who fail to pass the work placement year, and those who fail to meet the minimum requirements of the work placement year module (minimum 30 weeks full time (1,050 hours), or equivalent, work placement), will be automatically transferred onto the 4-year degree programme.

The criteria to be applied are:

- A good University attendance record and be in 'good academic standing'.
- Passed all Year-1 and Year-2 Semester 1 modules with an overall module average of > 60%
- General Aptitude (to be demonstrated by application(s) to relevant placement providers with prior agreement from the Programme Lead, interview during the 2nd semester of year 2 (Level 5), and by recommendation of the student's personal tutor and Programme Lead)
- Students undertaking work placements will be expected to complete a Health and Safety checklist prior to commencing their work experience and will be required to satisfy the Health and Safety regulations of the company or organisation at which they are based.
- (*International students only*) Due to visa requirements, it is not possible for international students who require a Tier 4 Visa to apply for direct entry onto the 4-year with Work Placement Year degree programme. Students wishing to transfer onto this programme should discuss this with student support, the academic tutor for the work placement year, and the Programme Lead. Students should be aware that there are visa implications for this transfer, and it is the student's responsibility to complete any and all necessary processes to be eligible for this programme. There may be additional costs, including applying for a new Visa from outside of the UK for international students associated with a transfer to the work placement programme.

Students may not register for both an International Year (see Annex A) and a Work Placement Year; students registered for 'M.Geology with Work Placement Year' are exempt from studying an International Year.

Student Support

Students will be supported whilst on the Work Placement Year via the following methods:

- Regular contact between the student and a named member of staff who will be assigned to the student as their University supervisor. The University supervisor will be in regular contact with the student throughout the year, and be on hand to provide advice (pastoral or academic) and liaise with the Placement supervisor on the student's behalf if required.
- Two formal contacts with the student during the placement year: the University supervisor will visit the student in their placement organisation at around the 5 weeks after placement has commenced, and then visit again (or conduct a telephone/video call tutorial) at around 15 weeks into the placement.
- Weekly supervision sessions will take place with the placement supervisor (or his/her nominee) throughout the duration of the placement.

Learning Outcomes

In addition to the learning outcomes specified in the main text of the Programme Specification, students who complete 'M.Geology with Work Placement Year' will be able to:

- i) critically evaluate their learning from the work placement
- ii) explain how the professional environmental sector operates and what skills are needed to develop their career
- iii) apply academic theory learnt as part of the taught degree to real situations in the work place
- iv) evaluate their own employability skills (via a SWOT Analysis) and create Intended Learning Outcomes for their placement in order to develop the skills areas which they have identified as being weak or needing further enhancement
- v) develop, through practice in the work place, the work-related skills identified through their SWOT analysis and Intended Learning Outcomes

These learning outcomes will be assessed through the non-credit bearing Work Placement Year Geology module (ESC-30052) which involves:

- i) Mid-Placement Portfolio (SWOT analysis & Action Plan + Evaluation by Host) [30%]
- ii) Final Placement Portfolio (Reflective Diary + Evaluation by Host) [70%]

Course Regulations

Students registered for the 'M.Geology with Work Placement Year' are subject to course specific regulations (if any) and the University regulations. In addition, during the Work Placement Year, the following regulations will apply:

- Students undertaking the Work Placement Year must successfully complete the zero-credit rated 'Work Placement Year (Geology)' module (ESC-30052)
- In order to ensure a high quality placement experience, each placement agency will sign up to a placement contract (analogous to a service level agreement).
- Once a student has been accepted by a placement organisation, the student will make a pre-placement visit and a member of staff identified within the placement contract will be assigned as the placement supervisor. The placement supervisor will be responsible for ensuring that the placement experience meets the agreed contract agreed with the University.

- The placement student will also sign up an agreement outlining his/her responsibilities in relation to the requirements of each organisation.
- If a student chooses to start their work placement prior to the September of their placement year, then the student must ensure that they negotiate time off to attend any relevant field courses and fieldwork. Failure to attend field-courses or undertake fieldwork due to a work placement position will not be considered as exceptional circumstances.
- Students undertaking work placements will be expected to complete a Health and Safety checklist prior to commencing their work experience and will be required to satisfy the Health and Safety regulations of the company or organisation at which they are based.

Students will be expected to behave professionally in terms of:

- (i) conforming to the work practices of the organisation; and
- (ii) remembering that they are representatives of the University and their actions will reflect on the School and have an impact on that organisation's willingness (or otherwise) to remain engaged with the placement.

Additional costs for the Work Placement Year

Tuition fees for students on the Work Placement Year will be charged at 20% of the annual tuition fees for that year of study, as set out in Section 1. The Work Placement Year can be included in your Student Finance allocation; to find out more about your personal eligibility see: www.gov.uk

Students will have to bear the costs of travelling to and from their placement provider, accommodation, food and personal costs. Depending on the placement provider additional costs may include parking permits, travel and transport, suitable clothing, DBS checks, and compulsory health checks.

A small stipend may be available to students from the placement provider during the placement but this will need to be explored on a placement-by-placement basis as some organisations, such as charities, may not have any extra money available. Students should budget with the assumption that their placement will be unpaid.

Eligibility for student finance will depend on the type of placement and whether it is paid or not. If it is paid, this is likely to affect student finance eligibility, however if it is voluntary and therefore unpaid, should not affect student finance eligibility. Students are required to confirm eligibility with their student finance provider.

International students who require a Tier 4 visa should check with the Immigration Compliance team prior to commencing any type of paid placement to ensure that they are not contravening their visa requirements.